Community Integrated Management Plan

Safata District – Upolu



Implementation Guidelines 2018

Foreword

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

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

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

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

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

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

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

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

Thank you

Hon. Fiame Naomi Mata'afa

Minister of Natural Resources and Environment

Participants in the Plan

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

This Plan incorporates the Faipule District of Safata (Fausaga, Fusi, Lotofaga, Mulivai, Nuusuatia, Sa'anapu, Sataoa, Tafitoala and Vaie'e villages).

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

Date of Signing: 22 June 2018

Representative:	Signature:
Fausaga Village	
• Fuga Tupea	416-
Lemusu Paulo	Rucos
Nonufunai Alapati	Materia
Tauvasaiupolu Situa	CB+
Fusi Village	- ofe.M.
Auseugaefa Francis	7700
Faitaua Timani	Jastaca J.

Lotofaga Village

- Lau Pepese
- Lau Faataga

Fafata Sega

Rosita S.

Falefata Uilelea

- Lau Samuelu
- Faima Iopu
- Selina Tokolahi

HAZOS.
STEP.

STEP.

Stille J.

Mulivai Village

- Laulu Taia
- Palepa Toalepai
- Aua Olotu
- Loreta Alesana

- 170-
- Poslepie.
- Aire Obte.
- **3**

Nuusuatia Village

- Pofitu Saalea
- Faamatala Taoa
- Tupai Fiso
- Talosia Sini

- and
- Fino.
- Shi .

Sa'anapu Village

- Mautu Fou
- Laavi Sega
- Vele Pauga
- Aila Lau
- Mama Ioapo

- " An Jon .
 - Lauri Saga
 - Atto.
- Mana

Sataoa Village

- Vaimea Lopi
- Seve Nifo
- Lemafa Asafo Mamoe
- Lemafa Tanielu Pati
- Tagaloasa Fali Tagaloasa

Ropi S.

- lenge
- Medi

Tafitoala Village

- Fagalele Utai
- Avei Sione

Illi:

Fetu Saofai

Afoauli Patolo Afoa

Pese Vaiala Taisala

Der Pasjai.

Diela K.

Vaie'e Village

• Lealaimuna Mapusaga

Saolele Teo

• Malaesilia Lene

Teo Pelema

Homp.

And Den Daniel

The Government of Samoa adopts the Community Integrated Management Plan for the Safata District 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

MNRE

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Acronyms

ASCH	Areas Sensitive to Coastal Hazards
BCA	Benefit Cost Analysis
CBFMP	Community Based Fisheries Management Plan
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
KBA	Key Biodiversity Area
KPI	Key Performance Indicator
LTA	Land Transport Authority
LT0	Long Term Output
MAF	Ministry of Agriculture and Fisheries
MET Office	Meteorological Office
МоН	Ministry of Health
MNRE	Ministry of Natural Resources and Environment
MWCSD	Ministry of Women Community and Social Development
MWTI	Ministry of Work Transport and Infrastructure
NAP	National Action Programme
NBSAP	National Biodiversity Action Plan
NDMP	National Disaster Management Plan
NESP	National Environment Sector Plan
NISP	National Infrastructure Strategic Plan
NRW	Non Revenue Water
PA - KO	Priority Area - Key Outcome
PUMA	Planning Urban Management Agency
PPCR	Pilot Programme Climate Resilience
R2R	Ridge to Reef
SIAM	Samoa Infrastructure Asset Management
SOE	State of Environment
SWA	Samoa Water Authority
UNDP-GEF SGP	United Nations Development Programme Global Environment Facility Small Grants Programme
WB	World Bank
WCR	West Coast Road
WMP	Watershed Management Plan
WSSP	Water Sanitation Sector Plan

Glossary

"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.

Food Security Food security exists when all people, at all times, have physical and economic access to

sufficient, safe and nutritious food that meets their dietary needs and food preferences

for an active and healthy life

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)

Food availability: The availability of sufficient quantities of food of appropriate quality, supplied through

domestic production or imports (including food aid)

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

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

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

Hazard Zones Defined areas which are or are considered likely to be subject to the effects of hazards

over a defined assessment period. In this study, reference is made to six hazard zones:

ASCHs (areas sensitive to coastal hazards);

CEHZs (coastal erosion hazard zones);

CFHZs (coastal flood hazard zones) and

CLHZs (coastal landslip hazard zones)

CIHZ (coastal inundation hazard zones)

- Coastal Inundation 0 to 15mASL - immediate coastal inundation hazard zone

- Coastal Inundation 15 to 20mASL – 5-metre uncertainty buffer on the immediate

coastal inundation hazard zone (due to potential LiDAR inaccuracies)

 Coastal Inundation 20 to 50mASL – additional hazard zone for the purpose of assessing/planning the location of tsunami protection infrastructure beyond the 0-20mAmSL contour. Please note tsunami risk includes 0-20mASL, so tsunami hazard zones need to include the 0-15mASL and 15-20mASL polygons as well as the 20-

50mASL polygon

- Coastal Inundation 50 to 55mASL – 5-metre uncertainty buffer on the tsunami infrastructure hazard zone (due to potential LiDAR inaccuracies)

IFHZ (immediate fluvial hazard zone) within the steep banks of the river gorges

- River bank encroachment control – 5m buffer on either side of river banks

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

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

Lifeline infrastructure: Infrastructure that contributes directly to the survival of the community and its ability

to respond and recover at the time of extreme events.

Secondary infrastructure: Infrastructure that contributes to the every-day development of the community.

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

objectives and policies and provide a framework for the implementation of

defenses and works.

Issue A specific concern regarding both cause and effect.

Land and Resource Use The use of land and resources by the community for social, economic or other benefit

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

such as sand mining, gravel extraction or fishing).

Livelihood Livelihood refers to a person or group's "means of securing the necessities -food, water,

shelter and clothing- of life".

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

predicted standards, levels or outcomes

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

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

adverse effects of hazard.

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

natural processes or hazards.

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

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

due to natural processes.

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

to be affected by, a decision or activity. The term stakeholder may also include interested

parties.

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

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

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

susceptibility and vulnerability is the same.

Vision A desired destiny

1. Introduction to the CIM Plan

1.1 The Strategic Vision

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

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

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

1.2 The Aim of the CIM Plan

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

The CIM Plan will:

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

1.3 Structure of the Plan

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

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

2. Implementation Guidelines

2.1 Purpose of the Implementation Guidelines

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

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

2.2 Duration of the Plan

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

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

2.3 Financing of the Plan

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

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

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

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

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

3. Description of Safata District

3.1 Physical and Natural Resource Setting

The Faipule District of Safata is located on the south western side of the island of Upolu. It includes the villages of Sa'anapu, Sataoa, Lotofaga, Nu'usuatia, Vaie'e, Fusi, Fausaga, Tafitoala and Mulivai. The district is described as a wet climate. The coastal fringing areas are made up of alluvial soils formed from floods and sandy beaches (Dews, 2017).

The District is characterised by a broad plain ranging from two to four kilometres in width, sloping down to the coast from steep inland mountains. The District of Safata is dominated by plantations and mixed cropping with some area supporting cattle and small livestock. The coastal areas have extensive coral reefs, mangrove and wetlands and supports fishing villages that have convenient access to estuaries or beaches (Dews, 2017). A number of rivers and their tributaries cross the plain forming narrow incised river valleys then becoming slower meandering rivers at the coast. The main rivers include the Sataoa Stream, Leafe River, Matalipi River, Nu'usuatia River and the Tafitoala River.

Along the coast a series of sand-spits have formed from east to west enclosing wetland or estuarine areas. The largest of these takes in an area from Tafitoala to Vaie'e, where a break in the sand-spit creates an estuary open to the lagoon. This area is primarily an estuary with mangrove wetland encroaching around its edges. Other similar areas at Mulivai, Sataoa and Sa'anapu are predominantly enclosed mangrove wetlands with less open water. The Sa'anapu and Sataoa wetlands are designated as Mangrove Conservation Areas.

The coast-line of much of Safata is generally a soft, sandy coast. The lagoon varies from 500m in width at Tafitoala to 2.5km at Sa'anapu but there is a wide break in the reef opposite Lotofaga where the Leafe River enters the sea. Sand mining is allowed at designated sites and there are a couple of commercial concrete block operations using sand from the area especially at Sa'anapu and Lotofaga. The community has expressed concern over the commercial sand mining occurring in this district.

Aside from the Mangrove wetlands, plantation and agricultural areas dominate the area. Most of these are located inland from the Main South Coast Road. Replanting of native species such as tava, malili, cordia and asitoa has begun at Nuusuatia to protect the village water supply but these efforts need to be up-scaled in order to be more effective. A number of invasive species were observed especially at previously cultivated lands and a very serious taro disease was found to be affecting many taro plantations in the district (Reti, 2017). Coconut plantations have replaced much of the district vegetation and what remains a highly disturbed secondary forest on steep upland areas. Some native species such as tava, tavai, maota and siapatua were spotted suggesting that these species may have comprised the primary vegetation in the district. The Safata district has lost much of its natural ecosystems due mainly to intensive agricultural development and wind damage. Little pockets of mangrove forests in Saanapu/Sataoa, Fausaga, Fusi and Vaiee are providing benefits to the residents and there is a desire by the villages to ensure the conservation of these areas. (Reti, 2017) Safata district was one of the districts that incurred damages during the 2009 tsunami but there has been some level of local adaptation since then. This includes coastal replanting in some areas of the district and the re-marking of "no-take zones" of the Safata Marine Protected Area. New seawalls were constructed in Sa'anapu and Tafitoala after the tsunami¹.

The Main South Coast Road forms part of Samoa's National Road Network and is kept in good condition, apart from some drainage issues as roads are damaged by heavy rains and inland flooding. The main road has already largely retreated from the coastline and a number of inland roads have been provided. Seven of these access roads² are part of Samoa's National Road Network and are maintained by the Land Transport Authority³. Water levels continue to rise in mangrove wetlands along the coast. Inadequate culverts and roadside drainage are contributing to inland flooding and storm water surges. Any development within the CEHZ or CFHZ should be controlled with structural and building level provisions to enhance resilience. A re-alignment of the Main South Coast Road at Fusi (Mulivai to Lotofoga) may need to be further investigated, as well as a review of catchment water flows along this road as a precursor to upgrading culverts and fords (Townsend, 2017).

¹ GoS. Post-tsunami Sept 2009-June 2011: report

² Fusi, Lotofaga, Nu'usuatia, Sa'anapu, Sataoa, Tafitoala and Vaie'e access roads

³ LTA. Samoa Infrastructure Asset Management Database

3.2 Social and Economic Settings

The Safata district currently has a population of 6,335; Sa'anapu 1,294⁴, Sataoa 1,360⁵, Lotofaga 745, Nu'usuatia 465, Vaie'e 565, Fusi 734, Fausaga 305, Tafitoala 474 and Mulivai 393. Of the total 6,335, total male is 3,273, and female is 3,062⁶.

The main South West Coast Road is considered an important part of the district's infrastructure. The main road extends inland in a southerly direction where it provides lifeline access to the District Hospital located at Fusi, as well as access to neighbouring districts; Siumu to the east and Lefaga and Falease'ela to the west. The district has several schools, churches, shops and some tourist facilities. Primary services such as power and telephone generally follow the main road. The use of mobile cellular phones has overtaken the need for telephone posts/lines however the District Hospital and Schools rely on landlines as their main form of communication. Power and telephone lines along the main road are outside the hazard zones from Sa'anapu village through to Lotofaga village.

Saanapu, Mulivai and Fausaga are the only villages in this district with reticulated water from SWA boreholes and intake. Two SWA boreholes are located in Saanapu-uta servicing Sa'anapu and neighbouring villages of Lefaga and Falease'ela District. Mulivai and Fausaga are serviced by SWA intakes located at Fausaga. The other six villages access water through the Independent Water Scheme. Supply of water is no longer an issue however, communities have complained about the high level of chlorine used in SWA reservoirs; a necessity to treat water supply due to contamination from cattle farms near the boreholes and intakes.

The District supports both primary schools; Fusi Primary School, Lotofaga Primary School, Mulivai Primary School, Sa'anapu Primary School, Sataoa Primary School, Tafitoala Primary School and Vaie'e Primary School, and a large secondary school; Safata College, a number of churches⁷ and a District Hospital. In addition, there are a number of retail shops, small markets and foodstalls throughout the area.

A survey⁸ conducted in 2017 of 25 districts in Savaii and Upolu recorded Safata as the second highest district with income earned from remittances. It gains only 2.9% from businesses even though a large number of local residents run small businesses such as commercial cooking, handicraft, floral arrangement and fabric printing. The products are sold at local and neighbouring district tourist facilities and resorts, or are carted to the markets and shops in Apia. Locals also enjoy employment opportunities at coastal resorts⁹ in Safata and the resorts and in neighbouring districts¹⁰. Other residents work in Apia, approximately 45 minutes' drive from Safata district. In all villages, the majority of residents are largely sustained by plantation work, cattle, piggery and poultry farms and fishing¹¹.

3.3Climate 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 Safata District. The immediate risks for some areas of Safata are from coastal inundation, storm surges and fluvial hazards.

For the entire district there is about 12,160 hectares of land. About 140.8 hectare is in the Tsunami shore exclusion zone (Red zone). There are approximately 1137 buildings in the district with 97 buildings sitting in the shore exclusion zone. Of this 97, 88 buildings are in the high risk category being located in the coastal flooding, erosion and red zone areas. Women's Committee houses tend to be included in the buildings sitting in the high risk areas. Approximately 81% of the district is located in "safe" areas so the option of relocating buildings and assets away from the coast should be encouraged. The Watershed Management Riparian Zone is a 20m buffer on either side of the river banks. Healthy riparian areas are vital to the health of stream ecosystems and the entire watershed as well. Many of the threats to rivers and streams are directly related to physical changes to these areas and loss of vegetation. It is therefore recommended that a topographic and geomorphological assessment be carried out first if construction of any infrastructure is proposed within this buffer zone (Tokalauvere, 2018).

⁴ Saanapu Tai = 239; Saanapu Uta - 1,191

⁵ Sataoa Tai = 239; Sataoa Uta = 1,121

⁶ Samoa Bureau of Statistics, 2016 Preliminary Census

⁷ CCCS; Sa'anapu, CCCS, Methodist, AOG & LDS; Sataoa, CCCS, Methodist, LDS; Lotofaga, Methodist, LDS; Nu'usuatia, CCCS; Vaie'e, Methodist, Catholic, SDA, LDS, AOG; Fusi, CCCS, Methodist; Fausaga, CCCS, Catholic; Tafitoala, Catholic; Mulivai

⁸ MNRE (EWACC Project) Community Disaster and Climate Risk Management Household survey: final report 2017

⁹ Virgin Cove Resort; Sa'anapu, Mangrove Garden Restaurant and Accommodation; Sa'anapu, Sataoa Beach Fales; Sataoa,

¹⁰ S'Moana Surf Resort; Salamumu, Matareva Beach Fales; Lefaga, Return to Paradise Beach Resort; Lefaga, Coconuts Beach Resort; Maninoa Siumu, Sinalei Reef Resort; Siumu

¹¹ Village Profile of Upolu Island 2013, Ministry of Women, Community and Social Development

Evacuation shelters need to be located in areas that are not at risk from coastal hazard zones and fluvial hazards. The Lotofaga Primary, Sataoa Primary, Mulivai Primary, and Saanapu Primary schools are not located in any hazard zones and can therefore be utilised as evacuation shelters. However, all these schools need to be upgraded and retrofitted to be cyclone and flood proof. This district has villages that sit in and within floodplains, for example Mulivai, Lotofaga, Nu'usuatia have several fluvial hazard zones running from the back of the villages towards the shore. Inadequate or non-existent drainage exacerbates inland flooding during and after heavy rainfall (Tokalauvere, 2018).

The coastline in Safata is oriented to the south and is subject to the strong south-east trade and ocean swells. It is partially protected by a large lagoon. But it has openings in the fringe/barrier reefs and during extreme weather events the coast is exposed to extensive damages.¹² There are certain parts of the road in Nu'usuatia and Fusi/Fausaga that are rated as medium severity in the coastal hazard index¹³. There are also certain coastal areas of Safata eroding at a much faster rate due to human influence. Sand mining is a major contributor to such cause, and it is evident that it disrupts the coastal sediment flow. The major issue that the district experiences particularly during extreme events is inland flooding. This matter is exacerbated due to inadequate road structures and drainage systems. Storm water runoff from further upland is noticed to pond on streets and main road as culverts are either blocked or are not established within the area.

Due to the variation in landscape and topography, soil types, aspect to prevailing winds and the extent of development that has altered the land formation within the district, it is difficult to predict, with any precision, impacts from climate change within any given livelihood activity at the local level. Resilience is supported by maximizing crop and livestock production while not impacting on the natural ecosystem and the environmental serves derived from the ecosystem. There appears to be some low-lying areas along the coast that have been inundated with salt water. Some area of low lands has been altered to the extend some wetlands are indicating high levels of pollutants (Dews, 2017).

 $^{^{\}rm 12}$ Management Plan for TDA 2 South Upolu, Samoa Tourism Authority, 2015

¹³ Vulnerability Assessment of the Samoa Road Network (2016) and Road Network Adaptation Strategy, LTA

4. Safata District Interventions

CIM Plan Solutions

CIM Plan Sol				
Infrastructure	Best Solutions	Benefits	Guideline to assist with the Implementation	Relevant Sector Plans, National Strategies & Policies
Drainage systems require maintenance and upgrade in high risk areas of main South West Coast Road	Assess and upgrade culverts on main South West Coast road especially at junctions with access roads (Vaie'e Access Road, Fusi Access Road, Lotofaga School Road, Sata Road, Sataoauta Road and	Improves climate resilience of infrastructure resilience and rate of response and recovery to natural hazards and disasters	Use existing information for guidance but not limited to: "Vulnerability Assessment of the Samoa Road Network (2017)"; "Review of National Road Standards in Samoa (2016)"; "Samoa Code of Environmental Practice (2007)"	CIM Strategy 2015 TSP2014-2019 Goal 2 KO 1
	Saanapu Access Road) sitting within combined hazard zones in accordance with Vulnerability Assessment of the Samoa Road Network	Encourages coastal families to relocate inland Maintains lifeline access for all of	Undertake a Cost Benefit Analysis to weigh options for funding Incorporate environmental and social safeguards concerns in the	
	recommendations Implement national	Upolu Minimises national	design and undertake consultations with affected communities Apply for necessary permits as	
	standards for culverts and drains to facilitate the overland flow of storm water and reduce flooding	disaster recovery expenditure on damaged properties, public and private assets	required by law Utilise hazard maps and Geomorphologist Infrastructure	
	Implement regular drainage inspection and maintenance	and private assets	Drainage Database to inform designs Develop Integrated Catchment Strategy and Flood Management Plan for Anoama'a East District	
	Responsibility: LTA /MWTI/MWCSD /Village/ Families		Develop and register District/Village bylaws to include maintenance of drainages and illegal rubbish dumping into waterways	
Slope stabilization and road armouring to avoid landslips and erosions	Implement slope stabilization at most vulnerable landslide area identified in the Vulnerability Assessment of	Improve infrastructure resilience and rate of recovery	Utilise hazard maps and Geomorphologist Drainage Infrastructure Database to inform designs	CIM Strategy 2015 Transport Sector Plan 2014-2019 Goal 2
and crosions	the Samoa Road Network Reduce sediment loads and loss of top soil by discouraging farming on steep slopes and keeping	Climate proof national road network Improve preparedness	Implement Safata District Integrated Catchment Strategy and Flood Management Plan in conjunction with Geomorphologist Drainage Infrastructure Database findings	Vulnerability Assessment of the Samoa Road Network (2016) and Road Network Adaptation Strategy, LTA
	livestock in areas away from wetlands and watershed sites	and readiness response to natural disasters	Utilise environmental and social safeguards including EIAs in screening and designing built environment infrastructure	
	Government, Village and landowners to liaise and collaborate on processes needed to protect upland	Reduce impact from coastal erosion and landslides	projects for Anoama'a East district Include in budget programming CBA, design and construction	
	catchment area, riverbanks from land clearing and developments	Maintain lifeline access for all of Anoama'a East	Designation of the IFHZ, CEHZ and CFHZ as an "at risk" zone with appropriate landuse planning controls and restrictions	

	Responsibility: LTA/MWTI/ MNRE/ Villages	Safer villages, houses and roads		
		Minimise national disaster recovery expenditure on damaged properties, public and private assets		
Upgrade access/ work roads	Assess and upgrade access/work roads (Vaie'e,	Improve infrastructure	Utilise hazard maps and Geomorphologist Drainage	CIM Strategy 2015
World	Fusi, Nuusuatia, Lotofaga, Sata, Sataoauta and Saanapu access roads) and Mulivai ford to reduce inland flooding Upgrades to include adequate sized culverts to facilitate the overland flow of storm water exacerbating	resilience and rate of recovery Improve preparedness and readiness response to natural disasters Reduce impact from coastal	Infrastructure Database to inform designs Develop an integrated land management plan with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area	TSP 2014-2019 Goal 2 KO 1 Community Sector Plan
	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/	erosion and natural disasters Safer villages, houses and roads Minimise national disaster recovery expenditure on damaged properties and public assets	Designation of the IFHZ, CEHZ and CFHZ as an "at risk" zone with appropriate landuse planning controls and restrictions Utilise environmental and social safeguards including EIAs in screening and designing built environment infrastructure projects for Safata district	
Flood protection	Villages/Families Upgrade waterways	Minimise	Conduct a full catchment	CIM Strategy 2015
measures for fords and bridges	Upgrade all crossings Upgrade or repair riverine embankment protection work upstream	expenditure on damaged properties & personal assets Mitigate potential damage from	management, drainage analysis and geotechnical engineering survey and use its recommendations to inform location and designs Implement Safata Integrated	TSP 2014-2019 Goal 2 KO 1 Vulnerability Assessment of the Samoa Road Network
	Ensure river channel upstream is cleared and	inland flooding	Catchment Strategy and Flood Management Plan in conjunction with	(2016) and Road Network Adaptation

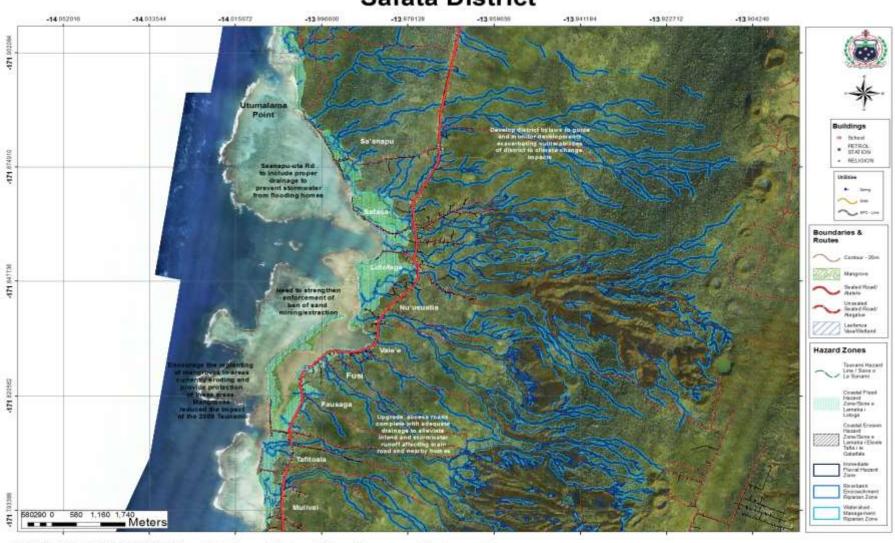
	maintained regularly Construct levees to reduce flooding along estuaries and coastal streams Install advisory edge markers and depth markers to warn vehicle and pedestrians at all crossings Government and Villages to liaise and collaborate on processes needed to protect riverbanks from land clearing and developments Responsibility: MWTI/LTA/MNRE/District/Village	Reduce flooding of built up areas Safer villages, houses and roads	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 local flooding from increased rainfall intensity Designation of the CEHZ and CFHZ as an "at risk" zone with appropriate landuse planning controls and restrictions	Strategy, LTA
Tafitoala/ Fausaga Hydroelectric Power Station	Monitor health of rivers in district to ensure no oil leaks from power station enter watercourses and waterways	Reduce contamination of water supply Improve preparedness and readiness response to natural disasters	Utilise DRM maps and Geomorphologist Drainage Infrastructure Database to inform location Utilise environmental and social safeguards including EIAs in screening and designing infrastructure facilities	Energy Sector Plan PUMA Act
Electricity supply	Install and connect power supply for inland residents Relocate overhead lines to a more resilient location when 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	Maintain electricity supply at all times including natural disasters Avoid accidents from fallen electricity posts.	Monitor distribution networks to avoid overloading poles and contributing to line failures	EPC Strategic Plan

Environment District Upland Forest and Catchment Areas Enforce Watershed Management Riparian Zone and Riverbank Encroachment Control and regulate developments around the upland area Adopt agro-forestry and community tree farming practices instead of clear Enforce Watershed Management Riparian Zone enhance local species diversity Encroachment Control and regulate developments Adopt agro-forestry and community tree farming practices instead of clear Protects and Protects and enhance local strategy and Flood Management Plan for Safata District. MNRE to develop zonation strategy for safe areas Sector Pla Develop an integrated land management plan with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of Community	ant Sector Plans,
Forest and Catchment Areas Management Riparian Zone and Riverbank Encroachment Control and regulate developments around the upland area Adopt agro-forestry and community tree farming practices instead of clear felling as is practiced at present Encourage planting of indigenous species in conjunction with engineered water land drainage action plans Regulate developments around catchment area, SWA intake and boreholes in district Limit land clearance and agricultural development Adopt agro-forestry and community tree farming practices instead of clear felling as is practiced at present Reduce contamination of water supply Reduce impact from inland flooding AMNRE 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 Develop and register 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	
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)	es t NESP 2017-2021 er and Sanitation or Plan 10 Year stment (2016)

Mangrove Conservation Areas and Marine Protected Areas	invasive animals to protect young trees Responsibility: MNRE/SWA/MWCSD/ District /Village /CSSP Undertake an assessment of tidal flow necessary to maintain a healthy natural environment Limit land clearance and developments adjacent to wetland areas Continue to plant native species along coastal areas to reduce erosion and landslips. To act as an effective wave barrier, a minimum distance of 200m of vegetation is needed Village to fence off domestic animals foraging in wetland areas Responsibility: MNRE / Village /CSSP/ UNDP-GEF SGP/ MWTI	Protects and enhance local species diversity Sustains ecosystem services and functions Reduce contamination of water supply Reduce impact from inland flooding	MNRE DEC to provide technical assistance and backstopping in the development of a Wetland Management Plan for Va'a o Fonoti District Identify funding /budget requirements and implementation programme to continue protection of mangrove/wetland areas in district	Draft NESP 2017-2021 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 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	Strategies, Plans and Policies	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

Safata District Map

Safata District



Coordinate System: GCS WGS 1984 Datum: WGS 1984

Units: Degree

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

4.1 Fausaga Village Interventions

CIM Plan Solutions

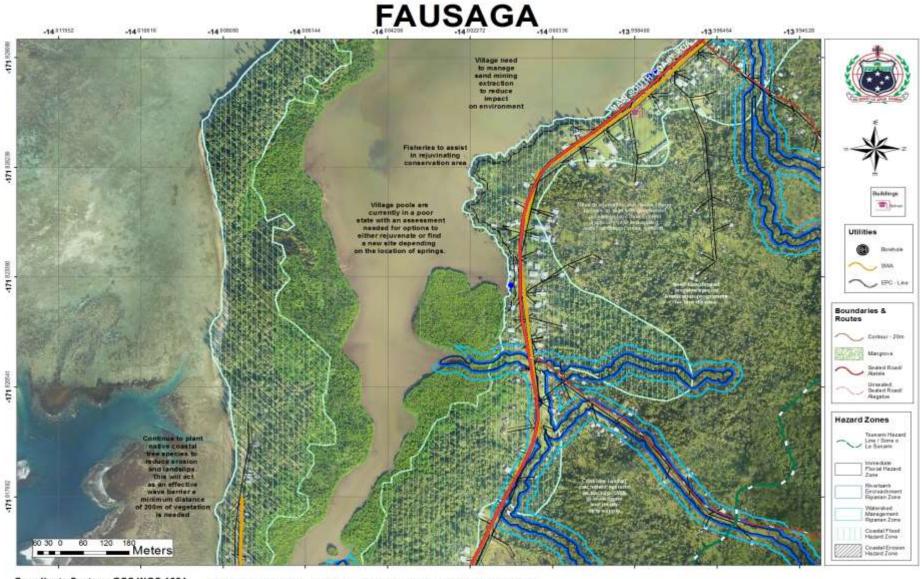
CIM Plan So				
Infrastructure	Best Solutions	Benefits	Guideline to assist with the Implementation	Relevant Sector Plans, National Strategies & Policies
Village houses, village pool, churches and government assets located in high risk hazard zones	Relocate outside of high risk hazard zones when building/infrastructure requires replacement Investments within the hazard zones to adopt appropriate mitigation measures Develop landuse planning and development controls 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 designs for at risk communities living in and near high risk hazard zones Families and village to limit building and developing on natural overland flow paths exacerbating inland flooding and storm water surges Government and Village to liaise and collaborate on processes needed to protect riverbanks and coastline from land clearing and developments Responsibility: Village / Families/MWTI/ MNRE/MWCSD	Minimise expenditure on damaged properties and personal assets Mitigate potential damage from coastal erosion and flooding accommodating the hazard Safer villages, houses and roads	Planning provisions to be guided by the PUMA Act 2004 Enforcement of National Building Code 2017 Encourage insurance of significant investments and assets within hazard zones Utilise updated hazard maps and Geomorphologist Drainage Infrastructure Database to inform policy development and possible relocation of assets Designation of the IFHZ, CEHZ and CFHZ as an "at risk" zone with appropriate landuse planning controls and restrictions	CIM Strategy 2015 National Building Code

7. 1. 11				
Upgrade village	Upgrades to include	Improve	Utilise hazard maps and	CIM Strategy 2015
roads and	adequate sized culverts to	infrastructure	Geomorphologist Drainage	TCD 2014 2010 Cool 2
drainages to	facilitate the overland flow of storm water	resilience and	Infrastructure Database to	TSP 2014-2019 Goal 2 KO 1
reduce stormwater	exacerbating river	rate of recovery	inform designs	KO I
runoff and	overruns, and to reduce	Improve	Develop an integrated land	Community Sector Plan
inland flooding	flooding onto main roads	preparedness and	management plan with the	Community Sector Flan
illiand nooding	and village lands	readiness	aim of reducing any	
	and vinage lands	response to	unnecessary actions that	
	Implement regular	natural disasters	may adversely affect the	
	drainage inspection and		natural habitats and	
	maintenance	Reduce impact	ecosystems of the area	
		from coastal		
	Village to restrict rubbish	erosion and	Designation of the IFHZ,	
	dumping into waterways	natural disasters	CEHZ and CFHZ as an "at	
	and conduct regular		risk" zone with appropriate	
	clearance of rubbish	Safer villages,	landuse planning controls	
	behind homes	houses and roads	and restrictions	
	Village to regulate	Minimise national		
	developments near and	disaster recovery		
	around road shoulders of	expenditure on	Utilise environmental and	
	all access roads	damaged	social safeguards including	
		properties and	EIAs in screening and	
	Enforce environmental	public assets	designing built environment	
	safeguards		infrastructure projects for Safata district	
	Where reclamations are			
	proposed, Government and			
	district to manage			
	processes by requiring			
	villagers to get the			
	appropriate permits and			
	consent			
	Responsibility: MWTI/			
	MNRE/ Villages			
	/Families			
Natural	Best Solutions	Benefits	Guideline to assist with the	Relevant Sector Plans.
Resources and			Implementation	National Strategies &
Environment				Policies
Soft coastal	Plant native species along	Soft coastal	Develop an integrated land	NESP 2017-2021
protection	coastal areas to strengthen	protection	management plan for Safata	
measures	existing seawall and to	measures will	district with the aim of	Two Million Tree
needed for most	reduce coastal erosion and	support and	reducing any unnecessary	Planting Strategy 2015-
vulnerable areas		strengthen	actions that may adversely	2020
	Togatogo are known to	existing and new	affect the natural habitats	D
	have greater resilience to	infrastructure	and ecosystems of the area	Restoration Operational
	natural disasters and	along the coast	MAE to againt in	Plan 2016-2020
	changing climate conditions	Reduce impact from	MAF to assist in establishment of pilot sites to	Forestry Management
	Conditions	coastal erosion and	trial climate ready plant	Forestry Management Act 2011
	To act as an effective wave	natural disasters	varieties	1100 2011
	barrier, a minimum	natarar arousters	, all lottes	
	distance of 200m of	Implements an	MNRE Forestry, DEC and	
	vegetation is needed	Ecosystem Based	MAF to collaborate on	
		Approach	supply of climate resilient	
	Responsibility: MNRE/ MAF/Villages	= =	crops	

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Village pool	Village pool is currently in a poor state with an	Increase adaptation during	Utilise Hazard Maps and	CIM Strategy 2015
located in high	assessment needed for	drought periods	Geomorphologist findings to inform location and design	Community Engagement
(coastal erosion	options to either rejuvenate	urought perious	illioriii location and design	Plan
	or find a new site depending	Improve health	MNRE Water & Sanitation	1 Idii
fluvial	on the location of springs	and sanitation	to conduct water testing	
inundation, wave	on the second of the second		and analysis of village pool	
impacts and		Reduce	prior to any intervention	
storm surges)		contamination of		
	Test the quality of the water	water supply	Update Village bylaws to	
	source before any further investment on the pool is		include managing and	
	undertaken (eg:		maintaining village natural	
	fence/repair works)		resources	
	lence, repair works,		Utilise Sui o Nu'u monthly	
	Responsibility: MoF-CSSP/		meetings to monitor progress	
	MNRE/Villages		of village programmes and	
			responsibilities	
Livelihood and	Best Solutions	Benefits	Guideline to assist with the	Relevant Sector Plans,
Food Security			Implementation	National Strategies &
				Policies
Pest	Implement an eradication	Maintains	Develop an integrated land	Agriculture Sector Plan
management :	programme to eradicate, contain or exclude	natural	management plan for Anoama'a East district with	2016-2021
invasive plants	invasive species	ecosystem	the aim of reducing any	
	ilivasive species		unnecessary actions that	
			may adversely affect the	Draft NESP 2017-2021
	Replant with climate	Builds resilience	natural habitats and	2101011201 2011 2021
	resilient native species	of community	ecosystems of the area	
	_	livelihood and		
		food security		
	Implement an inventory of		MAF to raise awareness of	Samoa's National
	invasive species and		farmers on impacts to water	Invasive Species Action
	include information on		flows from poor livestock	Plan (NISAP)
	their past, present and potential future		management	
	distribution, as well as			
	impacts and possible			
	actions that can be taken		MAF to assist in	
			establishment of pilot sites to	
			trial climate ready plant	
			varieties	
	Conduct education and			
	awareness programmes on			
	the impacts of invasive		MNRE Forestry, DEC and	
	species		MAF to collaborate on	
			supply of climate resilient	
			crops	
	Implement the Integrated		•	
	Pest Management			
	Programme			
			MNRE, MAF and SROS to	
			implement aggressive,	
	Implement Custainable		nationwide invasive species	
	Implement Sustainable Land Management (SLM)		eradication programme based on inventory of	
	practices		invasive species and conduct	
	practices		campaign on public	
			awareness accordingly	
	ı			

	Build the capacity of farmers to manage stray animals (pigs, cattle) that are contaminating water sources District to fence domestic animals		Village to manage pig/cattle population (compounds, in particular around water supplies) Training for farmers on pests management particularly affecting fruit trees and crops	
	Responsibility: Villages/District/ MNRE/MAF/ SROS			
Governance	Best Solutions	Other Benefits	Implementation Guideline	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

Fausaga Village Map



Coordinate System: GCS WGS 1984 Datum: WGS 1984

Units: Degree

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

4.2 Fusi Village Interventions

CIM Plan Solutions

CIM Plan Solutions				
Infrastructure	Best Solutions	Benefits	Guideline to assist with the Implementation	Relevant National, Sector Plans and Strategies
Village houses,	Relocate outside of high	Minimise	Develop an Integrated	National Building Code
women's	risk hazard zones when	expenditure on	Catchment and Flood	
committee house,	O,	damaged	Management Strategy for	CIM Strategy 2015
church, store,	requires replacement	properties &	Safata District. MNRE to	
government	I	personal assets	develop zonation strategy for	
assets, tourism development and	Investments within the	Mitigata	safe areas	
a pool in CEHZ	hazard zones to adopt appropriate mitigation	Mitigate potential damage	Utilise hazard maps and	
and CFHZ	measures	from coastal	Geomorphologist Drainage	
una di 112	measures	erosion and	Infrastructure Database to	
	Conduct awareness raising	flooding	inform designs	
	campaign on flood resilient	accommodating	S	
	building practices and	the hazard	Enforcement of National	
	designs for at risk		Building Code 2017	
	communities living in and	Improve	-	
	near high risk hazard	recovery to	Encourage insurance of	
	zones	create more	significant investments and assets within hazard zones	
	Design infrastructure to	resilient villages	assets within hazard zones	
	take into account the	Improve	Designation of the IFHZ, CEHZ	
	immediate hazard zones;	preparedness	and CFHZ as an "at risk" zone	
	for example, raise floor	and readiness	with appropriate landuse	
	levels of houses in flood	response to	planning controls and	
	prone areas	natural disasters	restrictions	
	Develop landuse planning	Safer villages,		
	and development controls	houses and roads		
	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			
	surges			
	Where reclamations are			
	proposed, Government and			
	district to manage processes			
	by requiring villagers to get the appropriate permits and			
	consent			
	Responsibility: Village /			
	Families /MWTI/ MNRE			

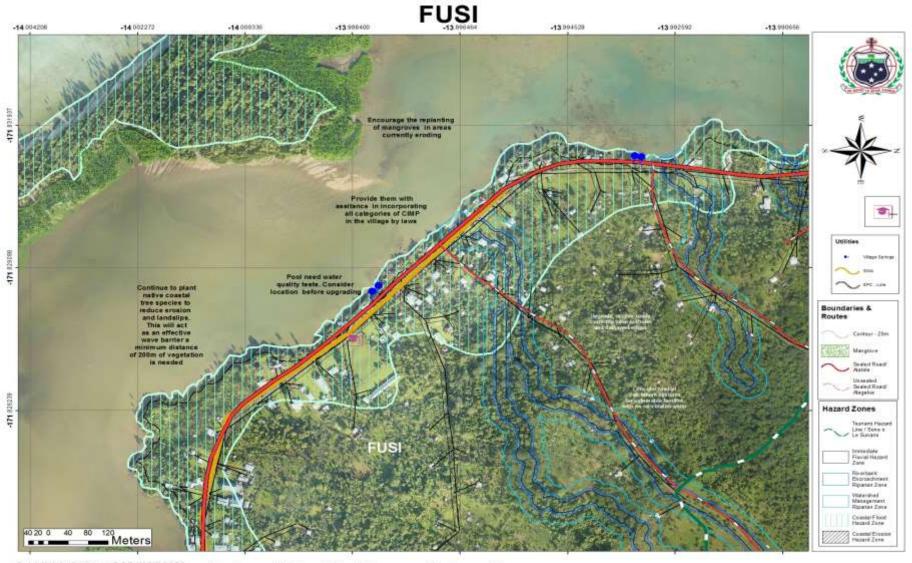
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Upgrade new	Assess and upgrade Fusi	Improve	Utilise hazard maps and	CIM Strategy 2015
inland access/	Access Road as potential	infrastructure	Geomorphologist Drainage	TCD2014 2010 C 12
work roads to	escape route and to	resilience and	Infrastructure Database to	TSP2014-2019 Goal 2
facilitate	encourage relocation	rate of recovery	inform location and designs	KO 1
relocation of	away from hazard zones	T	Develop an Integrated Flood	Community Coston Dlan
houses away	He and do to in alledo	Improve	Develop an Integrated Flood	Community Sector Plan
from hazard	Upgrade to include	preparedness	Management Plan for Safata	
zones	adequate sized culverts to facilitate the overland flow	and readiness	District. MNRE to develop zonation strategy for safe areas	
	of storm water	response to natural disasters	zonation strategy for safe areas	
	exacerbating river	ilaturai uisasters	Develop an integrated land	
	overruns, and to reduce	Reduce impact	management plan with the	
	flooding onto main roads	from coastal	aim of reducing any	
	and village lands	erosion and	unnecessary actions that may	
	una vinage ianas	natural disasters	adversely affect the natural	
	Implement regular	naturar disasters	habitats and ecosystems of	
	drainage inspection and	Safer villages,	the area	
	maintenance	houses and roads	the area	
	mameemanee	nouses and roads	Include in budget	
	Village to restrict rubbish	Minimise	programming CBA, design and	
	dumping into waterways	national disaster	construction. Road design	
	and conduct regular	recovery	standard to take account of	
	clearance of rubbish behind	expenditure on	forecast increased rainfall	
	homes	damaged	intensity	
		properties and	ř	
	Village to regulate	public assets	Designation of the IFHZ, CEHZ	
	developments near and	•	and CFHZ as an "at risk" zone	
	around road shoulders of		with appropriate landuse	
	all access roads		planning controls and	
			restrictions	
	Enforce environmental			
	safeguards		Develop and register Village	
			bylaws to include	
	Where reclamations are		maintenance of drainages and	
	proposed, Government and		illegal rubbish dumping into	
	district to manage processes		waterways	
	by requiring villagers to get		,	
	the appropriate permits and		Utilise Sui o Nu'u monthly	
	consent		meetings to monitor progress	
			of village cleanup and	
	Responsibility: LTA/		awareness programmes	
	MWTI/MNRE/District/			
Dotioulata J	Village /Families/CSSP	Ingnocas	Davidan and resister	CIM Ctroto 2015
Reticulated	Extend the water supply to families inland with no	Increase	Develop and register	CIM Strategy 2015
water supply,		adaptation during drought periods	District/Village bylaws to include regulating	Water and Sanitation
quality and network to be	access to water	urougiit perious	developments around	Sector Plan
improved	Procure rainwater	Improve	catchment areas and	Sector Fidil
improved	harvesting systems for	infrastructure	boreholes	SWA 10 Year
	vulnerable families as a	resilience and	DOI CHOICS	Investment Plan
	short term solution	rate of recovery	Implement SWA (2016) 10	(2016)
		Tate of recovery	year investment plan to	
	Procure rainwater	Improve health	improve water supply	Community
	harvesting systems for	and sanitation	network to support all inland	Engagement Plan
	identified evacuation		families without access to	5 5
	shelter(s)	Reduce	drinking water	
	D	contamination	3	
	District and village to	of water supply	Include in budget	
	support SWA water	·7	0	

	rationing programmes during times of drought District to support SWA efforts at exploratory boreholes in district District and villages to support SWA efforts at protecting and conserving boreholes, intakes and catchment areas Responsibility: SWA/MWCSP/MNRE/District/Village/CSSP	Reduce impact from inland flooding	programming design, and extension costs of water supply and procurement of rainwater harvesting systems Utilise hazard maps and Geomorphologist findings to inform designs Utilise Sui o Nu'u monthly meetings to monitor progress of village programmes and responsibilities	
Natural Resources and Environment	Best Solutions	Benefits	Implementation	Relevant Sector Plans, National Strategies & Policies
Soft coastal protection measures needed for most vulnerable areas	Plant native species along coastal areas to strengthen existing seawall and to reduce coastal erosion and landslips; Talie, Fetau, Toa, Togatogo are known to have greater resilience to natural disasters and changing climate conditions To act as an effective wave barrier, a minimum distance of 200m of vegetation is needed Responsibility: MNRE Villages	infrastructure along the coast Reduce impact from coastal	Develop an integrated land management plan for Safata district with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area MAF to assist in establishment of pilot sites to trial climate ready plant varieties MNRE Forestry, DEC and MAF to collaborate on supply of climate resilient crops	NESP 2017-2021 Two Million Tree Planting Strategy 2015-2020 Restoration Operational Plan 2016-2020 Forestry Management Act 2011
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)	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 UpdateVillage bylaws to include managing and maintaining village natural resources	CIM Strategy 2015 Community Engagement Plan

	Responsibility: CSSP/ NGOs/MNRE/Villages		Utilise Sui o Nu'u monthly meetings to monitor progress of village programmes and responsibilities	
Marine resources depletion	Assess feasibility of creating a marine reserve for village as backup, alternative food supply Village to restock marine reserve with suitable species Continue to ban the use of dynamites, herbal poisons (ava niukini), chemicals and other unsustainable fishing methods including sand mining and extraction Research improved inshore fishery resources that are resilient to climate change Village to provide fencing for domestic animals to prevent waste contaminating marine reserve Responsibility: MNRE /MAF/ Village / CSSP/ UNDP-GEF SGP	enhance local species diversity Maintains natural	MAF and MNRE DEC and CC to provide technical assistance and backstopping in the assessment and establishment of a marine reserve for village 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 Village to seek funding to establish marine reserve MAF to raise awareness of farmers on impacts to water flows from poor livestock management	Draft NESP 2016-2020 Community Engagement Plan Agriculture Sector Plan 2016-2021

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	Strategies, Plans and Policies	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

Fusi Village Map



Coordinate System: GCS WGS 1984 Datum: WGS 1984

Units: Degree

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

4.3 Lotofaga Village Interventions

CIM Plan Solutions

Infrastructure		Donofita	Cuidalina ta casiat with	Dolovont National
Infrastructure	Best Solutions	Benefits	Guideline to assist with the Implementation	Relevant National, Sector Plans and Strategies
Drainage systems to be improved in high risk areas especially at junction of South West Coast Road and Lotofaga Access Road exacerbating inland flooding and storm water surges	Continue to assess and upgrade culverts on main and 'access' roads in district and widen 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 Introduce culverts in wetland areas to improve tidal flow and fish passage in the wetland area Implement regular drainage inspection and maintenance Government to regulate developments and illegal rubbish dumping near and around waterways and drainage Responsibility: LTA/MWTI/MNRE/MWCSD/Village/Families	resilience of infrastructure resilience and rate of response and recovery to natural hazards and disasters Encourages coastal families to relocate inland Maintains lifeline access for all of Upolu Minimises national disaster recovery expenditure on damaged	Utilise hazard maps and Geomorphologist Drainage Infrastructure Database to inform design 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)" Develop Integrated Catchment Strategy and Flood Management Plan for Safata District Undertake a Cost Benefit Analysis to weigh options for funding Utilise environmental and social safeguards including EIAs in screening and designing built environment infrastructure projects Include in budget programming CBA, design and construction Develop and register District/Village bylaws to include maintenance of drainages and illegal rubbish	CIM Strategy 2015 TSP 2014-2019 Goal 2 KO 1
Natural	Best Solutions	Benefits		Relevant Sector Plans,
Resources and Environment			_	National Strategies & Policies
Soft coastal protection measures needed for most vulnerable areas	Plant native species along coastal areas to strengthen existing seawall and to reduce coastal erosion and landslips; Talie, Fetau, Toa, Togatogo are known to have greater resilience to natural disasters and changing climate conditions	Soft coastal protection measures will support and strengthen existing and new infrastructure along the coast Reduce impact from coastal	Develop an integrated land management plan for Safata 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	Restoration Operational Plan 2016- 2020
	To act as an effective wave	II OIII COastal	ready plant varieurs	Forestry Management

	hamian a minimum	oversion and		A at 2011
Village pool	barrier, a minimum distance of 200m of vegetation is needed Responsibility: MNRE Villages Village pool is currently in a	erosion and natural disasters Implements an Ecosystem Based Approach	MNRE Forestry, DEC and MAF to collaborate on supply of climate resilient crops Utilise Hazard Maps and	Act 2011 CIM Strategy 2015
located in high risk hazard zones (coastal erosion and flooding from fluvial inundation, wave impacts and storm surges)	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	adaptation during drought periods Improve health and sanitation Reduce contamination of water supply	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
	Identify alternative sustainable sources of sand/rocks for domestic use Research the impacts of sand mining Village consultation on sand mining policy and regulation Village and government to collaborate closely on designated areas for sand/rock mining Raise awareness and support of sustainable land use practices Responsibility: MNRE/Village/Families	Mitigate potential damage from coastal erosion and flooding accommodating the hazard Safer villages, houses and roads Reduce impact from coastal erosion Economic benefit for village from sustainable sand mining activities	MNRE to continue to identify specific sites for inshore/inland sustainable sand/rock mining to meet demand without compromising riverbanks Undertake assessments of identified sites Undertake consultation with villages affected by proposed sand/rock mining Develop and register District bylaws to include managing and monitoring domestic sand/rock mining of rivers Utilise Sui o Nu'u monthly meetings to monitor progress of CIM Plan activities	Draft Soil Resource Management Bill
Livelihood and Food Security	Best Solutions	Benefits	Implementation	Relevant Sector Plans, National Strategies & Policies
Pest management; invasive species (african snails and worms affecting	Implement an eradication programme to eradicate, contain or exclude invasive species	Maintains natural ecosystem	Develop an integrated land management plan for Safata district with the aim of reducing any unnecessary	AgricultureSectorPlan2 016-2021 Draft NESP 2017-2021
taro plantations)	Replant with climate	Builds resilience of	actions that may adversely affect the natural habitats and	Samoa's National

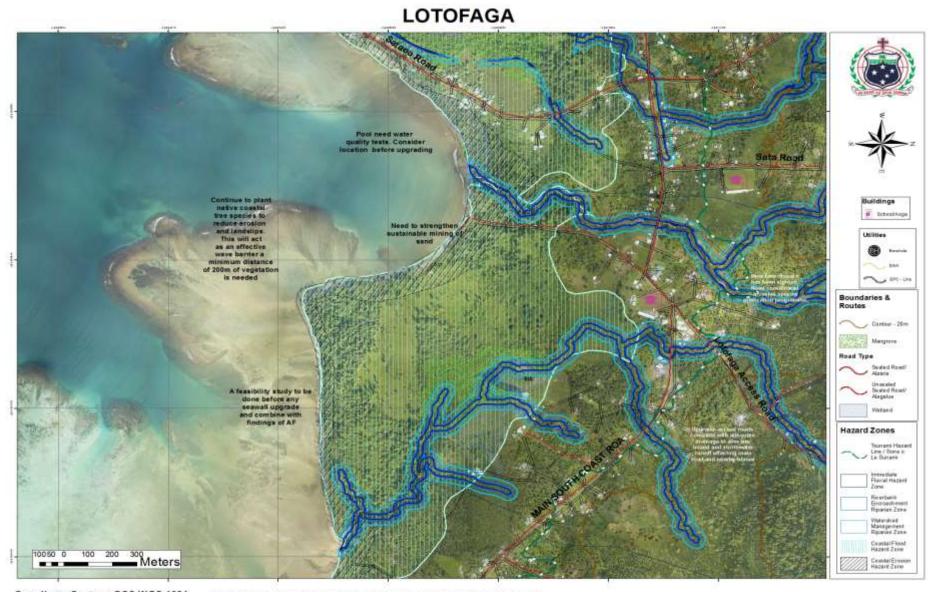
resilient native species	community livelihood and	ecosystems of the area	Invasive Species Action Plan (NISAP)
Implement an inventory of		MAF to raise awareness of	Tian (Nishir)
invasive species and		farmers on impacts to water	
include information on		flows from poor livestock	
their past, present and potential future		management	
distribution, as well as		MAF to assist in establishment	
impacts and possible		of pilot sites to trial climate	
actions that can be taken		ready plant varieties	
Conduct education and		MNRE Forestry, DEC and	
awareness programmes of	1	MAF to collaborate on supply	
the impacts of invasive species		of climate resilient crops	
Implement the Integrated		MNRE, MAF and SROS to	
Pest Management		implement aggressive,	
Programme		nationwide invasive species	
Implement Sustainable		eradication programme	
Land Management (SLM)		based on inventory of	
practices		invasive species and conduct campaign on public	
		awareness accordingly	
Build the capacity of			
farmers to manage stray		Village to manage pig/cattle	
animals (pigs, cattle) that		population (compounds, in	
are contaminating water sources		particular around water	
Sources		supplies)	
Conduct pilot site trials		Training for farmers on	
for climate ready plant		pests management	
varieties		particularly affecting fruit	
District to fence domestic		trees and crops	
animals			
Responsibility: Villages			
/District/ MNRE/MAF/			
SROS			

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





Lotofaga Village Map



Coordinate System: GCS WGS 1984 Datum: WGS 1984

Units: Degree

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

4.4 Mulivai Village Interventions

CIM Plan Solutions

CIM Plan Solutions				
Infrastructure	Best Solutions	Benefits	Guideline to assist with the Implementation	Relevant National, Sector Plans and Strategies
Village houses, and road 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 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 Where reclamations are proposed, Government and district to manage processes by requiring villagers to get the appropriate permits and consent	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 Safata 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	Strategies National Building Code
	Responsibility: Village / Families /MWTI/ MNRE			

Upgrade inland	Assess and upgrade access	Improve	Utilise hazard maps and	CIM Strategy 2015
access/ work	roads as potential escape	infrastructure	Geomorphologist Drainage	CIM Strategy 2015
roads to	route and to encourage	resilience and rate	Infrastructure Database to	TSP2014-2019 Goal
facilitate	relocation away from	of recovery	inform location and designs	2 KO 1
relocation of	hazard zones			
houses away		Improve	Develop an Integrated Flood	Community Sector
from hazard	Upgrade to include	preparedness and	Management Plan for Safata	Plan
zones	adequate sized culverts to facilitate the overland flow	readiness response to natural disasters	District. MNRE to develop	
	of storm water	to natural disasters	zonation strategy for safe areas	
	exacerbating river	Reduce impact	Develop an integrated land	
	overruns, and to reduce	from coastal	management plan with the	
	flooding onto main roads	erosion and	aim of reducing any	
	and village lands	natural disasters	unnecessary actions that may	
		0.6 11	adversely affect the natural	
	Implement regular drainage inspection and	Safer villages, houses and roads	habitats and ecosystems of the	
	maintenance	nouses and roads	area	
	manitenance	Minimise national	Include in budget programming	
	Village to restrict rubbish	disaster recovery	CBA, design and construction.	
	dumping into waterways	expenditure on	Road design standard to take	
	and conduct regular	damaged	account of forecast increased	
	clearance of rubbish behind	properties and	rainfall intensity	
	homes	public assets	Designation of the IFHZ, CEHZ	
	Village to regulate		and CFHZ as an "at risk" zone	
	developments near and		with appropriate landuse	
	around road shoulders of all		planning controls and	
	access roads		restrictions	
	Enforce environmental		Develop and register Village	
	safeguards		bylaws to include	
	Where reclamations are		maintenance of drainages and	
	proposed, Government and		illegal rubbish dumping into	
	district to manage processes		waterways	
	by requiring villagers to get		Utilise Sui o Nu'u monthly	
	the appropriate permits and		meetings to monitor progress	
	consent		of village cleanup and	
	Deenoneikilitus I TA /		awareness programmes	
	Responsibility: LTA/ MWTI/ MNRE/ District/			
	Village /Families/CSSP			
Reticulated	Extend the water supply to	Increase adaptation	Develop and register	CIM Strategy 2015
water supply,	families inland with no	during drought	District/Village bylaws to	5 ,
quality and	access to water	periods	include regulating	Water and
network to be	Procure rainwater	Ť	developments around	Sanitation Sector
improved	harvesting systems for	Improve infrastructure	catchment areas and boreholes	Plan
	vulnerable families as a	resilience and	DOI CHOICS	SWA 10 Year
	short term solution	rate of recovery	Implement SWA (2016) 10	Investment Plan
			year investment plan to	(2016)
	Procure rainwater	Improve health	improve water supply	
	harvesting systems for identified evacuation	and sanitation	network to support all inland	Community
	shelter(s)	D I	families without access to	Engagement Plan
	Sheller (3)	Reduce	drinking water	
	District and village to	contamination of water supply	Include in budget programming	
	support SWA water	water suppry	merade in budget programming	

storm surges)	source before any further investment on the pool is undertaken (eg: fence/repair works)	contamination of water supply	Update Village bylaws to include managing and maintaining village natural resources	
(coastal erosion	options to either rejuvenate or find a new site depending on the location of springs. Test the quality of the water	Improve health and sanitation Reduce	MNRE Water & Sanitation to conduct water testing and analysis of village pool prior to any intervention	Engagement Plan
Village pool located in high risk hazard zones	Village pool is currently in a poor state with an assessment needed for	Increase adaptation during drought periods	Utilise Hazard Maps and Geomorphologist findings for planning purposes	CIM Strategy 2015 Community
Resources and Environment			Implementation	National Strategies & Policies
Natural	Best Solutions	Benefits	Guideline to assist with the	Relevant Sector Plans
	Responsibility: EPC/ MWTI/ Village/ Families			
	Families to limit building and developments near electricity posts			
	Install and connect to solar power supply if made available			
	Install streetlights along the roads where needed for community safety			
	Relocate overhead lines to a more resilient location when being replaced	Avoid accidents from fallen electricity posts		
	Install and connect power supply for inland residents	at all times including natural disasters	overloading poles and contributing to line failures	
Electricity supply	Provide underground lines in the long term	Maintain electricity supply	Monitor distribution networks to avoid	EPC Strategic Plan
	Responsibility: SWA/ IWS/MWCSD/ MNRE / District/ Village/ CSSP			
	boreholes, intakes and catchment areas		meetings to monitor progress of village programmes and responsibilities	
	District and villages to support SWA efforts at protecting and conserving		inform designs Utilise Sui o Nu'u monthly	
	boreholes in district		Utilise hazard maps and Geomorphologist findings to	
	District to support SWA efforts at exploratory	from inland flooding	procurement of rainwater harvesting systems	
	rationing programmes during times of drought	Reduce impact	design, and extension costs of water supply and	

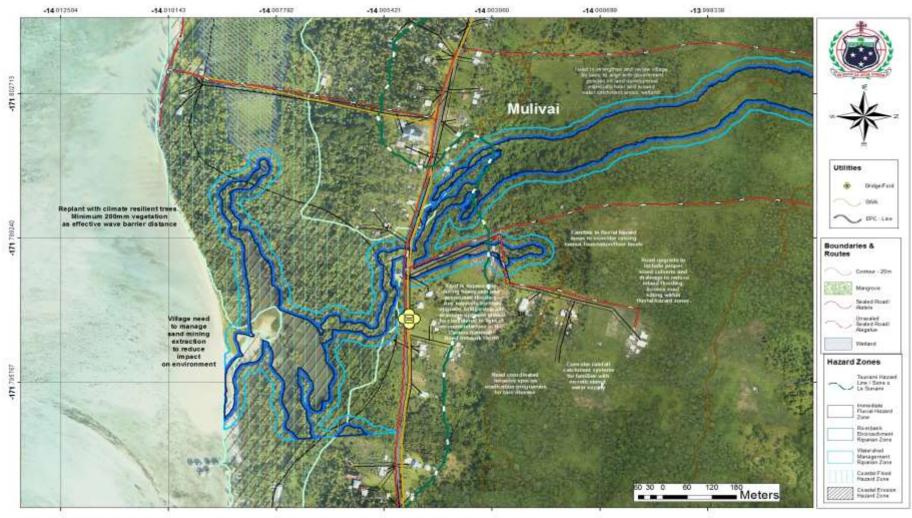
	Responsibility: CSSP/ NGOs/MNRE/Villages		Utilise Sui o Nu'u monthly meetings to monitor progress of village programmes and responsibilities	
Mangrove Conservation Areas and nearshore marine resources	Research new species found in mangrove area Undertake an assessment of tidal flow necessary to maintain a healthy natural environment Limit land clearance and developments adjacent to wetland areas Continue to plant native species along coastal areas to reduce erosion and landslips. To act as an effective wave barrier, a minimum distance of 200m of vegetation is needed Village to fence off domestic animals foraging in wetland areas Responsibility: MNRE / Village /CSSP/ UNDP-GEF	Protects and enhance local species diversity Sustains ecosystem services and functions Reduce contamination of water supply Reduce impact from inland flooding	MNRE DEC to provide technical assistance and backstopping in the development of a Wetland Management Plan for Safata District Identify funding /budget requirements and implementation programme to continue protection of mangrove/wetland areas in district	Draft NESP 2017-2021 Community Engagement Plan
Livelihood and Food Security	SGP/ MWTI Best Solutions	Benefits	Implementation	Relevant Sector Plans, National
Pest management; invasive species (african snails, crown-of-thorns, and worms affecting plantations and vegetable gardens)	Implement an eradication programme to eradicate, contain or exclude invasive species Replant with climate resilient native species Implement an inventory of invasive species and include information on their past, present and potential future distribution, as well as impacts and possible actions that can be taken Conduct education and awareness programmes on the impacts of invasive species Implement the Integrated Pest Management Programme	Maintains natural ecosystem Builds resilience of community livelihood and food security	Develop an integrated land management plan for Safata district with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area MAF to raise awareness of farmers on impacts to water flows from poor livestock management MAF to assist in establishment of pilot sites to trial climate ready plant varieties MNRE Forestry, DEC and MAF to collaborate on supply of climate resilient crops MNRE, MAF and SROS to implement aggressive, nationwide invasive species eradication programme based	AgricultureSectorPla n2016-2021 Draft NESP 2017-2021 Samoa's National Invasive Species Action Plan (NISAP)

	Implement Sustainable Land Management (SLM) practices Build the capacity of farmers to manage stray animals (pigs, cattle) that are contaminating water sources Conduct pilot site trials for climate ready plant varieties District to fence domestic animals Responsibility: Villages / District / MNRE/MAF/SROS		on inventory of invasive species and conduct campaign on public awareness accordingly Village to manage pig/cattle population (compounds, in particular around water supplies) Training for farmers on pests management particularly affecting fruit trees and crops	
Governance	Best Solutions	Benefits	Guideline to assist with the Implementation	Relevant Sector Plans, National
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
Cattle farm and pigs sties Responsibility: SWA/Village/ Landowner	Village council and landowners to resolve	Not a CR issue however, due to unfenced cattle and pigs damaging the environment there is concern with contamination of nearby waterways and subsequent overflow into mangrove area

Mulivai Village Map

MULIVAI



Coordinate System: GCS WGS 1984 Datum: WGS 1984

Units: Degree

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

4.5. Nu'usuatia Village Interventions

CIM Plan Solutions

Infrastructure	Best Solutions	Benefits	Guideline to assist with the	Relevant National,
mirastructure	Dest solutions	bellents	Implementation	Sector Plans and Strategies
Village houses, and road 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 Where reclamations are proposed, Government and district to manage processes by requiring villagers to get the appropriate permits and consent	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 Safata 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
	Responsibility: Village / Families /MWTI/ MNRE			

Extension of	Assess whether proposed	Improve	Utilise hazard maps and	CIM Strategy 2015
existing road to	road will encroach into	infrastructure	Geomorphologist Drainage	CIM Strategy 2013
ridge as escape	catchment and wetland	resilience and	Infrastructure Database to	National Disaster
route and to	areas	rate of recovery	inform design	Management Plan
encourage		_	_	2017-2021
relocation of	Assess and upgrade	Improve	Include in budget	
houses away	approved access roads to	preparedness	programming CBA, design and	Community Sector Plan
from hazard	include adequate sized	and readiness	construction. Road design	
zones	culverts to facilitate the	response to	standard to take account of	
	overland flow of storm	natural disasters	forecast changes in sea level	
	water and reduce flooding	n i .	rise and increased rainfall	
	onto main roads and neighbouring families and	Reduce impact from coastal	intensity	
	villages	erosion and	Designation of the IFHZ, CEHZ	
	Villages	natural disasters	and CFHZ as an "at risk" zone	
	Implement regular	natarar arsasters	with appropriate landuse	
	drainage inspection and	Safer villages,	planning controls and	
	maintenance	houses and roads	restrictions	
	Village to restrict rubbish	Minimise	Develop and register	
	dumping into waterways	national disaster	District/Village bylaws to	
	and conduct regular	recovery	include maintenance of	
	clearance of rubbish behind homes	expenditure on	drainages and illegal rubbish	
	beiling nomes	damaged properties and	dumping into waterways	
	Village to regulate	public assets	The state of the s	
	developments near and	public ussets	Utilise Sui o Nu'u monthly	
	around road shoulders of		meetings to monitor progress of village cleanup and	
	all access roads		awareness programmes	
			awareness programmes	
	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/			
TI 1	Village /Families	3.61		CINC DOAF
Flood protection measures; IWS	Village to upgrade reservoir	Minimise expenditure on	Conduct a full catchment management, drainage	CIM Strategy 2015
reservoir:	1 CSCI VUII	damaged	analysis and geotechnical	Community
blocked with silt	Clear sand deposition	properties &	engineering survey and use	Sector Plan
	and ensure river channel	personal assets	its recommendations to	
	is cleared and maintained	-	inform location and designs	
	regularly	Mitigate potential		
		damage from	Implement Safata Integrated	
	Upgrade or repair	inland flooding	Catchment Strategy and Flood	
	riverine embankment	Doduga flag 3:	Management Plan in	
	protection work	Reduce flooding of built up areas	conjunction with hazard Maps and Geomorphologist Drainage	
	upstream	of built up areas	Infrastructure Database to	
	Ensure river channel	Safer villages,	inform location and design	
	upstream is cleared and	houses and roads		
	maintained regularly		Utilise environmental and	
			social safeguards including	
	Conduct riparian		EIAs in screening and	

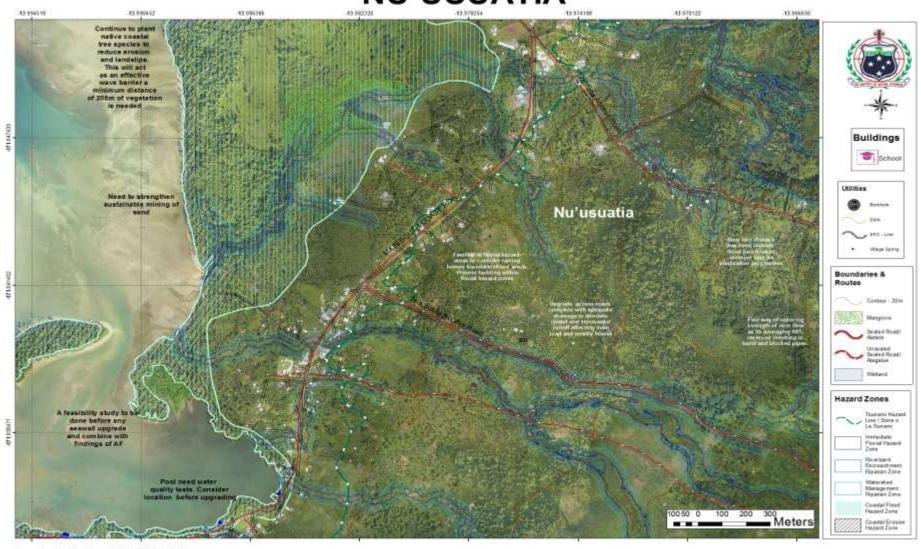
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	replanting along river channels and watercourses Encourage planting of indigenous species in conjunction with engineered water land drainage action plans Government and Villages to liaise and collaborate on processes needed to protect riverbanks from land clearing and developments Responsibility: MWTI/LTA/MNRE/District/Village		designing infrastructure facilities 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	
Natural Resources and Environment	Best Solutions	Benefits	Implementation	Relevant Sector Plans, National Strategies & Policies
Wetland areas threatened by developments, stormwater runoff and inland flooding	Undertake an assessment of tidal flow necessary to maintain a healthy natural environment Limit land clearance and developments adjacent to wetland areas Continue to plant native species along coastal areas to reduce erosion and landslips. To act as an effective wave barrier, a minimum distance of 200m of vegetation is needed Village to fence off domestic animals foraging in wetland areas Responsibility: MNRE / Village /CSSP/ UNDP-GEF SGP/ MVI	Protects and enhance local species diversity Sustains ecosystem services and functions Reduce contamination of water supply Reduce impact from inland flooding	MNRE DEC to provide technical assistance and backstopping in the development of a Wetland Management Plan for Safata District Identify funding /budget requirements and implementation programme to continue protection of mangrove/wetland areas in district	Draft NESP 2017-2021 Community Engagement Plan
Livelihood and Food Security	Best Solutions	Benefits	Implementation	Relevant Sector Plans, National Strategies & Policies
Pest management; invasive species (african snails,	Implement an eradication programme to eradicate, contain or exclude invasive species	natural ecosystem	Develop an integrated land management plan for Safata district with the aim of reducing any unnecessary	AgricultureSectorPlan2 016-2021 Draft NESP 2017-2021
myna birds, and worms affecting taro plantations	Replant with climate resilient native species	Builds resilience of community livelihood and	actions that may adversely affect the natural habitats and ecosystems of the area	Samoa's National Invasive Species Action

and vegetable		food security		Plan (NISAP)
gardens)	Implement an inventory of		MAF to raise awareness of	. (.)
	invasive species and		farmers on impacts to water	
	include information on		flows from poor livestock	
	their past, present and		management	
	potential future distribution, as well as		MAF to assist in establishment	
	impacts and possible		of pilot sites to trial climate	
	actions that can be taken		ready plant varieties	
			r i	
	Conduct education and		MNRE Forestry, DEC and MAF	
	awareness programmes on		to collaborate on supply of	
	the impacts of invasive		climate resilient crops	
	species		MNRE, MAF and SROS to	
	Implement the Integrated		implement aggressive,	
	Pest Management		nationwide invasive species	
	Programme		eradication programme based	
			on inventory of invasive	
	Implement Sustainable		species and conduct campaign	
	Land Management (SLM)		on public awareness	
	practices		accordingly	
	Build the capacity of		Village to manage pig/cattle	
	farmers to manage stray		population (compounds, in	
	animals (pigs, cattle) that		particular around water	
	are contaminating water		supplies)	
	sources			
	Conduct vilat site twists		Training for farmers on pests	
	Conduct pilot site trials for climate ready plant		management particularly affecting fruit trees and crops	
	varieties		anecting if the trees and crops	
	V 4.1 10 4.0 5			
	District to fence domestic			
	animals			
	D 4144 1741			
	Responsibility: Villages /District/ MNRE/MAF/			
	SROS			
Governance	Best Solutions	Benefits	Guideline to assist with the	Relevant Sector Plans,
			Implementation	National Strategies &
		_		Policies
Strengthen the	Update and/or develop	Strengthen	Develop and register	Village Fono Act
governance of natural	bylaws to manage the use of natural resources, and	implementation of all national	district/village bylaw to protect all district/ village and	(Amendment Bill 2016)
resources and	to control land use	sector plans	government assets,	2010)
land use	impacts; such as drainage	cector pians	environment, livelihood and	Community Sector
through bylaws	maintenance, rubbish	Strengthen	food security especially	Plan
	dumping, sand mining,	monitoring of all	activities affecting water	
	stray animals and	National Acts,	catchment areas and coastline	Community
	unregulated	Regulation,	Tielle C e M d e e e	Development Plan
	developments in water catchment areas and near	Strategies, Plans and Policies	Utilise Sui o Nu'u monthly	2016-2021
	boreholes.	and roncies	meetings to monitor progress of district/village bylaws	
	501 01101001	Improve ability of		
	Collaborate with Sui o	communities to		
	Nuu to monitor the use of	adapt, respond		
	and impact on natural	and recover		

resources	quickly in the
	long term
Facilitate continuous	
awareness raising	Improve
programs with the villages	
	and enabling
Responsibility: MWCSD	environment of
/Village	communities

Nu'usuatia Village Map

NU'USUATIA



Coordinate System: GCS WGS 1984 Datum: WGS 1984

Units: Degree

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

4.6. Sa'anapu Village Interventions

CIM Plan Solutions

Infrastrustura		Domofita	Cuidolino to casist suith	Dolovout National
Infrastructure	Best Solutions	Benefits	Guideline to assist with the Implementation	Relevant National, Sector Plans and Strategies
Village houses	Relocate outside of high	Minimise	Develop an Integrated	National Building Code
and other assets	risk hazard zones when	expenditure on	Catchment and Flood	Tractional Bullating code
in high risk	building/infrastructure	damaged	Management Strategy for	CIM Strategy 2015
hazard zones	requires replacement	properties &	Safata District. MNRE to	Civi Strategy 2015
nazara zones	requires replacement	personal assets	develop zonation strategy for	
	Investments within the	personal assets	safe areas	
	hazard zones to adopt	Mitigate	sare areas	
	appropriate mitigation	potential damage	Utilise hazard maps and	
	measures	from coastal	Geomorphologist Drainage	
	ineasures	erosion and	Infrastructure Database to	
	Conduct awareness raising	flooding	inform designs	
	campaign on flood	accommodating	morm designs	
	resilient building practices	the hazard	Enforcement of National	
	and designs for at risk	the hazara	Building Code 2017	
	communities living in and	Improve	Building Gode 2017	
	near high risk hazard	recovery to	Encourage insurance of	
	zones	create more	significant investments and	
	Zones	resilient villages	assets within hazard zones	
	Design infrastructure to	resilient villages	assets within hazard zones	
	take into account the	Improve	Designation of the IFHZ,	
	immediate hazard zones;	preparedness	CEHZ and CFHZ as an "at	
	for example, raise floor	and readiness	risk" zone with appropriate	
	levels of houses in flood	response to	landuse planning controls	
	prone areas	natural disasters	and restrictions	
	profic areas	naturai disasters	and restrictions	
	Develop landuse planning	Safer villages,		
	and development controls	houses and roads		
	to restrict developments	nouses and rougs		
	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			
	Where reclamations are			
	proposed, Government and			
	1 2 2			
	district to manage			
	processes by requiring			
	villagers to get the appropriate permits and			
	consent			

	Responsibility: Village / Families /MWTI/ MNRE			
Drainage	Assess and upgrade	Improves climate	Use existing information for	CIM Strategy 2015
systems require	culverts on main South	resilience of	guidance but not limited to:	
maintenance	Coast road especially at	infrastructure	"Vulnerability Assessment of	TSP2014-2019 Goal 2
and upgrade in	junctions with access roads	resilience and	the Samoa Road Network	KO 1
high risk areas	(Saanapu Uta Road) in	rate of response	(2017)"; "Review of	
of main South	accordance with	and recovery to	National Road Standards in	
West Coast Road	2	natural hazards	Samoa (2016)"; "Samoa	
where it joins	the Samoa Road Network	and disasters	Code of Environmental	
existing	recommendations		Practice (2007)"	
access road	Investor and the state of the	Encourages		
	Implement national standards for culverts and	coastal families to relocate inland	Undertake a Cost Benefit	
	drains to facilitate the	relocate illianu	Analysis to weigh options	
	overland flow of storm	Maintains lifeline	for funding	
	water and reduce flooding			
	water and reduce nooding	Upolu	Incorporate environmental	
	Implement regular	ороги	and social safeguards	
	drainage inspection and	Minimises	concerns in the design and	
	maintenance	national disaster	undertake consultations	
		recovery	with affected communities	
	Responsibility: LTA	expenditure on	Apply for necessary permits	
	/MWTI/MWCSD	damaged	as required by law	
	/Village/ Families	properties, public		
		and private	Utilise hazard maps and	
		assets	Geomorphologist	
			Infrastructure Drainage	
			Database to inform designs	
			Develop Integrated	
			Catchment Strategy and	
			Flood Management Plan for	
Natural Natural	Best Solutions	Benefits	Safata District Guideline to assist with the	Dolovant Coctor Dlanc
Resources and	Dest Solutions	Delients		National Strategies &
Environment				Policies
Effluent and	Introduce ban on latrines	Increase		National Waste
wastewater	established in and around	adaptation during		Management Strategy
management	fluvial hazard zones	extreme weather	aim of reducing any	Tranagement strategy
systems	114 141 114141 4 201160	events	unnecessary actions that	
	Families in fluvial hazard		may adversely affect the	
	zones to install proper	Improve	natural habitats and	
	septic waste disposal	infrastructure	ecosystems of the area	
	systems	resilience and	-	
		rate of recovery	Review wastewater	
	Families to fence domestic		strategy/ legislation to	
	animals	Improve health	include role of	
		and sanitation	Village/District bylaws	
	Implement village	D 1	D 1 /// 1 :	
	awareness and cleanup	Reduce	Develop/Update and	
	programme to reduce	contamination of	register District/Village	
	illegal rubbish dumping	water supply	bylaws to include regulating developments	
	Implement district/village		and latrines around	
	implement district/ village		and lati lifes al bullu	

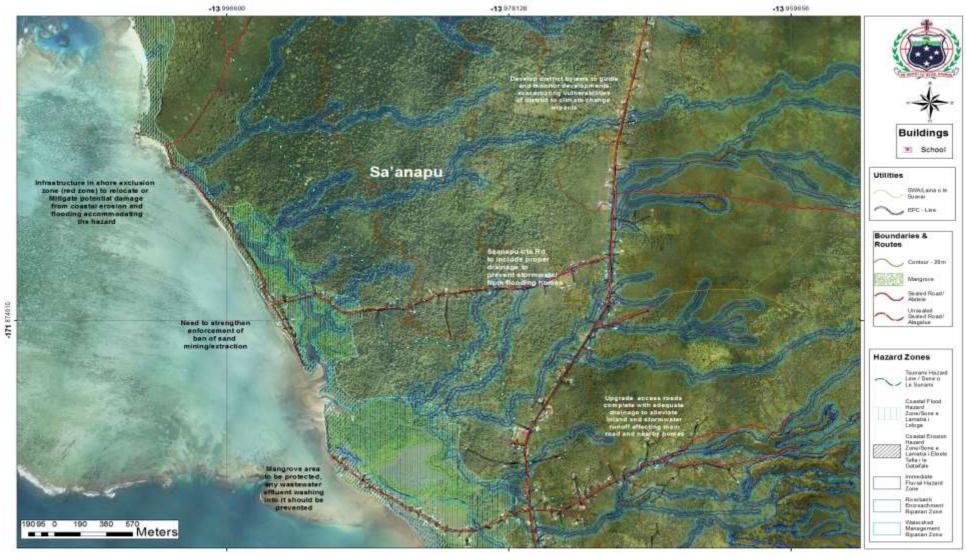
r				
	drainage cleanup and		catchment areas and areas	
	awareness programme		susceptible to flooding	
	Produce posters and village		Utilise Hazard maps and	
	signs for public awareness		Geomorphologist findings to	
	signs for public awareness		inform location	
	Responsibility: MNRE/		inioi in iocacion	
	MWCSD/ District/		Utilise Sui o Nu'u monthly	
	Village		meetings to monitor	
	vinage		_	
			progress of village	
			programmes on waste	
711 1 11:1	T 1 ('11	т	management	NI . I VAZ
Illegal rubbish	Implement village	Increase	1 0	National Waste
dumping in	awareness and cleanup	adaptation during	management plan with the	Management Strategy
riverbanks,	programme to reduce	extreme weather	aim of reducing any	
watercourses	illegal rubbish dumping	events	unnecessary actions that	
and roadsides			may adversely affect the	
within fluvial	Implement district/village	Improve	natural habitats and	
hazard zones	drainage cleanup and	infrastructure	ecosystems of the area	
	awareness programme	resilience and		
		rate of recovery	Review wastewater	
	Produce posters and village		strategy/ legislation to	
	signs for public awareness	Improve health	include role of	
		and sanitation	Village/District bylaws	
	Responsibility: MNRE/			
	MWCSD/ District/	Reduce	Utilise Hazard maps and	
	Village	contamination of	Geomorphologist findings to	
		water supply	inform location	
			Utilise Sui o Nu'u monthly	
			meetings to monitor	
			progress of village	
			programmes on waste	
			management	
Village pool	Village pool is currently in a	Increase	Utilise Hazard Maps and	CIM Strategy 2015
located in high	poor state with an	adaptation	Geomorphologist findings for	
	assessment needed for	during drought	planning purposes	Community Engagement
(coastal erosion	options to either rejuvenate	periods		Plan
_	or find a new site depending		MNRE Water & Sanitation	
fluvial	on the location of springs.	Improve health	to conduct water testing	
inundation, wave	_	and sanitation	and analysis of village pool	
impacts and storm	Test the quality of the water		prior to any intervention	
surges)	source before any further	Reduce		
	investment on the pool is	contamination of	Update Village bylaws to	
	undertaken (eg:	water supply	include managing and	
	fence/repair works)	-	maintaining village natural	
	n		resources	
	Responsibility: CSSP/			
	NGOs/MNRE/Villages		Utilise Sui o Nu'u monthly	
			meetings to monitor	
			progress of village	
			programmes and	
			responsibilities	

Wetland/ Mangrove areas threatened by developments, stormwater runoff and inland flooding	Undertake an assessment of tidal flow necessary to maintain a healthy natural environment Limit land clearance and developments adjacent to wetland areas Continue to plant native species along coastal areas to reduce erosion and landslips. To act as an effective wave barrier, a minimum distance of 200m of vegetation is needed Village to fence off domestic animals foraging in wetland areas Responsibility: MNRE / Village /CSSP/ UNDP-GEF SGP/ MWTI	Protects and enhance local species diversity Sustains ecosystem services and functions Reduce contamination of water supply Reduce impact from inland flooding	MNRE DEC to provide technical assistance and backstopping in the development of a Wetland Management Plan for Safata District Identify funding /budget requirements and implementation programme to continue protection of mangrove/wetland areas in district	Draft NESP 2017-2021 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 bylaw	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
Streetlights not working Responsibility: Village /Families/EPC	Village families to report problem directly to EPC.	Not a CR issue. This issue was recorded by EPC staff during consultations

Sa'anapu Village Map

SA'ANAPU



Coordinate System: GCS WGS 1984

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

4.7. Sataoa Village Interventions

CIM Plan Solutions

Infrastructure	Best Solutions	Benefits	Guideline to assist with the	Relevant National,
mirastructure	best solutions	bellents	Implementation	Sector Plans and Strategies
pre- school, church, road etc and beach fales in CEHZ and CFHZ	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 Where reclamations are proposed, Government and district to manage processes by requiring villagers to get the appropriate permits and consent 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 Safata 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

Drainage	Assess and upgrade	Improves climate	Use existing information for	CIM Strategy 2015
systems require	culverts on main South	resilience of	guidance but not limited to:	CIM Strategy 2013
maintenance	West Coast road especially	infrastructure	"Vulnerability Assessment of	TSP2014-2019 Goal 2 KO
and upgrade in	at junctions with access	resilience and	the Samoa Road Network	1
high risk areas	roads (Sataoa Road) in	rate of response	(2017)"; "Review of National	
of main South	accordance with	and recovery to	Road Standards in Samoa	
West Coast Road	Vulnerability Assessment of	natural hazards	(2016)"; "Samoa Code of	
where it joins	the Samoa Road Network	and disasters	Environmental Practice	
Sataoa Access	recommendations	_	(2007)"	
road		Encourages	(2007)	
	Implement national standards for culverts	coastal families to relocate inland	Undertake a Cost Benefit	
	and drains to facilitate the	relocate iniand	Analysis to weigh options for	
	overland flow of storm	Maintains lifeline	funding	
	water and reduce	access for all of		
	flooding	Upolu	Incorporate environmental	
	3	- F	and social safeguards	
	Implement regular	Minimises	concerns in the design and undertake consultations with	
	drainage inspection and	national disaster	affected communities	
	maintenance	recovery	anected communities	
		expenditure on	Apply for necessary permits	
	Responsibility: LTA	damaged	as required by law	
	/MWTI/MWCSD	properties, public		
	/Village/ Families	and private assets	Utilise hazard maps and	
			Geomorphologist	
			Infrastructure Drainage	
			Database to inform designs	
			Develop Integrated Catchment	
			Strategy and Flood	
			Management Plan for Safata	
			District	
Upgrade Sataoa	Assess and upgrade	Improve	Utilise hazard maps and	CIM Strategy 2015
Access Road to	approved access roads to	infrastructure resilience and	Geomorphologist Drainage Infrastructure Database to	National Disaster
encourage relocation away	include adequate sized culverts to facilitate the	rate of recovery	inform design	Management Plan 2017-
from hazard	overland flow of storm	rate of recovery	illioi ili desigli	2021
zones and to	water and reduce flooding	Improve		2021
reduce	onto main roads and	preparedness	Designation of the IFHZ,	Community Sector Plan
stormwater	neighbouring families and	and readiness	CEHZ and CFHZ as an "at	.,
runoff	villages	response to	risk" zone with appropriate landuse planning controls	
		natural disasters	and restrictions	
	Implement regular			
	drainage inspection and	Reduce impact	D 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
	maintenance	from coastal	Develop and register	
	Village to restrict rubbish	erosion and natural disasters	District/Village bylaws to include maintenance of	
	dumping into waterways	natural disasters	drainages and illegal rubbish	
	and conduct regular	Safer villages,	dumping into waterways	
	clearance of rubbish	houses and roads		
	behind homes		Utilise Sui o Nu'u monthly	
		Minimise	meetings to monitor	
	Village to regulate	national disaster	progress of village cleanup	
	developments near and	recovery	and awareness programmes	
	around road shoulders of	expenditure on		
	all access roads	damaged		
		properties and		

	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	public assets		
Natural Resources and Environment	Best Solutions	Benefits		National Strategies & Policies
Deforestation for agricultural developments, cattle farms etc has exacerbated flooding from catchment area into village and eventually into mangrove areas	Enforce Watershed Management Riparian Zone and Riverbank Encroachment Control and regulate developments around the upland area Adopt agro-forestry and community tree farming practices instead of clear felling as is practiced at present 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 Government, district and villages to monitor, report and apply penalty on offenders Continue ban of destructive fishing practices including sand mining and introduce village ban on rubbish	Protects and enhance local species diversity Sustains ecosystem services and functions Reduce contamination of water supply Reduce impact from inland flooding Improve preparedness and readiness response to natural disasters Safer villages, houses and roads	Develop Integrated Catchment Strategy and Flood Management Plan for Safata 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 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	

Wetland/ Mangrove areas threatened by developments, stormwater runoff and inland flooding	dumping in waterways and watercourses (immediate fluvial hazard zones) Fence domestic and invasive animals to protect young trees Responsibility: MNRE/SWA/MWCSD/District/Village/CSSP Undertake an assessment of tidal flow necessary to maintain a healthy natural environment Limit land clearance and developments adjacent to wetland areas Continue to plant native species along coastal areas to reduce erosion and landslips. To act as an effective wave barrier, a minimum distance of 200m of vegetation is needed Village to fence off domestic animals foraging in wetland areas Responsibility: MNRE / Village /CSSP/ UNDP-GEF	Protects and enhance local species diversity Sustains ecosystem services and functions Reduce contamination of water supply Reduce impact from inland flooding	MNRE DEC to provide technical assistance and backstopping in the development of a Wetland Management Plan for Safata District Identify funding /budget requirements and implementation programme to continue protection of mangrove/wetland areas in district	Draft NESP 2017-2021 Community Engagement Plan
Livelihood and Food Security	SGP/ MWTI Best Solutions	Benefits	Guideline to assist with the Implementation	Relevant Sector Plans, National Strategies & Policie
Pest management; invasive species (african snails, myna birds, and worms affecting taro plantations and vegetable gardens)	Implement an eradication programme to eradicate, contain or exclude invasive species Replant with climate resilient native species Implement an inventory of invasive species and include information on their past, present and potential future distribution, as well as impacts and possible actions that can be taken Conduct education and	Maintains natural ecosystem Builds resilience of community livelihood and food security	Develop an integrated land management plan for Safata district with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area MAF to raise awareness of farmers on impacts to water flows from poor livestock management MAF to assist in establishment of pilot sites to trial climate ready plant varieties	AgricultureSectorPlan20 16-2021 Draft NESP 2017-2021 Samoa's National Invasive Species Action Plan (NISAP)

	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 Conduct pilot site trials for climate ready plant varieties District to fence domestic animals Responsibility: Villages /District/ MNRE/MAF/SROS		MNRE Forestry, DEC and MAF to collaborate on supply of climate resilient crops MNRE, MAF and SROS to implement aggressive, nationwide invasive species eradication programme based on inventory of invasive species and conduct campaign on public awareness accordingly Village to manage pig/cattle population (compounds, in particular around water supplies) Training for farmers on pests management particularly affecting fruit trees and crops	
Governance	Best Solutions	Benefits	Guideline to assist with the Implementation	Relevant Sector Plans, National Strategies & Policies
Strengthen the governance of natural resources and land use through bylaw	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	catchment areas and coastline Utilise Sui o Nu'u monthly meetings to monitor progress	Village Fono Act (Amendment Bill 2016) Community Sector Plan Community Development Plan 2016-2021

Sataoa Village Map



Datum: WGS 1984 Units: Degree

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

4.8 Tafitoala Village Interventions

CIM Plan Solutions

CIM Plan So		D (I)		B.1
Infrastructure	Best Solutions	Benefits	Guideline to assist with the Implementation	Relevant National, Sector Plans and Strategies
Village Houses,	Relocate outside of high	Minimise	Develop an Integrated	National Building Code
church and all	risk hazard zones when	expenditure on	Catchment and Flood	
infrastructure in the CEHZ and	building/infrastructure	damaged	Management Strategy for Safata District. MNRE to	CIM Strategy 2015
CFHZ	requires replacement	properties & personal assets	develop zonation strategy for	
GIIIZ	Investments within the	personal assets	safe areas	
	hazard zones to adopt	Mitigate potential		
	appropriate mitigation	damage from	Utilise hazard maps and	
	measures	coastal erosion	Geomorphologist Drainage	
	Conduct awareness raising	and flooding accommodating	Infrastructure Database to inform designs	
	campaign on flood resilient	the hazard	illioriii desiglis	
	building practices and	the hazara	Enforcement of National	
	designs for at risk	Improve	Building Code 2017	
	communities living in and	recovery to		
	near high risk hazard zones	create more	Encourage insurance of	
	Design infrastructure to	resilient villages	significant investments and assets within hazard zones	
	Design infrastructure to take into account the	Improve	assets within hazard zones	
	immediate hazard zones;	preparedness	Designation of the IFHZ,	
	for example, raise floor	and readiness	CEHZ and CFHZ as an "at	
	levels of houses in flood	response to	risk" zone with appropriate	
	prone areas	natural disasters	landuse planning controls and restrictions	
	Develop landuse planning	Safer villages,		
	and development controls to restrict developments	houses and roads		
	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			
	sui ges			
	Where reclamations are			
	proposed, Government and			
	district to manage processes by requiring villagers to get			
	the appropriate permits and			
	consent			
	Responsibility: Village /			
	Families /MWTI/ MNRE			

relocation and us potential escape routes relocation and us potential escape routes are routed to relate the overland flow of storm water and reduce flooding onto main roads and maintenance roughly of might be related to response to making the relation of maintenance roughly diages in specific and maintenance rollings into waterways and conduct regular clearance of rubbish bomes relearance of rubbish bomes reproposed, Government and district to manage processes by requiring villagers to get the appropriate permits and consent relations on the relation of maintenance roughly families and and the relations of all access roads response to making the relations of t	reduction facilitate relocation and as potential escape routes and reduce flooding onto main roads and meighbouring families and villages 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 to improve expenditure on damaged properties and district to manage processes by requiring villagers to get the appropriate permits and consent Responsibility: LTA/ MWT/ MWRE/ District/ Village / Procure rainwater harvesting systems for ubentable families as a short term solution Procure rainwater harvesting systems for ubentable families as a short term solution Procure rainwater harvesting systems for ubentable families as a short term solution District and village to support SAW water rabining programmes and reduced eadquate to support and eadiness response to matural disasters. Endure in prove eventand flow of storm water supply, quality and network to be improved and restrictions District and village to support SAW water rabining programmes and restrictions and natural disasters. Shouses and roads and natural disasters throw coastal crossion and natural disasters. Shouses and roads and restrictions and restrictions Minimise national disasters and public assets Minimise national disasters. Shouses and roads and restrictions Minimise national disasters and public assets Utilize Su o Nu'u monthly meetings to monitor progress of village cleanup and awareness programmes Improve health and samitation area depressed by requiring mine water supply of the programming design, and prevention of water supply in the design and register size of rinking water conditions of value regulated from coastal coastal to take a count of rocast changes in activities. Proceeding the programming controls and restricti	TI 1	AT.C. 1 D 1	T	114:1:11	CIM Charles 2045
relocation and as potential escape routes roads to include adequate sized cultwest to facilitate the overland flow of storm water and reduce flooding onto main roads and neighbouring families and villages and neighbouring families and response to natural disasters villages and neighbouring families and drainage inspection and maintenance Implement regular drainage inspection and maintenance	a potential agrade approved access roads and approved access roads to include adequate sized culverts to facilitate the overland flow of storm water and reduce flooding onto main roads and neighbouring families and villages and readiness and roads and conduct regular drainage inspection and maintenance Village to restrict rubbish dumping into waterways and conduct regular drainage inspection and maintenance Village to restrict rubbish dumping into waterways and conduct regular drainage inspection and maintenance Village to regulate developments near and around road shoulders of all access roads Where reclamations are proposed, Government and district to manage processes by requiring villagers to get the appropriate permits and consent Responsibility: LTA/ MWT/ MNRE/ District/ Village programmes Retroultated water supply, quality and network to be improved Retroucer rainwater harvesting systems for identified evacuation shelter(s) District and village to support SWA water rationing programmes during times of drought Improve health and sanitation for the recovery and construction. Road design and construction.	Upgrade access	Assess Tafitoala Road,	Improve	Utilise hazard maps and	CIM Strategy 2015
sesape routes of include adequate sized culverts to facilitate the overland flow of storm water and reduce flooding onto main roads and meighbouring families and villages Implement regular drainage inspection and maintenance Willage to restrict rubbish dumping into waterways and conduct regular clearance of rubbish behind homes Village to restrict rubbish dumping into waterways and conduct regular clearance of rubbish behind homes Where reclamations are proposed, Government and district to manage processes by requiring villagers to get the appropriate permits and consent Reticulated water supply, families inland with no access to water Reticulated water supply, families inland with no access to water Procure rainwater harvesting systems for vulnerable families as a short term solution District and village to outport SWA water rationing programmes during times of drought Reduce impact from coastal design standard to take and construction. Road design standard to take and construction. Road design standard to take and construction. Road design standard to take as level rise and increased raingliantensity. Designation of the IFHZ, CEHZ and CFHZ as an "at risk yone with appropriate landuse planning controls and restrictions and restrictions and restrictions. Safer villages, louding error coastal design standard to take as level rise and increased rainglitenses and increased rainglitenses and increased rainglitenses and increased rainglitenses. Safer villages, louding error covery expenditure on damaged properties and public assets Where reclamations are proposed, Government and district to manage processes by requiring villagers to get the appropriate permits and consent. Reticulated water supply, dange from inland families without access to drinking water supply and increased and proposed and register post proposed for the same density and construction. Road design standard to take and construction. Safer villages, louding proposed to increase and increased rainduse planning controls and restrictions.	Imprement regular drainage inspection and maintenance Village to result so in the developments near and around road shoulders of all access roads					Mala and 199
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during times of drought from inland supply and procurement of	during times of drought from inland supply and procurement of			Reduce impact		
	flooding points to be proceeding existence		during times of drought			
Pi-tri-t to a support SWA flooding rainwater harvesting systems	District to support SWA 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1		District CATA			
District to support SWA				y 0	acci mai y coming by occinio	
efforts at exploratory Utilise hazard maps and	efforts at exploratory Utilise hazard maps and		enorts at exploratory		Utilise hazard maps and	

	boreholes in district District and villages to support SWA efforts at protecting and conserving boreholes, intakes and catchment areas Responsibility: SWA/IWS/MWCSD/ MNRE/District/ Village/ CSSP		Geomorphologist findings to inform designs Utilise Sui o Nu'u monthly meetings to monitor progress of village programmes and responsibilities	
Natural Resources and Environment	Best Solutions	Benefits		Relevant Sector Plans, National Strategies & Policies
Village pool located in high risk hazard zones (coastal erosion	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	CIM Strategy 2015 Community Engagement Plan
Livelihood and Food Security	Best Solutions	Benefits	Implementation	Relevant Sector Plans, National Strategies & Policies
Pest management; invasive species (african snails, myna birds, and worms affecting taro plantations and vegetable gardens)	Implement an eradication programme to eradicate, contain or exclude invasive species Replant with climate resilient native species Implement an inventory of invasive species and include information on their past, present and potential future distribution, as well as impacts and possible	Builds resilience of community livelihood and food security	Develop an integrated land management plan for Safata district with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area MAF to raise awareness of farmers on impacts to water flows from poor livestock management MAF to assist in	AgricultureSectorPlan2 016-2021 Draft NESP 2017-2021 Samoa's National Invasive Species Action Plan (NISAP)

actions that can be taken

Conduct education and awareness programmes on the impacts of invasive species

Implement the Integrated Pest Management Programme

Implement Sustainable Land Management (SLM) practices

Build the capacity of farmers to manage stray animals (pigs, cattle) that are contaminating water sources

Conduct pilot site trials for climate ready plant varieties

District to fence domestic animals

Responsibility: Villages /District/MNRE/MAF/ SROS establishment of pilot sites to trial climate ready plant varieties

MNRE Forestry, DEC and MAF to collaborate on supply of climate resilient crops

MNRE, MAF and SROS to implement aggressive, nationwide invasive species eradication programme based on inventory of invasive species and conduct campaign on public awareness accordingly

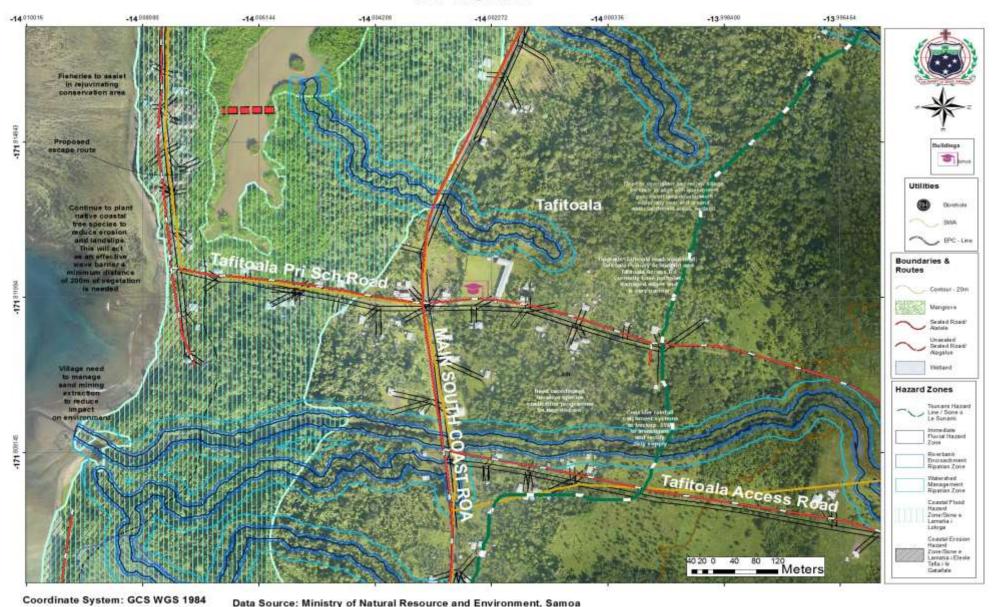
Village to manage pig/cattle population (compounds, in particular around water supplies)

Training for farmers on pests management particularly affecting fruit trees and crops

Governance	Best Solutions	Benefits	Guideline to assist with the Implementation	Relevant Sector Plans, National Strategies &
			•	Policies
Strengthen the governance of natural resources and land use through bylaw	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 monitoring of all National Acts, Regulation, Strategies, Plans and Policies Improve ability of communities to adapt, respond and recover quickly in the long term	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

Tafitoala Village Map

TAFITOALA



Datum: WGS 1984

Units: Degree

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

4.9 Vaie'e Village Interventions

CIM Plan Solutions

CIM Plan So				
Infrastructure	Best Solutions	Benefits	Guideline to assist with the Implementation	Relevant National, Sector Plans and Strategies
Village Houses,	Relocate outside of high	Minimise	Develop an Integrated	National Building Code
church and	risk hazard zones when	expenditure on	Catchment and Flood	3
village pool are	building/infrastructure	damaged	Management Strategy for	CIM Strategy 2015
all in CEHZ and	requires replacement	properties &	Safata District. MNRE to	
CFHZ		personal assets	develop zonation strategy for	
	Investments within the		safe areas	
	hazard zones to adopt	Mitigate potential		
	appropriate mitigation	damage from	Utilise hazard maps and	
	measures	coastal erosion and flooding	Geomorphologist Drainage Infrastructure Database to	
	Conduct awareness	accommodating	inform designs	
	raising campaign on	the hazard	illioi ili designs	
	flood resilient building	are mazara	Enforcement of National	
	practices and designs for	Improve recovery	Building Code 2017	
	at risk communities	to create more	. 0 - /	
	living in and near high	resilient villages	Encourage insurance of	
	risk hazard zones	G	significant investments and	
		Improve	assets within hazard zones	
	Design infrastructure to	preparedness and		
	take into account the	readiness response	Designation of the IFHZ,	
	immediate hazard zones;	to natural disasters	CEHZ and CFHZ as an "at	
	for example, raise floor	0.6 111	risk" zone with appropriate	
	levels of houses in flood	Safer villages,	landuse planning controls	
	prone areas	houses and roads	and restrictions	
	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			
	Where reclamations are			
	proposed, Government			
	and district to manage			
	processes by requiring			
	villagers to get the			
	appropriate permits and			
	consent			
	Responsibility: Village /			
	Families /MWTI/ MNRE			
•				

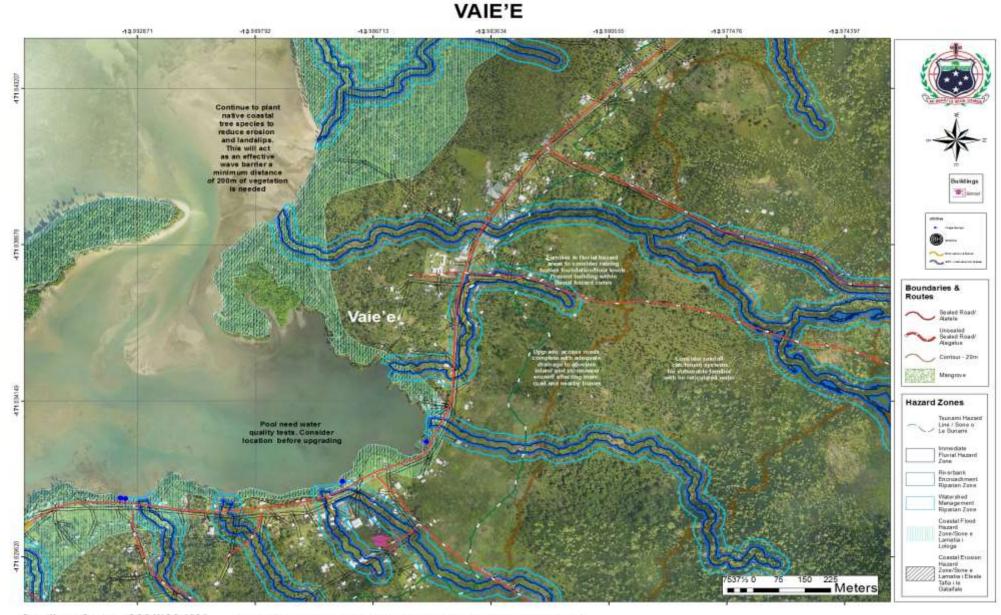
Ungrada assass	Aggong Vois's aggrees	Improve	Utiliza hazard mana and	CIM Strotogy 2015
Upgrade access road to facilitate	Assess Vaie'e access road and upgrade where	Improve infrastructure	Utilise hazard maps and Geomorphologist Drainage	CIM Strategy 2015
relocation and as		resilience and rate	Infrastructure Database to	TSP 2014-2019 Goal 2
potential escape	include adequate sized	of recovery	inform design	KO 1
routes	culverts to facilitate the	or recovery	oriii ucoigii	1.0 1
Toutes	overland flow of storm	Improve	Include in budget	Vulnerability
	water and reduce flooding		programming CBA, design	Assessment of the
	onto main roads and	readiness response	and construction. Road	Samoa Road Network
	neighbouring families and		design standard to take	(2016) and Road
	villages		account of forecast changes	Network Adaptation
	_	Reduce impact	in sea level rise and increased	Strategy, LTA
	Implement regular	from coastal	rainfall intensity	
	drainage inspection and	erosion and		
	maintenance	natural disasters	Designation of the IFHZ,	
			CEHZ and CFHZ as an "at	
	Village to restrict rubbish		risk" zone with appropriate	
	dumping into waterways	houses and roads	landuse planning controls	
	and conduct regular		and restrictions	
	clearance of rubbish	Minimise national		
	behind homes	disaster recovery	Develop and register	
	Willage to let	expenditure on	District/Village bylaws to	
	Village to regulate	damaged	include maintenance of	
	developments near and around road shoulders of	properties and public assets	drainages and illegal rubbish	
	all access roads	public assets	dumping into waterways	
	an access roads			
	Where reclamations are		Utilise Sui o Nu'u monthly	
	proposed, Government		meetings to monitor	
	and district to manage		progress of village cleanup	
	processes by requiring		and awareness programmes	
	villagers to get the			
	appropriate permits and			
	consent			
	Responsibility: LTA/			
	MWTI/MNRE/District/			
	Village /Families			
Reticulated	1 1 2	Increase	Develop and register	CIM Strategy 2015
water supply,	to families inland with	adaptation during	District/Village bylaws to	
quality and	no access to water	drought periods	include regulating	Water and Sanitation
network to be	D		developments around	Sector Plan
improved	Procure rainwater	Improve	catchment areas and	CMA 10 Voor
	harvesting systems for vulnerable families as a	infrastructure	boreholes	SWA 10 Year Investment Plan
	short term solution	resilience and	Incompany CIAIA (2016) 10	(2016)
	SHOLL CHILL SULULIUII	rate of recovery	Implement SWA (2016) 10	(2010)
	Procure rainwater	Improve health	year investment plan to improve water supply	Community
	harvesting systems for	and sanitation	network to support all	Engagement Plan
	identified evacuation	anu Samiduun	inland families without	zingagement i ian
	shelter(s)	Reduce	access to drinking water	
		contamination of	access to armining water	
	District and village to	water supply	Include in budget	
	support SWA water	atti suppiy	programming design, and	
	rationing programmes	Reduce impact	extension costs of water	
	during times of drought	from inland	supply and procurement of	
	District to support CIAIA	flooding	rainwater harvesting systems	
	District to support SWA	J		
	efforts at exploratory		Utilise hazard maps and	

	boreholes in district		Geomorphologist findings to	
	- · · · · · · · · · · · · · · · · · · ·		inform designs	
	District and villages to			
	support SWA efforts at		Utilise Sui o Nu'u monthly	
	protecting and		meetings to monitor	
	conserving boreholes,		progress of village	
	intakes and catchment		programmes and	
	areas		responsibilities	
	Responsibility: SWA/ IWS/MWCSD/ MNRE /			
	District/ Village/ CSSP			
Natural	Best Solutions	Benefits	Guideline to assist with the	
Resources and			Implementation	National Strategies &
Environment				Policies
Village pool	Village pool is currently in	Increase	Utilise Hazard Maps and	CIM Strategy 2015
located in high	a poor state with an	adaptation during	Geomorphologist findings for	
risk hazard zones	assessment needed for	drought periods	planning purposes	Water and Sanitation
(coastal erosion	options to either			Sector Plan
_	rejuvenate or find a new	Improve health	MNRE Water & Sanitation	
fluvial	site depending on the	and sanitation	to conduct water testing	Community
inundation, wave	location of springs.		and analysis of village pool	Engagement Plan
impacts and storm	m 1	Reduce	prior to any intervention	7711 F
surges)	Test the quality of the	contamination of		Village Fono Act
	water source before any	water supply	Update Village bylaws to	(Amendment Bill 2016)
	further investment on the		include managing and	
	pool is undertaken (eg:		maintaining village natural	
	fence/repair works)		resources	
	Responsibility: CSSP/		Utilise Sui o Nu'u monthly	
	NGOs/MNRE/Villages		meetings to monitor progress	
			of village programmes and	
			responsibilities	
Livelihood and	Best Solutions	Benefits		Relevant Sector Plans,
Food Security	Dest solutions	Delicites	Implementation	National Strategies &
			•	Policies
Pest management;	Implement an	Maintains	Develop an integrated land	AgricultureSectorPlan2
invasive species	eradication programme	natural	management plan for Safata	016-2021
(african snails,	to eradicate, contain or	ecosystem	district with the aim of	010 2021
myna birds, and	exclude invasive species	Cooystelli	reducing any unnecessary	Draft NESP 2017-2021
worms affecting	chicago mivasive species	Builds resilience	actions that may adversely	2101011201 2017 2021
taro plantations	Replant with climate	of community	affect the natural habitats	Samoa's National
and vegetable	resilient native species	livelihood and	and ecosystems of the area	Invasive Species Action
gardens)	1 coment native species	food security	and coogsteins of the area	Plan (NISAP)
G	Implement an inventory	- sou socurity	MAF to raise awareness of	()
	of invasive species and		farmers on impacts to water	
	include information on		flows from poor livestock	
	their past, present and		management	
	potential future			
	distribution, as well as		MAF to assist in	
	impacts and possible		establishment of pilot sites to	
	actions that can be taken		trial climate ready plant	
			varieties	
	Conduct education and			
	awareness programmes		MNRE Forestry, DEC and	
	programmes		1 01 00 01 J, D 11 0 una	l .

	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 Conduct pilot site trials for climate ready plant varieties District to fence domestic animals Responsibility: Villages / District / MNRE/MAF / SROS		MAF to collaborate on supply of climate resilient crops MNRE, MAF and SROS to implement aggressive, nationwide invasive species eradication programme based on inventory of invasive species and conduct campaign on public awareness accordingly Village to manage pig/cattle population (compounds, in particular around water supplies) Training for farmers on pests management particularly affecting fruit trees and crops	
Governance	Best Solutions	Benefits	Guideline to assist with the Implementation	Relevant Sector Plans, National Strategies & Policies
Strengthen the governance of natural resources and land use through bylaw	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
South Coast Road; Sight distance on Main Road Responsibility: LTA /MWTI	LTA and MWTI to assess and recommend best remedial action to ensure safety of vehicles and pedestrians	Not a CR issue. Safety concern on speeding traffic with road alignment reducing sight distance (25kph limit area)
District Hospital Responsibility: MOH/District/Village	MOH and District/Village to discuss relocation of hospital from hazard zone (Fusi) where it is currently situated	There are land issues involved so this has to be dealt with first at village/landowner level

Vaie'e Village Map



Coordinate System: GCS WGS 1984 Datum: WGS 1984

Units: Degree

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

Upolu AF Districts Overview Map of Coastal Inundation Zones

