Community Integrated Management Plan

Palauli West - Savaii

Implementation Guidelines 2018

Foreword

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

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

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

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

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

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

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

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

Thank you

Hon. Fiame Naomi Mata'afa
Minister of Natural Resources and Environment

District Representatives:

The Community Integrated Management (CIM) Plan is a Partnership between the Government of Samoa and the villages within the plan. The Plan area starts from the ridge extending to the reef broadly covering four thematic areas; Infrastructure; Environment and Biological Resources; Livelihood and Food security; and 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 Constituency of Palauli West (Foailalo, Foailuga, Salailua., Siutu, Satuiatua and Taga)

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

Date of Signing 15 June 2018

Representatives: Signature

Foailalo Village

- Paa'a Moana
- Sina Ui
- Tulatoa Ioapo
- Lua Solo
- Malili Talili

Foailuga Village

- Taala Eteuati
- Fidow Mauai
- Rosa Matue
- Akamo Luamanuvae
- Tausaga Tausaga

Salailua Village

- Lealaitafea Sefo
- Tuato Uele
- Tina Lealaitafea

Siutu Village

- Paiutu Autama
- Veroni Unasa
- Mulipola Loia
- Tofa Matauaina
- Tuifalefa Maatusi

Satuiatua Village

- Tuia Sene
- Seu Fuefiva
- Luatasi Komiti
- Kurese Faalogo
- John Sam Paleti

Taga Village

- Faiumu Faitele
- Faletoai Toeofe
- Faiumu Numia
- Faaea Seilala
- Faatuai Sui

The Government of Samoa adopts the Community Integrated Management Plan for the Alii and Faipule of Palauli West 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 Ministries 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 2015.

Ulu Bismarck Crawley
CHIEF EXECUTIVE OFFICER MNRE

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Acronyms:

ASCH	Areas Sensitive to Coastal Hazards
BCA	Benefit Cost Analysis
CBFMP	Community Based Fisheries Management Plan
CDCRM	Community Disaster & Climate Risk Management
CEP	Community Engagement Plan
CHZ	Coastal Hazard Zone
CEHZ	Coastal Erosion Hazard Zone
CFHZ	Coastal Flooding Hazard Zone
CIM	Community Integrated Management (Plan) or (Strategy)
CLHZ	Coastal Landslip Hazard Zone
COEP	Code of Environmental Practice
CSO	Civil Society Organization
CSSP	Civil Society Support Programme
DSP	District Sub Project
EbA	Ecosystem based Adaptation
ECCCR	Enhancing Coastal Community Climate Resilience
ECR	Enhancing Climate Resilience
EMP	Environmental Management Plan
EPC	Electric Power Corporation
ERN	Emergency Radio Network
HCSI	High Coastal Sensitive Index
IAS	Invasive Alien Species
KBA	Key Biodiversity Area
KPI	Key Performance Indicator
LTA	Land Transport Authority
LTO	Long Term Output
MAF	Ministry of Agriculture and Fisheries
MET Office	Meteorological Office
MoH	Ministry of Health
MNRE	Ministry of Natural Resources and Environment
MWCSD	Ministry of Women Community and Social Development
MWTI	Ministry of Work Transport and Infrastructure
NAP	National Action Programme
NBSAP	National Biodiversity Action Plan
NDMP	National Disaster Management Plan
NESP	National Environment Sector Plan
NISP	National Infrastructure Strategic Plan
NRW	Non Revenue Water
PA - KO	Priority Area - Key Outcome
PUMA	Planning Urban Management Agency
PPCR	Pilot Programme Climate Resilience
R2R	Ridge to Reef
SIAM	Samoa Infrastructure Asset Management
SOE	State of Environment
SWA	Samoa Water Authority
UNDP-GEF SGP	United Nations Development Programme Global Environment Facility Small Grants Programme
WB	World Bank
WCR	West Coast Road
WMP	Watershed Management Plan
WSSP	Water Sanitation Sector Plan

Glossary

Coastal Hazard Zones	Defined areas landward of the coast which are or are considered likely to be subject to the effects of hazards over a defined assessment period. In this study, reference is made to four coastal hazard zones: ASCHs (areas sensitive to coastal hazards); CEHZs (coastal erosion hazard zones); CFHZs (coastal flood hazard zones) and CLHZs (coastal landslip hazard zones).
"Do Minimum"option	A Management option that involves continuing with the present maintenance and upgrading programme on and when required basis.
Emergency Management	To provide communities with skills, facilities and materials so that they may adapt, respond and recover more quickly in the event of emergencies.
Hazard	A source of potential harm or a situation with a potential to cause loss.
Infrastructure	Built structures and networks which support the national, regional or local community.
Lifeline infrastructure	Infrastructure that contributes directly to the survival of the community and its ability to respond and recover at the time of extreme events.
Secondary infrastructure	Infrastructure that contributes to the every-day development of the community.
Implementation Guidelines	A document to guide land use and resource practices to achieve specified goals, objectives and policies and provide a framework for the implementation of defenses and works.
Issue	A specific concern regarding both cause and effect.
Land and Resource Use	The use of land and resources by the community for social, economic or other benefit (e.g. land use includes areas used for villages or crops, resource use includes activities such as sand mining, gravel extraction or fishing).
Monitoring	Process of measuring the effectiveness or impacts of projects and works against predicted standards, levels or outcomes.
Resilience	The ability to be adaptive, responsive and quick to recover.
Community Resilience	The ability for the community to be adaptive, responsive and quick to recover from the adverse effects of hazard.
Natural Resilience–	The ability of natural systems to be adaptive, responsive and quick to recover from natural processes or hazards.
Risk	The chance of something happening that will have an impact on objectives. It is measured in terms of consequence and likelihood. In the Community Integrated Management Plan context it is the likelihood that infrastructure, environment and biological resources and agricultural and marine resources (food security) will be subject to inland and coastal hazards and the potential for loss of property, life or land due to natural processes.
Stakeholders	Those people and organizations who may affect, be affected by, or perceive themselves to be affected by, a decision or activity. The term stakeholder may also include interested parties.

Strategy	Direction or course of action to achieve a define division.
Susceptibility	The degree to which infrastructure at risk is likely to be damaged by coastal hazards and how easy/difficult, expensive/cheap it is to replace. In the context of the CIM Plan the term susceptibility is equivalent to the term vulnerability as the Samoan phrase for both susceptibility and vulnerability is the same.
Vision	A desired destiny.
Livelihood	A livelihood is a means of making a living. It encompasses people's capabilities, assets, income and activities required to secure the necessities of life Food availability: The availability of sufficient quantities of food of appropriate quality, supplied through domestic production or imports (including food aid).
Food access	Access by individuals to adequate resources (entitlements) for acquiring appropriate foods for a nutritious diet. Entitlements are defined as the set of all commodity bundles over which a person can establish command given the legal, political, economic and social arrangements of the community in which they live (including traditional rights such as access to common resources).
Utilization	Utilization of food through adequate diet, clean water, sanitation and health care to reach a state of nutritional well-being where all physiological needs are met. This brings out the importance of non-food inputs in food security.
Stability	To be food secure, a population, household or individual must have access to adequate food at all times. They should not risk losing access to food as a consequence of sudden shocks (e.g. an economic or climatic crisis) or cyclical events (e.g. seasonal food insecurity). The concept of stability can therefore refer to both the availability and access dimensions of food security.

1. Introduction to the CIM Plan

1.1 The Strategic Vision

The District CIM Plan for Palauli West has been prepared under the Government of Samoa's Pilot Programme for Climate Resilience (PPCR)- Enhancing Climate Resilience for Coastal Resources and Communities Project. The CIM Plans is the primary means of implementing the CIM Strategy, which was formally approved by the Government of Samoa in February, 2001, and revised in August 2015, to provide Strategic direction for the management of government and community resources within the districts and villages.

The Strategy has as its central vision "Resilience – Communities and their resources are Resilient to Natural Hazards". 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, August 2015)

1.2 The Aim of the CIM Plan:

The aim of the CIM Plan is to help communities and government improve climate resilience by identifying actions and solutions for sustainable development.

The CIM Plan will enable communities and government service providers to:

1. Enhance awareness of hazard risks from the ridge to reef;

2. Improve climate resilience planning and development

3. Better adapt, respond and recover from natural disasters and other extreme events

1.3 The 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 to prepare 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.

2. Implementation Guidelines

2.1 Purpose of the Implementation Guidelines (IG)

The Implementation Guidelines describe the solutions proposed to increase the resilience of communities as identified in the CIM Plan consultation and site assessments. The solutions are presented under four broad themes; Infrastructure; Environment and Biological Resources; Livelihood and Food Security; and Governance Institution in the District/village. Implementation of solutions is considered to be the joint responsibility for both the villages and the government in partnership as follows.

The CIM Plan Solution Matrix, shows five columns each correlates to the solution identified:

- Column 1: Indicates the issues or problem identified during the CIM Plan consultation and site assessments
- Column 2: Solutions – these are the interventions/ solutions identified by the CIM Plan team and village community representatives. The government agency or village as indicated in Column-2 under each action will be the lead agency or village responsible for implementing the said solution;
- Column 3: "Other benefits", where one solution indicated in Column 2, will provide benefits to other items;
- Column 4: Provides guidance on how the solution is to be implemented and noting the relevant government action plan, policy, code of ethics, regulation or act to follow by the responsible government agency or district/village during implementation of the solution;
- Column 5: Provides an overall summary of how the solution being implemented supports or achieve the objectives or goals set-forth in the relevant government sector plans and linking them up to the Strategy for the Development of Samoa.

It is therefore worth noting that climate change adaptation and mitigation actions or interventions identified in the CIM Plan solution demonstrates the national commitment to enhancing Samoa's climate resilience portfolio.

2.2 Funding options to support CIM Plan Implementation:

Implementation of solutions that were identified from the CIM Plan consultations with each district communities will not be possible without the availability of funds. Like the previous CIM Plans infrastructural related solutions to protect government assets located in the coastal area are executed by the government through bi-lateral or multi-lateral donor funded projects. For example the NAPA (National Adaptation Programme of Action) project that supported the implementation of rock revetment or seawalls in most of the coastal villages, which is an outcome from the generation-1 CIM Plans were funded under multi-lateral donor. At the village level some villages were successful in sourcing small grants from existing mechanisms in country.

Similarly it is expected that funding support for the implementation of the updated revised CIM Plans during its 10 year lifespan, will be sourced from different development partners including the government of Samoa. All solutions and activities in the CIM Plans that have identified a government agency as the responsible agency for that particular action as outlined in the "CIM Plan Solution Matrix" will take up the responsibility for these activities as part of their on-going workplan and priorities for each districts/villages. Funding of these activities will be sourced either from their local budget or multi-lateral donors such as UNDP, FAO, World Bank, ADB, and GEF to name a few, as well as bi-lateral donors like New Zealand, Australia, Japan, USA and China. Implementation of activities that are under the responsibilities of village communities will source support from small grants opportunities available from the following programs and agencies: CSSP, the UNDP-GEF SGP, Global Green Grant and Discretionary Funds from different Diplomatic Mission in country like New Zealand High Commission, Australia, Japan and China.

2.3 Duration of the Plan:

The CIM Plan is reviewed every ten years. During the Plan period, the solutions implemented are monitored to ensure that they are effective in improving resilience. Some solutions are likely to take longer than the original five years for implementation.

The review of the Implementation Guidelines and the solutions proposed the following:

1. The CIM Plan full review will be undertaken every 10 years or decade;

2. Once implemented, the solutions will be monitored on a bi-annual basis for progress and updated every five years in accordance with the Strategy for the Development of Samoa;

3. Detailed implementation of the solution will determine the monitoring requirements and Key Performance Indicators (KPI).

3. Description of Palauli West District Environment

3.1 Physical and Natural Resource Setting

Palauli West district is made up of the six villages in in the south of Savaii which includes Taga, Siutu, Salailua, Satuiatua, Foailalo, and Foailuga and it is located on the south western end of the island of Savaii, characterized by steep coastal cliffs overlooking white sandy beaches and shallow lagoons. On the western side of the District where most of the villages are located most development is set back from the coast on elevated land although there is a narrow coastal strip of development where some village fales and churches remain. Taga is the only village not in this area. It is located in the far-east, separated from the other villages by relatively undeveloped land.

The coastline of Palauli West is predominantly lava rock except where the villages are located. The reef system extending from Siutu to Foailuga is protected by a narrow lagoon extending to around 300m from the coast. The Foailalo coastal area has a similar but smaller inshore reef. Salailua and Siutu beachfront are protected by a seawall while the rest of the villages only have sandy beaches Foailalo and Satuiatua established fishery reserves while Salailua, Foailuga and Taga villages have indicated interest in reestablishing fisheries reserves that were discontinued after the 2009 tsunami which damaged most of the reserves.

Where the fishery reserves exist, the coral and fish diversity and densities are very high, with Satuiatua's reserve being the best. At this site, the coral coverage is around 70-90% made up of a variety of coral with *Acropora and Pavona* species dominating it. A very high number of mushroom corals were also seen along with other varieties such as *Porites, Pocillopora and Montipora (*Schuster, 2017*)*. The fish populations and varieties were exceptional with both juvenile and mature fish seen foraging within the reserve. The existence of the fishery reserve is very important as a refuge for fish and also for coral regrowth in the neighboring villages which are in the same lagoon system.

The Foailalo village was once located on the coastal area, but the cyclones and sea level rise has resulted in the village relocating away from the hazard zone. The fishery reserve is the only village asset left in the old village. The absence of the village means less stress on the marine environment apart from sand mining activities on the beach. The result is the fishery reserve and the inshore lagoon showing very good coral regrowth.

Taga village coastline is mostly lava rock with no inshore reef system thus the wave break directly onto the beach. This has resulted in coastal erosion that has lost over 30-50m of old coastline leading to the relocation of family homes and most village assets inland apart from the village pool remaining on the old coastal location.

There are a number of rivers within the district, however the majority of these are dry and only flow during periods of heavy rain. Most of the flooding occurs during heavy rain due to a lack of drainage on both the work/access roads and main roads.

The main vegetation types present in Palauli West *lowland rainforest and upland forest.* The lowland forest between Taga and Salailua is classified as indigenous forest although much if it is opened forest due to the impacts of previous cyclones which fell a lot of the forest trees. The forest cover now is a mixture of Merremia vine in open areas, exotic trees such as the pulu trees mixed together with native forest trees. The forests are mainly dominated by tava *Pometia Pinata* species while the Gagaemalae lowland to upland forest behind the village lands would have previously been dominated by *Dysoxyllum spp* of Maota and tufaso. The field and map assessment found that the only areas cleared by villagers are from the access roads and extending to around 300m back. The access roads and plantations go up as high as 400m for most villages. The cleared areas closer to the villages are have been left fallow or fenced off for small scale livestock farming.

The area has very high rainfall compared to the northern parts of Samoa, thus it is very green all year round and regrowth is faster. With the populations of the district considerably smaller compared to the available land, it can be assumed that limited land clearing and fast regrowth already provides a strong climate resilience for the district.

The invasive trees and shrubs are present along the access roads throughout the district. *Cordia spp, Spathodea campanulate* (African tulip) are the main invasive species found along the access roads and plantation area

while the *Merremia peltata* is common both in cleared and forested areas. Stands of pulu vao *Funtumia elastica*; pulu mamoe *Castilla elastica* are present but not as dominant as in other areas of the country. The naturalised *Eleocarpus spp* Siapatua is a common forest tree in the upland forests of the district. Myna birds and red-vented bulbuls were found in abundance along the whole northern Savaii especially closer to settlements.

3.2 Social and Economic Setting

The Palauli West district population is about 3,337 people according (Census, 2016), the villages with least number of people are Satuiatua 291, Foailalo 335, Siutu 449, Foaluga 576 and Taga having the second largest number of 785 people and Salailua has the highest number of people 901. Like much of Samoa, the district has a long history of cyclones. Where once coastal development was intensive cyclones have gradually encouraged people to move inland to elevated areas, leaving behind remnants of destroyed buildings. The villages of Foailalo, Foailuga and Satuiatua are known collectively as Gaga'emalae and share their resources, such as the primary school at Foailuga and the access roads to the school and plantations

The Main South Coast Road stretches along the coast from Foailalo to Siutu. After Siutu it diverts inland and travels for approximately 13 kilometres before once again reaching the coast at Taga. It is the only thoroughfare of the district and provides access from the east to the west of the island. Speeding motorists through this district has prompted villages to ask for speed humps to be installed in addition to appropriate signage.

On either side of the main road there are grassed swale drains approximately 1.5 metres across and 1 metre deep, shallow in some parts. Culverts approximately 80 cm in diameter are provided at fale entrances. Drainage near the road can be poor because of undersized culverts get blocked with rubbish or sand and are not kept clear.

Where the main road runs close to the coast it lies within the hazard zones and it is only protected by occasional sections of seawall. There is a 100 metre stretch of sea wall in front of Foailuga that starts at the headland on the boundary of Foailuga and finishes at Satuiatua adjacent to the Satuiatua Beach Resort. Between the headland and the beginning of the seawall there is a small area of beach for launching outrigger canoes. Foailuga requested the seawall to be extended along the coast, however this would mean that there is no access for small boats. In contrast, the village of Satuiatua are not in favor of extending the seawall, as the sea wall in their view has eroded the sand on the beach to what is now a layer of hard rock. Other sea walls exist in front of the village of Salailua where the road is within metres of the shoreline.

Within the district there are over eleven work/access roads which provide access to plantations, coastal springs, schools and churches. In most villages the roads are unsealed and lack appropriate drainage, which leads to flooding of nearby houses. In Salailua, the village has built a concrete ford to divert the river during heavy floods away from the village access road. This road provides access to the village reservoir and is therefore an important access road to maintain.

A number of water supply pipes are exposed along these roads, leaving them vulnerable to damage, rust and breakage. Electricity is supplied to the district by EPC via overhead power-lines along the Main South Coast Road. It is also distributed to inland houses up to 200 metres inland along access roads. As most development within the district occurs inland away from the coast, electricity reaches most buildings, however, to continue to encourage more people to move inland, it needs to be extended. In most villages the electricity extends to the outer edge of the village in line with the last house. The power supply is good, although erratic and the district suffers regular blackouts. In some cases, the electricity poles have been located in dangerous places, and are at risk from falling into village houses.

The villages to the west of the district rely on pumped water supply. Although this supply is reliable, the quality is highly saline and not good for health or hospital equipment. There are a number of village springs within the district that are of varied condition, supplementing village water supply. Many, however, are in poor repair or saline.

The district supports a number of schools, from all levels of education, pre-school, primary school and the District College at Salailua. None of these schools are located in the hazard zones. There are emergency escape

walkway within the villages of Satuiatua and Salailua to help families residing along the coastal hazard area for emergency evacuation during times of natural disasters.

The majority of villagers within the district earn a living via plantation work or through fishing. There are a number of local shops within the district that supply local goods and employ local people. Also within the district are a number of schools, and the district hospital at Foailalo which provides employment for a number of local nurses. On a tourism front, the area has only one beach resort at Satuiatua, however the village of Foailalo is currently negotiating the development of a resort on their beach front, the old site of their village.

3.3 Climate Risk and Resilience:

There is an urgent need for communities to understand the changes in Samoa's climate and future projection. A study has been completed in 2011[1] which summarizes changes in Samoa's climate at present and in the future, from 1990 -2030 up to 2090. The assessment showed that: Samoa's temperature will increase with very hot days; more extreme rainfall days expected; there would be a decrease in number of tropical cyclone but increase in intensity; sea level rise will continue and ocean acidification is increasing in Samoa's water threatening coral reef ecosystems and marine biodiversity.

The 2007 Palauli West CIM Plan mapped out all vulnerable areas along the coast and the lowland coastal areas identifying them as hazard zones given the exposure to natural disasters, climate change and extreme events causing flooding and erosion. There are changes in the catchment areas and land use hence the severe flooding downstream is caused by the concentrated flows from upland-catchment areas. As such the update of the CIM Plan considers a broader landscape hazards, climate risks and likely responses.

Coastal Hazards and Risks: The headlands at Foailuga and Satuiatua act as groin in the area where sand accumulates on the up drift side (eastern part) of the headlands (refer Figure 1). There are signs of heavy erosion activity occurs along the Foailalo to Salailua coastal section. This is triggered by high energy wave activity especially during times of storm surges and cyclones, and also associated with longshore littoral drift process. The high energy wave refraction activity in the area, generates network of joints and fractures that deeply dissected the iron-bounced coastline of Taga. Some of these joint/fractured networks extend and expose on the seaward side of the road as shown Figure-2. Several coastal sections are at high risk of collapse and there is erosion in many parts causing the coastline to shift further inland (north direction). Thus in the next 5 to 10 years-time it will probably reach the main road causing much damages to infrastructures along the coast.

Inland Hazards and Risks: Like many parts of Upolu and Savaii, rapid development inland generates more joint/fractures in the geology of the area and as such are the causes of the groundwater source sink in a greater depth. There is a scarp fault (blue dotted line) exposed to the south between Satuiatua and Salailua Figure-1 that could generate a rock fall hazard or even a landslide in the future at this part of Savaii. This fault has not been fully exposed in many areas, according to Fepuleai (2017) due to the fact that the fault could be buried by eroded debris or disturbed during inland development.

[1] Pacific-Australia Climate Change and Adaptation Planning Program Partners (2015) Current and Future Climate of Samoa, Government Australia and Government Samoa.

Figure 1 Google Map cross-section between Foailalo and Salailua - coastal erosion and inland hazard risks
Photo credit: Aleni Fepuleai, 2017

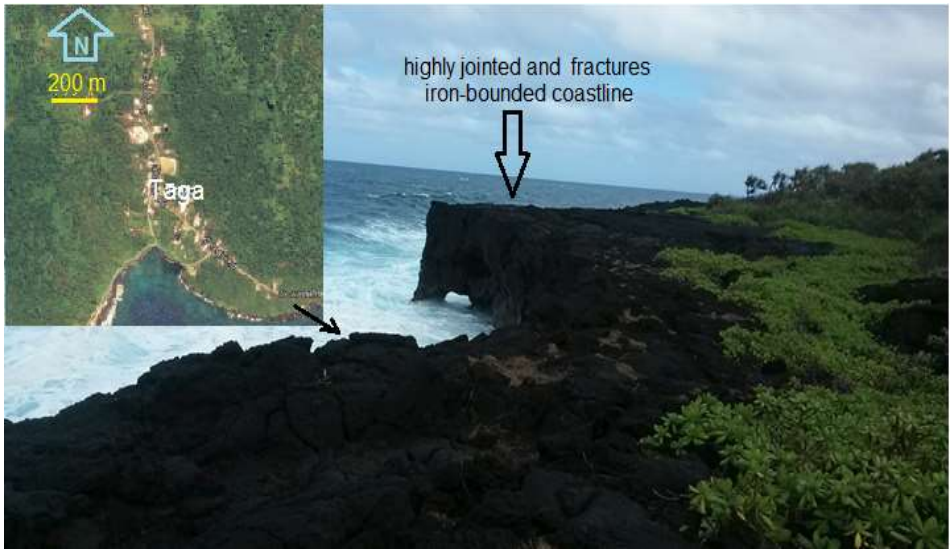


Figure 2 Highly jointed and fractured iron-bounced coastline of Taga. Index image of Taga village shows the actual part of the coast that is vulnerable to collapse ***Photo credit: Aleni Fepuleai, 2017***

4. Palauli West District Interventions

CIM Plan Solutions

Infrastructure	Best Solutions	Other Benefits	Guidelines to assist Implementation	Link to Sector Plans
Main Road, access roads and road side drainages require maintenance and upgrade as it exacerbates flooding	Design a new road alignment inland from Foailuga to Salailua (escape route or emergency road): - Implement Phase 1 from Foailuga up to 2km -Implement storm water drainage along and across the Main road to reduce flooding (on and adjacent to the road impacting on the CFHZ) - Maintenance of road side drains and regular inspection of drainage system Proposed implementation of access road identified from LTA list: Taga – road to the Blowholes Length: 1800m Est Cost: SAT$ 589,000.00 Foailuga – road to school and access road Length: 1500 m Est Cost: SAT$ 545,200.00 Foailalo – road to plantation and inland residents Length: 1500 m Est Cost: SAT$ 545,200.00 Siutu – road to plantation Length: 1500 m Est Cost: SAT$ 545,200.00 ***Responsibility: LTA / MWTI / District***	Improved rate of recovery Improved coastal protection Reduced potential for flooding in coastal areas Improved lifeline access Safer village houses and roads Improved sustainability of natural resources Improved safety and resilience of residents in the coastal hazard zones	LTA and MWTI should provide the design and close monitoring of road infrastructure development following the guidelines below: Programme drainage in budget and work programme Prepare assessment of road drainage systems Prepare a local education programme on need for keeping drainage systems clean Environmental and Social Safeguard policy Samoa Code of Environmental Practice (2007) Review of National Road Standards in Samoa (2016) National Infrastructure Strategic Plan (NISP) 2011 Vulnerability Assessment of the Samoa Road Network (2017)	Community Integrated Management Strategy, August 2015 Transport Sector Plan 2014-2019

Electricity Supply	Install and connect power supply for inland residents Install streetlights along the roads where needed for community safety. Relocate overhead lines to a more resilient location when being replaced ***Responsibility: EPC / MWTI / Villages***	Maintain electricity supply at all times including during natural disasters. Avoid accidents from fallen electricity posts.	Monitor distribution networks to avoid overloading poles and contributing to line failures EPC to installed electricity lines to reach families residing inland and streetlights Consider energy efficiency developments for communities using renewable energy guided by existing framework – Development of a Renewable Energy and Energy Efficiency Framework, 2016	Samoa Energy Sector Plan 2017-2022
Evacuation Shelter	DMO to conduct assessment of existing buildings within the village located away from the hazard zone to identify a suitable building for Evacuation Shelter, prior to considering following request. Request building an Evacuation Shelter house further inland to be managed by the Women's Committee away from the hazard zone and use during times of natural disasters and emergency. ***Responsibility: MNRE / MWCSD / Village***	Improve public facility used by communities for safety during times of natural disasters Improve proactive response and rate of recovery Increase lives saved	Emergency house or shelters priority are given to existing buildings within the village that suits the criteria for an Evacuation Shelter and are retrofit for this purpose, and most targeted are school buildings.	National Disaster Management Plan 2017-2021
Access to water for consumption	Rainwater harvesting immediate action, supported by the installation of water tanks for families residing inland without access to water for consumption and domestic use. Families who have access to water but it has poor saline quality	Improve community adaptive capacity to respond to climate change impacts Improve rate of recovery and health	Conduct assessment of vulnerable families inland without access to water prior to approving rainwater harvesting system. National Water Resources Management Strategy 2007-2017	Water and Sanitation Sector Plan 2016-2020

	Water quality testing ***Responsibility: CSSP / NGO/ MWCSD / village***		SWA to undertake assessment of current condition of water supply Provide for works in budget programmes	
District Hospital	Investigate better quality water source or treatment to supply hospital including installing water tanks to alleviate water problem. Water quality testing ***Responsibility: MoH / SWA / District***			
Environment & Natural Resources	**Best Solution**	**Other Benefits**	**Guidelines to assist Implementation**	**Link to Sector Plans**
Water Catchment Area Rehabilitation	Replanting of native forest species for upland forest to restore the resilience and ecological functions of catchment area Implement consultation with Salailua village to expand its existing IWS water supply to include neighboring villages of Foailalo, Foailuga and Satuiatua Investigate other boreholes for water for Foailuga, Foailalo and Satuiatua. Undertake rehabilitation and restoration interventions Provide protection measures for district watershed management Implement ridge to reef conservation Conduct consultation and awareness on the proposed catchment area	Restoration of native forests species increases the resilience against climate change impacts by improving the biodiversity, reducing the risk of forest fires, providing land stabilization, reducing erosion, reducing land slips and maintaining water quality Contribute to the 2 million tree planting	MNRE-DEC, WRD and Forestry Division to provide advice such as: Awareness and government support in supply of nursery trees, technology and infrastructure to have a sustainable mechanism for replanting Community to request through Forestry Division MNRE seedlings under their 2million tree replanting project NBSAP 2015-2020 National Action Programme: To combat land degradation and mitigate effect of drought, 2015-2020 National Water Resources Management Strategy 2007-2017 Water Resources Act 2008 Water Resource Management Act 2008	National Environment Sector Plan 2017-2021 Water and Sanitation Sector Plan 2016-2020

	Conduct Water Quality testing ***Responsibility: MNRE / village***		Forestry Restoration Operational Plan 2016-2020 National Invasive Species Action Plan 2008-2011 Two Million Tree Planting Strategy 2015-2020	
Marine Environment needs protection and management	Establish a Marine fisheries reserves for village Collect and dispose of crown-of-thorns (COTs) on a regular basis to prevent major outbreaks Ban the use of dynamites, herbal poisons (avaniukini), chemicals and other unsustainable fishing methods. Monitor the state of corals and implement coral gardening Conduct training on village based monitoring programs for marine areas ***Responsibility: MAF / MNRE / Villages***	Provides a sustainable source of food for the village Reduces coral bleaching and increases growth of new coral Improve resilience of coral reef ecosystem to combat climate change Reduce loss of marine habitats Protects marine biodiversity	Maintenance of marine reserve and protected area requires community consent and government approval along with biological surveys. Fisheries Division to advice villages on the Community-based Fisheries Management Program (CBFMP) – Develop Village Fisheries Management Plans NBSAP 2015-2020	National Environment Sector Plan 2017 - 2021 Agriculture Sector Plan 2016-2020
Livelihood & Food Security	**Best Solution**	**Other Benefits**	**Guidelines to assist Implementation**	**Link to Sector Plans,**
Disturbed forests and plantation areas	Restore and utilize fallow lands closer to the village with plantations rather than clearing inland and upland forests : Promote and facilitate planting of root-crops i.e yams, sweet potato which are more resilient to cyclones, droughts and floods. Promote agro-forestry and mixed planting including fruit trees species to reduce crop vulnerability to pests	Improve food security and healthy living and increase community resilience and adaptive response to climate change	MAF CROP Division to support farmers through guidance and trainings from Agricultural experts and awareness programs on crop diversification to suit the prolonged periods of drought or rainy season Provide tools and planting materials to improve crop diversification and resilience – address pest issues etc. This will lead to improve food security	Agriculture Sector Plan 2016-2020

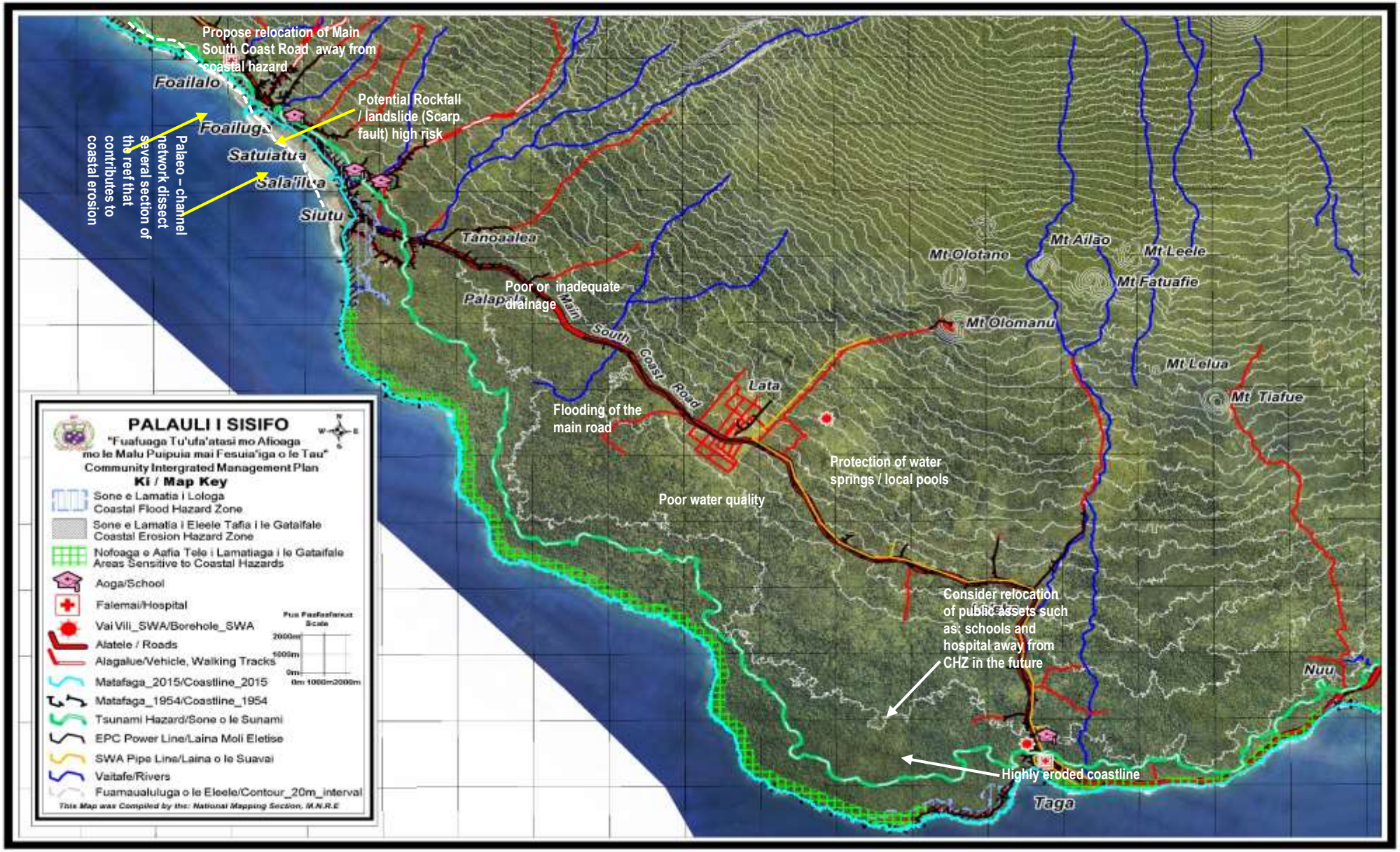
	and diseases. Diversify into other climate resilient species cash crops and fruit trees i.e cocoa, coconut, lemon and plant in suitable areas outside hazard zones Implement Sustainable Land management practices Implement integrated pest management programmes ***Responsibility: MAF / CSSP/WIBDI/Farmers Association/ METI/ SBEC / UNDP-GEF-SGP/MNRE / villages***		Strengthen partnership with farming NGO's such as the: Samoa Farmers Association; Samoa Federated Farmers Incorporated ; Women in Business Inc. and private sector to support rural farmers through training opportunities and marketing productivity Implementation of solutions are guided by the following: Draft Soil Resource Management Bill 2018 Samoa National Action Programme to combat Land Degradation and to mitigate effects of drought 2015-2020 National Invasive Species Strategy and Action Plan 2008-2011 2 Million Tree Planting Strategy 2015-2020	

Governance	**Solutions/ Issues**	**Guideline to assist Implementation**	**Comment**
Develop Village By-laws to support CIM Plan implementation	Review existing village bylaws and/or develop new village bylaws that will protect natural resources both marine and terrestrial ***Responsibility: Village / MWCSD***	MWCSD to provide assistance to village in developing by-laws Community Development 2016-2021	Support the development of village by-laws that can guide governing structure for the implementation of government and non-government programs including CIM Plans.
Enforce law on illegal logging	Reinforce the no indigenous forest logging legislation or provide appropriate requirements for sustainable portable sawmills operating in the village. ***Responsibility: MNRE/village***	MNRE- Forestry to enforce logging regulation upon logging companies Monitor logging companies or individual portable sawmills 2016-2020 National Forest Plan	Community identified the continuous practice of illegal logging and need to look at options for re-enforcement to reduce the cutting down of native tree and stop logging from moving further inland.

Implement clean-up programs in the village	Conduct routine inspections and remove debris and rubbish from river channels, road side drains and culverts to remove blockages and improve discharge ***Responsibility: Village***	Village Beautification Committee monitor clean-up program Community Development 2016-2021	Village Women's Committee and Untitled men lead clean-up culverts, drainage and environment

Palauli West - red line showing the proposed road re-alignment for escape route from Satuiatua to Salailua Village, resilience infrastructure**.**
Photo credit: Lidar 2015 aerial map image produced by Toelesulusulu Cedric Schuster, 2017

Palauli West District Map



4. 1. Foailalo Village Interventions

Infrastructure	Best Solutions	Other Benefits	Guideline to assist Implementation	Relevant Sector Plans
Access Road – sealed to facilitate movement of people inland	Reconstruction and sealing of village access/plantation road: Length: 2 km Estimated Cost: SAT$ 2,015,400.00 BCA: 1.6 ***Responsibility: LTA / MWTI / village***	Improve rate of recovery Increase number of families relocate to higher grounds	Construction of access roads should be guided by the following: Environmental and Social Safeguard policy Samoa Code of Environmental Practice (2007) Review of National Road Standards in Samoa (2016) Vulnerability Assessment of the Samoa Road Network (2017) National Infrastructure Strategic Plan (NISP) 2011 Programme road safety activities into budget and work programme	Community Integrated Management Strategy, August 2015 Transport Sector Plan 2014-2019
Water (Existing water from SWA is saline and brackish)	Assess and monitor the piped water network that goes to Foailalo; Chlorinate the piped water to Foailalo to eliminate ecoli (bacteria) from untreated water Conduct water quality testing for compliance ***Responsibility: SWA/MoH/village***	Improve sanitation and hygiene Reduce number of sick people from poor drinking water Improve community resilience to proactively adapt	Samoa Water Authority Pipeline Work Program for FY17/18 Environmental and Social Safeguard Policies apply - MoH Water Quality Standards SWA 10 Year Investment Plan (2016) to improve water supply network	Community Integrated Management Strategy, August 2015) Water and Sanitation Sector Plan 2016-2020
Rainwater harvesting Including water tank for District	Rainwater harvesting immediate action, supported by the installation of water tanks	Improve community adaptive capacity to respond to climate change impacts	Conduct assessment of vulnerable families inland without access to water prior to	Water and Sanitation Sector Plan 2016-2020

Hospital	for families residing inland without access to water for consumption and domestic use and to provide alternative water source for families receiving saline water. Investigate better quality water source or treatment to supply hospital including installing water tanks to alleviate water problem ***Responsibility: CSSP / MWCSD / village***		approving rainwater harvesting system. National Water Resources Management Strategy 2007-2017	
Electricity Supply	Install and connect power supply for inland residents Install streetlights along the roads where needed for community safety. Relocate overhead lines to a more resilient location when being replaced ***Responsibility: EPC / MWTI***	Maintain electricity supply at all times including during natural disasters. Avoid accidents from fallen electricity posts.	Monitor distribution networks to avoid overloading poles and contributing to line failures EPC to installed electricity lines to reach families residing inland and streetlights Consider energy efficiency developments for communities using renewable energy guided by existing framework – Development of a Renewable Energy and Energy Efficiency Framework, 2016	Samoa Energy Sector Plan 2017-2022
Evacuation Shelter	DMO to conduct assessment of existing buildings within the village located away from the hazard zone to identify a suitable building for Evacuation Shelter, prior to considering following request. Request building an Evacuation Shelter house further inland to be managed by the Women's Committee away from the hazard zone and use during times of natural	Improve public facility used by communities for safety during times of natural disasters	Emergency house or shelters priority are given to existing buildings within the village that suits the criteria for an Evacuation Shelter and are retrofit for this purpose, and most targeted are school buildings.	National Disaster Management Plan 2017-2021

	disasters and emergency. ***Responsibility: MNRE / MWCSD / Village***			

Environment & Natural Resources	**Best Solutions**	**Other Benefits**	**Guidelines to assist Implementation**	**Relevant Sector Plans**
Marine Environment needs protection and management	Establish a Marine fisheries reserves for village Collect and dispose of crown-of-thorns (COTs) on a regular basis to prevent major outbreaks Ban the use of dynamites, herbal poisons (avaniukini), chemicals and other unsustainable fishing methods. Monitor the state of corals and implement coral gardening Conduct training on village based monitoring programs for marine areas ***Responsibility: MAF / MNRE / Villages***	Provides a sustainable source of food for the village Reduces coral bleaching and increases growth of new coral Improve resilience of coral reef ecosystem to combat climate change Reduce loss of marine habitats Protects marine biodiversity	Maintenance of marine reserve and protected area requires community consent and government approval along with biological surveys. Fisheries Division to advice villages on the Community-based Fisheries Management Program (CBFMP) – Develop Village Fisheries Management Plans NBSAP 2015-2020	National Environment Sector Plan 2017 - 2021 Agriculture Sector Plan 2016-2020
Forest (logging and cultivation expansion)	Close monitoring of village logging operation: - Limit all village logging operation to MNRE approved areas - Identify suitable areas for logging away from catchment area - Village to implement reforestation program to complement logging activities ***Responsibility: MNRE / village***	Increase ecological resilience of forest Reverse land degradation to improve native forest cover Contribute to the MNRE 2 million tree planting	MNRE- Forestry / DEC to provide guidance and support to village: Develop a Forest Management Plan NBSAP 2015-2020 Restoration Operational Forestry Plan 2016-2020 2 Million Tree Planting Strategy 2015-2020 Forestry Management Act 2011	National Environment Sector Plan 2017-2020

Water catchment rehabilitation	Investigate the feasibility of developing a water reservoir for the village from the water catchment source that provides for Salailua water Protect catchment area and discourage agricultural expansion above 600 meters elevation Continue the restoration program and management of the Catchment area ***Responsibility: MNRE / village***	Restoration of native forests species increases the resilience against climate change impacts by improving the biodiversity, reducing the risk of forest fires, providing land stabilization, reducing erosion, reducing land slips and maintaining water quality Contribute to the 2 million tree planting	MNRE-DEC, WRD and Forestry Division to provide advice such as: Awareness and government support in supply of nursery trees, technology and infrastructure to have a sustainable mechanism for replanting Community to request through Forestry Division MNRE seedlings under their 2million tree replanting project NBSAP 2015-2020 National Water Strategy Plan 2007-2017 Water Resource Management Act 2008 Forestry Restoration Operational Plan 2016-2020 Forestry Management Act 2011 Two Million Tree Planting Strategy 2015-2020	National Environment Sector Plan 2017-2021 Water and Sanitation Sector Plan 2016-2020
Sand mining for commercial and domestic use affecting riverbanks inland	Assess and identify sustainable sources of river sand for domestic and commercial use Village, government and the private sector to collaborate on designated areas for river sand mining	Improve the sustainable management of sand as a natural resource Minimize impacts of coastal inundation and erosion Reduce impact to natural coastal protection mechanism via	Secure relevant permits before any sand mining occurs Incorporate environmental and social safeguards concerns including consultations with any affected community	National Environment Sector Plan 2017-2021 Water and Sanitation Sector Plan 2016-2020

	Strengthen sand mining monitoring and enforcement Mass media awareness on sustainable sand mining practices Develop sand mining regulation ***Responsibility: MNRE / Village***	control of scale and site of extraction	For access to sites, obtain written consents from Alii Faipule and landowners. Alii Faipule and landowner provide consent Develop sand mining regulation Follow existing MNRE guidelines for sand mining or extracting such as: PUMA Act 2004 Lands and Survey Environment Act 1989 (draft) |Sand Mining Policy 2001 Draft Soil Resource Management Bill, 2018 NAP Sustainable Land Management Plan 2015-2019	
Invasive Species spreading across forest areas and plantations	Develop a bio-control program for the removal of invasive plants and pests from forest and plantation areas: Implement control and eradication program for invasive species and major crops pests in the village specifically the peanut weed (*Senna tora* or vao pinati) it is widely spread in fallow land Conduct education and awareness programmes on the impacts of invasive species	Reduce impact of invasive species on forest Increase number of native trees reforestation Improve soil stability	Implementation of invasive species program should be guided by: NBSAP 2015-2020 National Invasive Species Plan 2008-2011 Samoa Aligned NAP 2015-2020 Draft Land Degradation Neutrality – Target Setting Program 2018-2028	National Environment Sector Plan 2017-2020 Agriculture Sector Plan 2016-2020

	Responsibility: MNRE /MAF / village			

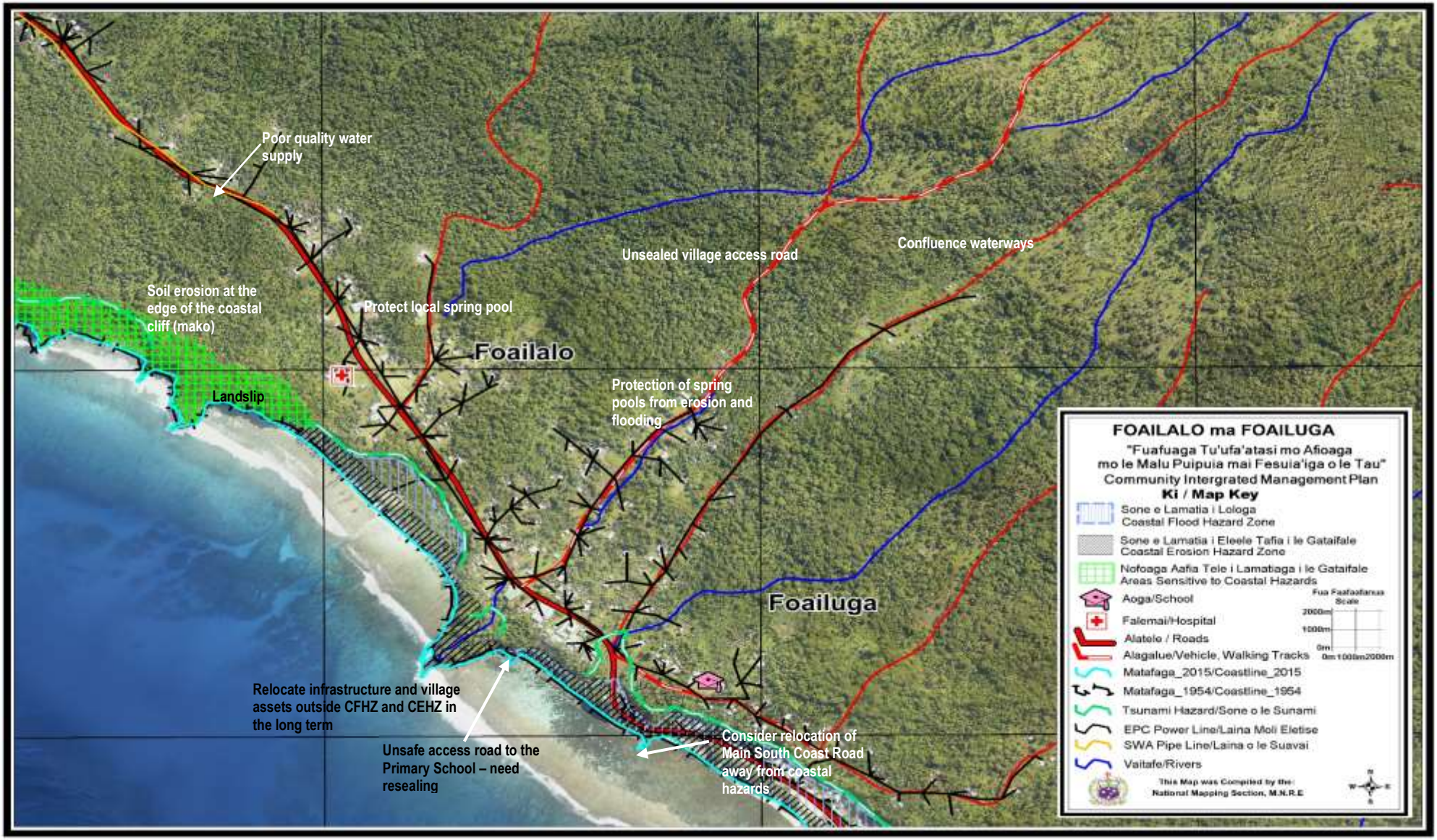
Livelihood and Food Security	**Best Solutions**	**Other Benefits**	**Guideline to assist Implementation**	**Relevant Sector Plans**
Disturbed forests and plantation areas	Restore and utilize fallow lands closer to the village with plantations rather than clearing inland and upland forests : Promote and facilitate planting of root-crops (i.e yams, sweet potato which are more resilient to cyclones, droughts and floods. Promote agro-forestry and mixed planting including fruit trees species to reduce crop vulnerability to pests and diseases. Diversify into other climate resilient species cash crops and fruit trees i.e cocoa, coconut, lemon and plant in suitable areas outside hazard zones Implement Sustainable Land management practices Implement integrated pest management programmes ***Responsibility: MAF / CSSP/WIBDI/Farmers Association/ METI/ SBEC / UNDP-GEF-SGP/MNRE / villages***	Improve food security and healthy living and increase community resilience and adaptive response to climate change	MAF CROP Division to support farmers through guidance and trainings from Agricultural experts and awareness programs on crop diversification to suit the prolonged periods of drought or rainy season Provide tools and planting materials to improve crop diversification and resilience – address pest issues etc. This will lead to improve food security Strengthen partnership with farming NGO's such as the: Samoa Farmers Association; Samoa Federated Farmers Incorporated ; Women in Business Inc. and private sector to support rural farmers through training opportunities and marketing productivity Implementation of solutions are guided by the following: Draft Soil Resource Management Bill 2018 Samoa National	Agriculture Sector Plan 2016-2020

			Action Programme to combat Land Degradation and to mitigate effects of drought 2015-2020 National Invasive Species Strategy and Action Plan 2008-2011 2 Million Tree Planting Strategy 2015-2020	
Marine restocking	Restock reefs and lagoons with marine species such as clams, trochus, seaweeds and others for domestic consumption. Enforce Fisheries By-Laws ***Responsibility*: *MAF / village***	Improve food security Increase marine species because of healthy coral reef ecosystems	Community-based Fisheries Management Plan Improve existing marine reserve and encourage expanding to other nearby sub-villages	Agriculture Sector Plan 2016-2020

Village Governance	**Best Solutions Proposed**	**Guidelines to assist Implementation**	**Comments**
Village By-laws	Implement village by-laws for community to follow and include protection of natural resources both marine and terrestrial Update and enforce the Foailalo Village By-law in place ***Responsibility: Village / MWCSD***	MWCSD to provide assistance to district /village in developing by-laws Community Development 2016-2021	Support the development of district / village by-laws that can guide governing structure of village and the implementation of government and non-government programs including CIM Plans.
Emergency Response and disaster preparedness	Develop a village climate and disaster emergency plan Need to installed emergency evacuation signs ***Responsibility: MNRE-DMO / MWCSD / District***	Implement the National Disaster Management Plan 2017-2021	District has completed its CDCRM training and they requested that they want to expand to have emergency signs installed along the road for emergency response preparation towards a disaster.

Evidence sand mining practice Foailalo old village near the coast.

Foailalo Village Map



4.2 Foailuga Village Interventions

Infrastructure	Best Solutions	Other Benefits	Implementation Guidelines	Relevant Sector Plans
Water (Existing water from SWA is saline and brackish)	Assess and monitor the piped water network that goes to Foailuga; Chlorinate the piped water to Foailuga to eliminate ecoli (bacteria) from untreated water Conduct water quality testing for compliance ***Responsibility: SWA/MoH/village***	Improve sanitation and hygiene Reduce number of sick people from poor drinking water Improve community resilience to proactively adapt	Samoa Water Authority Pipeline Work Program for FY17/18 Environmental and Social Safeguard Policies apply MoH Water Quality Standards SWA 10 Year Investment Plan (2016) to improve water supply network	Community Integrated Management Strategy, August 2015) Water and Sanitation Sector Plan 2016-2020
Access road inland goes pass primary school Foailuga	Design a new road alignment inland from Foailuga to Salailua (escape route or emergency road): - Implement Phase 1 from Foailuga road up to 2km - Estimated Cost: SAT$2,015,400.00 Length: 2km BCA: 1.6 - Implement road safety audit and appropriate signage ***Responsibility: LTA / MWTI / District***	Improved rate of recovery Improved coastal protection Reduced potential for flooding in coastal areas Improved lifeline Access Safer village houses and roads Improved sustainability of natural resources Improved safety and resilience of residents in the coastal hazard zones	LTA and MWTI should provide the design and close monitoring of road infrastructure development following the guidelines below: Programme drainage in budget and work programme Prepare assessment of road drainage systems Prepare a local education programme on need for keeping drainage systems clean Environmental and Social Safeguard policy Samoa Code of Environmental Practice (2007) Review of National	Community Integrated Management Strategy, August 2015 Transport Sector Plan 2014-2019

			Road Standards in Samoa (2016) Vulnerability Assessment of the Samoa Road Network (2017) Programme road safety activities into budget and work programme National Infrastructure Strategic Plan (NISP) 2011	
Seal existing Access Road	Extend sealing of existing access road to 1 km, inland for plantation and residents. Length: 1 km Estimated Cost: SAT$ 1,007,700.00 BCA: 2.0 ***Responsibility: LTA / MWTI / village***	Improve rate of recovery Increase number of families relocate to higher grounds	Construction of access roads should be guided by the following: Environmental and Social Safeguard policy Samoa Code of Environmental Practice (2007) Review of National Road Standards in Samoa (2016) Vulnerability Assessment of the Samoa Road Network (2017) National Infrastructure Strategic Plan (NISP) 2011 Programme road safety activities into budget and work programme	Community Integrated Management Strategy, August 2015 Transport Sector Plan 2014-2019
Electricity	Implement the installation of power supply for residents inland and streetlights along the roads for safety ***Responsible: EPC/MWTI***	Safeguard electricity lines during time of storms and extreme events – natural disasters. Reduce vulnerability and avoid accidents due to fallen electricity posts.	EPC to installed electricity lines and streetlights along main road and inland road residents Coordinate distribution networks to avoid overloading poles and	Samoa Energy Sector Plan 2017-2022

			contributing to line failures Development of a Renewable Energy and Energy Efficiency Framework, 2016	
Evacuation Shelter	DMO to conduct assessment of existing buildings within the village located away from the hazard zone to identify a suitable building for Evacuation Shelter, prior to considering following request. Request DMO to include the Primary School located inland into their program of retrofitting buildings to enhance the School building Evacuation Shelter role. ***Responsibility: MNRE/ MWCSD / Village***	Improve public facility used by communities for safety during times of natural disasters	Emergency house or shelters priority are given to existing buildings within the village that suits the criteria for an Evacuation Shelter and are retrofit for this purpose, and most targeted are school buildings.	National Disaster Management Plan 2017-2021

Other CIM Plan issues and solutions identified

Infrastructure	Solutions/ Issues	Comment
Sports field	Village request to upgrade the school sports field ***Responsibility: MESC / Village***	This is not a CIM priority but important to the village and its future development.

Environment & Natural Resources	Best Solutions	Other Benefits	Guideline to assist Implementation	Relevant Sector Plans
Marine / Fisheries Reserve	Established a marine protected area to expand the fisheries reserve Implement coral gardening Conduct training on village based monitoring programs for marine areas	Reduce impact of land-based pollution Reduce impact of coral bleaching Improve resilience of coral reef ecosystem to combat climate change Reduce loss of marine habitats	MAF-Fisheries division to provide advice following existing guidelines: Community-based Fishery Management Plan NBSAP 2015-2020 Develop Management Plans for Marine	Agriculture Sector Plan 2016-2020 National Environment Sector Plan 2017-2021

	Monitor mass coral bleaching from high sea surface temperature Procure a small dingy boat for ongoing monitoring of the marine reserve Enforce Fisheries By-Laws ***Responsibility: MAF / Village***		Protected Area	
Forest (logging and cultivation expansion)	Close monitoring of village logging operation: - Limit all village logging operation to MNRE approved areas - Identify suitable areas for logging away from catchment area - Village to implement reforestation program to complement logging activities ***Responsibility: MNRE / village***	Increase ecological resilience of forest Reverse land degradation to improve native forest cover Contribute to the MNRE 2 million tree planting	MNRE-Forestry Division to provide advice to community on reforestation / restoration program by providing tree seedlings for planting. 2016-2020 National Forestry Plan NBSAP 2015-2020 NAP – Sustainable Land Management Plan 2015-2019 NBSAP 2015-2020 Restoration Operational Plan 2016- 2020 Two Million Tree Planting Strategy 2015-2020 Forestry Management Act 2011	National Environment Sector Plan 2017-2021
Marine Environment needs protection and management	Establish a Marine fisheries reserves for village Collect and dispose of crown-of-thorns (COTs) on a regular basis to prevent major outbreaks Ban the use of dynamites, herbal poisons (avaniukini),	Provides a sustainable source of food for the village Reduces coral bleaching and increases growth of new coral Improve resilience of coral reef ecosystem to combat climate change	Maintenance of marine reserve and protected area requires community consent and government approval along with biological surveys. Fisheries Division to advice villages on the Community-based Fisheries Management	National Environment Sector Plan 2017 - 2021 Agriculture Sector Plan 2016-2020

	chemicals and other unsustainable fishing methods. Monitor the state of corals and implement coral gardening Conduct training on village based monitoring programs for marine areas ***Responsibility: MAF / MNRE / Villages***	Reduce loss of marine habitats Protects marine biodiversity	Program (CBFMP) – Develop Village Fisheries Management Plans NBSAP 2015-2020	
Replanting /coastal restoration	Replant vegetation / littoral plants in coastal areas Encourage natural regeneration of coastal plants **Responsibility: Village/ MNRE**	Protects coastline against normal wave action Maintains natural ecosystem connectivity Increase sand build up minimizing erosion	MNRE Forestry to advice on appropriate species, and provide seedlings for different vegetation types suitable to the habitats (coastal lowland area) and planting materials for villages that need them.	National Environment Sector Plan 2017-2021

Livelihood and Food Security	**Best Solutions**	**Other Benefits**	**Guideline to assist Implementation**	**Relevant Sector Plans**
Disturbed forests and plantation areas	Restore and utilize fallow lands closer to the village with plantations rather than clearing inland and upland forests : Promote and facilitate planting of root-crops (i.e yams, sweet potato which are more resilient to cyclones, droughts and floods. Promote agro-forestry and mixed planting including fruit trees species to reduce crop vulnerability to pests and diseases. Diversify into other climate resilient species cash crops and fruit trees i.e cocoa, coconut, lemon and plant in suitable areas outside hazard zones	Improve food security and healthy living and increase community resilience and adaptive response to climate change	MAF CROP Division to support farmers through guidance and trainings from Agricultural experts and awareness programs on crop diversification to suit the prolonged periods of drought or rainy season Provide tools and planting materials to improve crop diversification and resilience – address pest issues etc. This will lead to improve food security Strengthen partnership with farming NGO's such as the: Samoa Farmers Association;	Agriculture Sector Plan 2016-2020

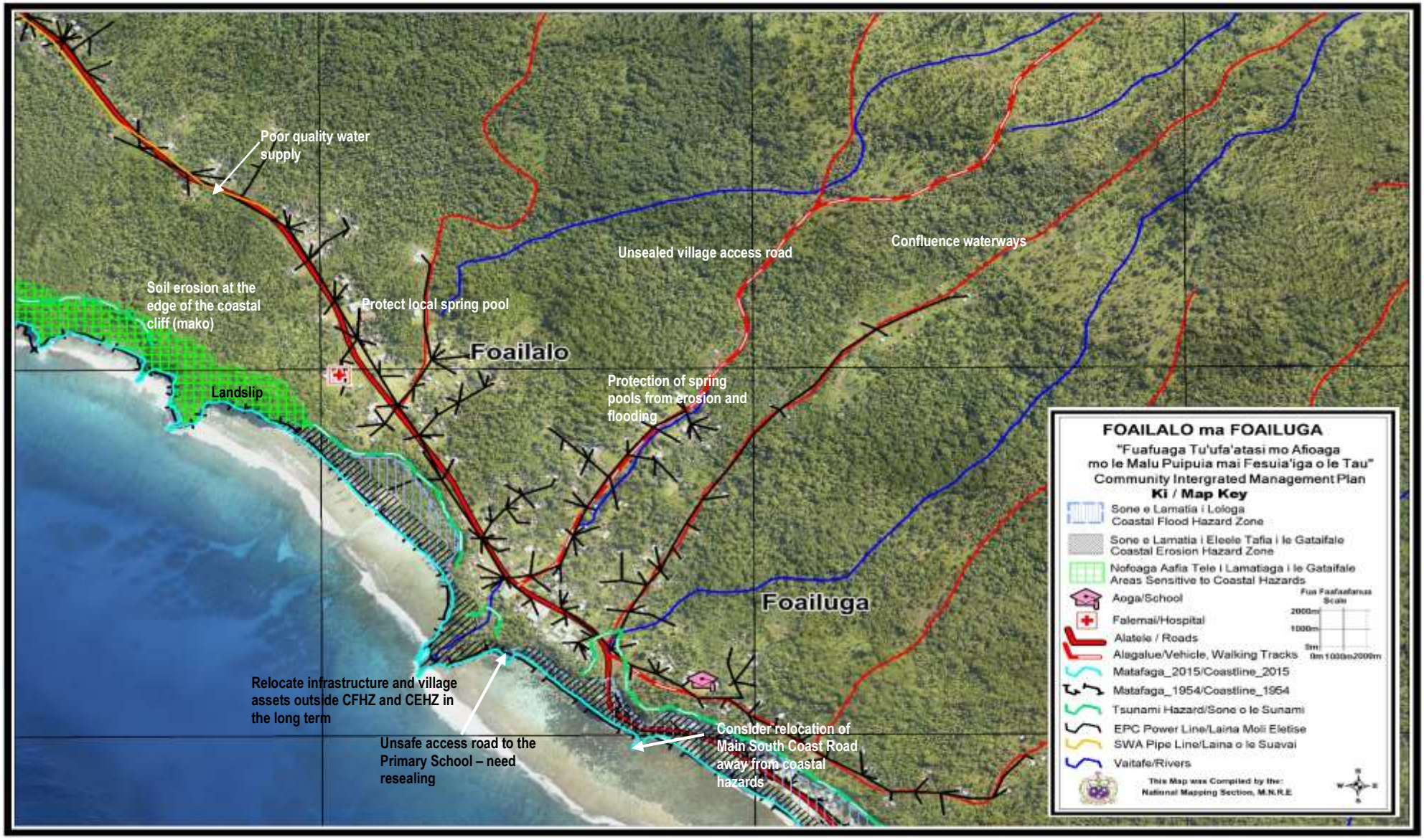
	Implement Sustainable Land management practices Implement integrated pest management programmes ***Responsibility: MAF / CSSP/WIBDI/Farmers Association/ METI/ SBEC / UNDP-GEF-SGP/MNRE / villages***		Samoa Federated Farmers Incorporated ; Women in Business Inc. and private sector to support rural farmers through training opportunities and marketing productivity Implementation of solutions are guided by the following: Draft Soil Resource Management Bill 2018 Samoa National Action Programme to combat Land Degradation and to mitigate effects of drought 2015-2020 National Invasive Species Strategy and Action Plan 2008-2011 2 Million Tree Planting Strategy 2015-202	

Village Governance	Best Solutions	Guideline to assist Implementation	Comments
Emergency Response and disaster preparedness	Develop a village climate and disaster emergency plan Need to installed emergency evacuation signs ***Responsibility: MNRE-DMO / MWCSD / District***	Implement the National Disaster Management Plan 2017-2021	District has completed its CDCRM training and they requested that they want to expand to have emergency signs installed along the road for emergency response preparation towards a disaster.

Palauli West District consultation, February 2017

Coastal erosion Foailuga village beachfront

Foailuga village map



4.3 Satuiatua Village Interventions

Infrastructure	Best Solutions	Other Benefits	Guidelines to assist Implementation	Relevant Sector Plans
Evacuation Shelter	DMO to conduct assessment of existing buildings within the village located away from the hazard zone to identify a suitable building for Evacuation Shelter, prior to considering following request. Request DMO to include the Primary School located inland into their program of retrofitting buildings to enhance the School building Evacuation Shelter role. ***Responsibility: MNRE / MWCSD / Village***	Improve public facility used by communities for safety during times of natural disasters	Emergency house or shelters priority are given to existing buildings within the village that suits the criteria for an Evacuation Shelter and are retrofit for this purpose, and most targeted are school buildings.	National Disaster Management Plan 2017-2021
Village infrastructure in hazard zones include: Households Schools Churches Businesses, Women's Committee House	Relocate outside hazard zones Investments within the hazard zone adopt appropriate mitigation measures Raise building foundations at a level that takes into account the CFHZ in the vicinity ***Responsibility: Village/Families / MWTI***	Reduce cost in ongoing maintenance mitigate potential damage from coastal erosion and flooding accommodating the hazard.	PUMA Act 2004 Application of the National Building Code (Draft Sept 2016) and permit compliance	CIM Strategy 2015

Other CIM Plan issues and solutions identified

Infrastructure	Solutions/ Issues	Comment
Seawall impact - village pool - natural coastal processes	Need to re-assess the impact of current seawall not only on the village pool but also natural coastal processes Put in place options that would help in	It was noted from the community representatives at the CIM Plan consultation and site assessments their concern raised about the seawall. They all say that since having the seawall and road-works it may have

	rehabilitation of the pool, and restoration of coastal beach resources ***Responsibility: LTA / MWTI***	affected the underground water that feeds the pool, and thus impact on the amount of water coming into the pool and its depth. The village requests not to extend the existing seawall or rebuilt it as its drenches the sand away from the coastal area of the village especially the local beach resorts. There is a strong need for more coastal replanting in the area.

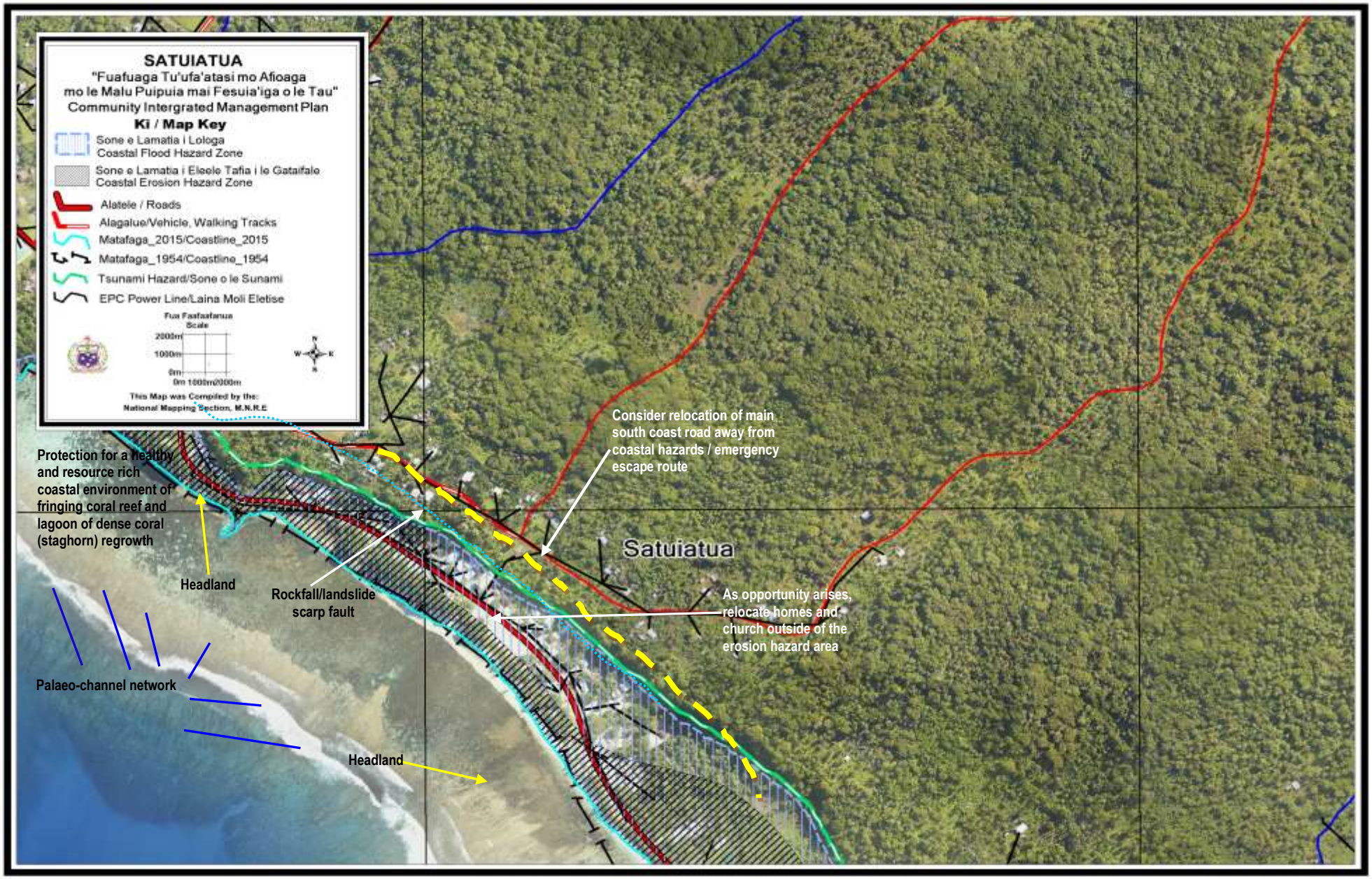
Environment & Natural Resources	**Best Solutions**	**Other Benefits**	**Guideline to assist Implementation**	**Relevant Sector Plans**
Marine Environment needs protection and management	Establish a Marine fisheries reserves for village Collect and dispose of crown-of-thorns (COTs) on a regular basis to prevent major outbreaks Ban the use of dynamites, herbal poisons (avaniukini), chemicals and other unsustainable fishing methods. Monitor the state of corals and implement coral gardening Conduct training on village based monitoring programs for marine areas ***Responsibility: MAF / MNRE / Villages***	Provides a sustainable source of food for the village Reduces coral bleaching and increases growth of new coral Improve resilience of coral reef ecosystem to combat climate change Reduce loss of marine habitats Protects marine biodiversity	Maintenance of marine reserve and protected area requires community consent and government approval along with biological surveys. Fisheries Division to advice villages on the Community-based Fisheries Management Program (CBFMP) – Develop Village Fisheries Management Plans NBSAP 2015-2020	National Environment Sector Plan 2017 - 2021 Agriculture Sector Plan 2016-2020
Forest (logging and cultivation expansion)	Close monitoring of village logging operation: - Limit all village logging operation to MNRE approved areas - Identify suitable areas for logging away from catchment area - Village to implement reforestation	Increase ecological resilience of forest Reverse land degradation to improve native forest cover Contribute to the MNRE 2 million tree planting	MNRE-Forestry Division to provide advice to community on reforestation / restoration program by providing tree seedlings for planting. 2016-2020 National Forestry Plan NBSAP 2015-2020 NAP – Sustainable Land Management Plan 2015-2019	National Environment Sector Plan 2017-2021

	program to complement logging activities ***Responsibility: MNRE / village***		NBSAP 2015-2020 Restoration Operational Plan 2016- 2020 Two Million Tree Planting Strategy 2015-2020 Forestry Management Act 2011	
Invasive species spread across upland and lowland areas impacting on native forest and plantation	Implement bio-control or eradication programs to remove or managed invasive weeds and plants commonly found in open fallow land such as: Cordia tree species, peanut weed (vao pinati), African tulip (faapisi) and merremmia peltata (fue lautetele) Conduct awareness and education community programs on the adverse impact of invasive alien species (terrestrial or marine environment) ***Responsibility: MNRE / village***	Reduce impact of invasive species on forest Increase number of native trees reforestation Improve soil stability	Implementation of invasive species program should be guided by: NBSAP 2015-2020 National Invasive Species Plan 2008-2011 Forestry Restoration Operational Plan 2016-2020 2 Million Tree Planting Strategy 2015-2020	National Environment Sector Plan 2017-2021

Village Governance	**Best Solutions Proposed**	**Guideline to assist Implementation**	**Comments**
Village By-laws	Implement village by-laws for community to follow and include protection of natural resources both marine and terrestrial ***Responsibility: Village / MWCSD***	MWCSD to provide assistance tovillage in developing by-laws Community Development 2016-2021	Support the development of district / village by-laws that can guide governing structure of village and the implementation of government and non-government programs including CIM Plans.
Village support fund	Continue implementation of village fundraising programme to support vulnerable families with low income ***Responsibility: Village***	This initiative guided by the Village-by law Community Development 2016-2021	Village has its own initiative in place for over three years now of fundraising to pay for school fees for children in the village whose family can't afford to pay the fees.

Invasive peanut weed or *Senna tora* (vao pinati) and fuelau tetele (*merremia peltata*) widely found inland open forest or old plantation fallow land – Satuiatua village **Photo credit: MNRE-PUMA 2017**

Satuiatua Village Map



4.4 Salailua Village Intervention

Infrastructure	Best Solutions	Other Benefits	Guideline to assist Implementation	Relevant Sector Plans
Access road inland realignment / re-routing from Foailuga to Salailua and regular roadside drainage maintenance	Design a new road alignment inland Salailua (escape route or emergency road): -Develop road design and scope of work -Implement road safety audit and appropriate signage - Maintenance of road side drains and regular inspection of drainage system; ***Responsibility: LTA / MWTI / District***	Improved rate of Recovery Improved coastal Protection Reduced potential for flooding in coastal areas Improved lifeline Access Safer village houses and roads Improved sustainability of natural resources Improved safety and resilience of residents in the coastal hazard zones	LTA and MWTI should provide the design and close monitoring of road infrastructure development following the guidelines below: Programme drainage in budget and work programme Prepare assessment of road drainage systems Prepare a local education programme on need for keeping drainage systems clean Environmental and Social Safeguard policy Samoa Code of Environmental Practice (2007) Review of National Road Standards in Samoa (2016) Vulnerability Assessment of the Samoa Road Network (2017) National Infrastructure Strategic Plan (NISP) 2011 Programme road safety activities into budget and work programme	Community Integrated Management Strategy, August 2015 Transport Sector Plan 2014-2019

Evacuation Shelter and safe egress or escape route (walkway)	DMO to conduct assessment of existing buildings within the village located away from the hazard zone to identify a suitable building for Evacuation Shelter, prior to considering following request. Request DMO to include the Secondary School located inland into their program of retrofitting buildings and use it as the village Evacuation Shelter given its location away from the coastal area. Request to construct an escape route or walkway from behind the homes of families at the coast all the way up to the Secondary school. ***Responsibility: MWCSD / MNRE /Village***	Improve public facility used by communities for safety during times of natural disasters Improve emergency escape route Increase resilience of communities to respond to emergency events	Emergency house or shelters priority are given to existing buildings within the village that suits the criteria for an Evacuation Shelter and they are retrofit for this purpose, and most targeted are school buildings.	National Disaster Management Plan 2017-2021
Village infrastructure in hazard zones include: Households Schools Churches Businesses, Women's Committee House	Relocate outside hazard zones Investments within the hazard zone adopt appropriate mitigation measures Raise building foundations at a level that takes into account the CFHZ in the vicinity ***Responsibility: Village/Families / MWTI***	Reduce cost in ongoing maintenance mitigate potential damage from coastal erosion and flooding accommodating the hazard.	PUMA Act 2004 Application of the National Building Code (Draft Sept 2016) and permit compliance	CIM Strategy (2015)
Independent Water Scheme monitoring	Implement routine clean-up of the water intake or reservoir and maintenance of the piped network Regular monitoring and testing of water	Improve access to water for consumption and domestic use	MWCSD – IWSA should provide guidance and advice to village on routine maintenance work for management of independent water scheme	Community Development Plan 2016-2021

	quality for consumption ***Responsibility: Village / MWCSD-IWSA / MoH***			
Community pool	Request upgrade of the Salele Village pool – Construction or repairs should focus on the first cell of the pool and the seaward cell. ***Responsibility: Village / CSSP / UNDP-GEF SGP/ MNRE***	Improve and maintain suitable fresh water pooling and negate the influx of seawater through the natural rock outflow area	Village pool should follow guidelines provided by MNRE or MWTI: Environmental Social Safeguard Policy Code of Environmental Practice, 2007 National Infrastructure Strategic Plan (NISP) 2011 PUMA Act 2004	Community Development Plan 2016-2021 National Environment Sector Plan 2017-2021

Environment & Natural Resources	**Best Solutions**	**Other Benefits**	**Guideline to assist Implementation**	**Relevant Sector Plans**
Water catchment	Protect catchment area and discourage agricultural expansion to high elevation of 600m asl. Continue the restoration program and management of the Catchment area Water Resources Division of MNRE to continue monitoring the status of the catchment area and implement reforestation program for maintenance of healthy watershed ecosystem ***Responsibility: MNRE / village***	Restoration of native forests species increases the resilience against climate change impacts by improving the biodiversity, reducing the risk of forest fires, providing land stabilization, reducing erosion, reducing land slips and maintaining water quality Contribute to the 2 million tree planting	MNRE-DEC, WRD and Forestry Division to provide advice such as: MNRE-DEC, WRD and Forestry Division to provide advice such as: Awareness and government support in supply of nursery trees, technology and infrastructure to have a sustainable mechanism for replanting Community to request through Forestry Division MNRE seedlings under their 2million tree replanting project	NESP2017-2021 Water and Sanitation Sector Plan 2016-2020 Water Resource Management Act 2008

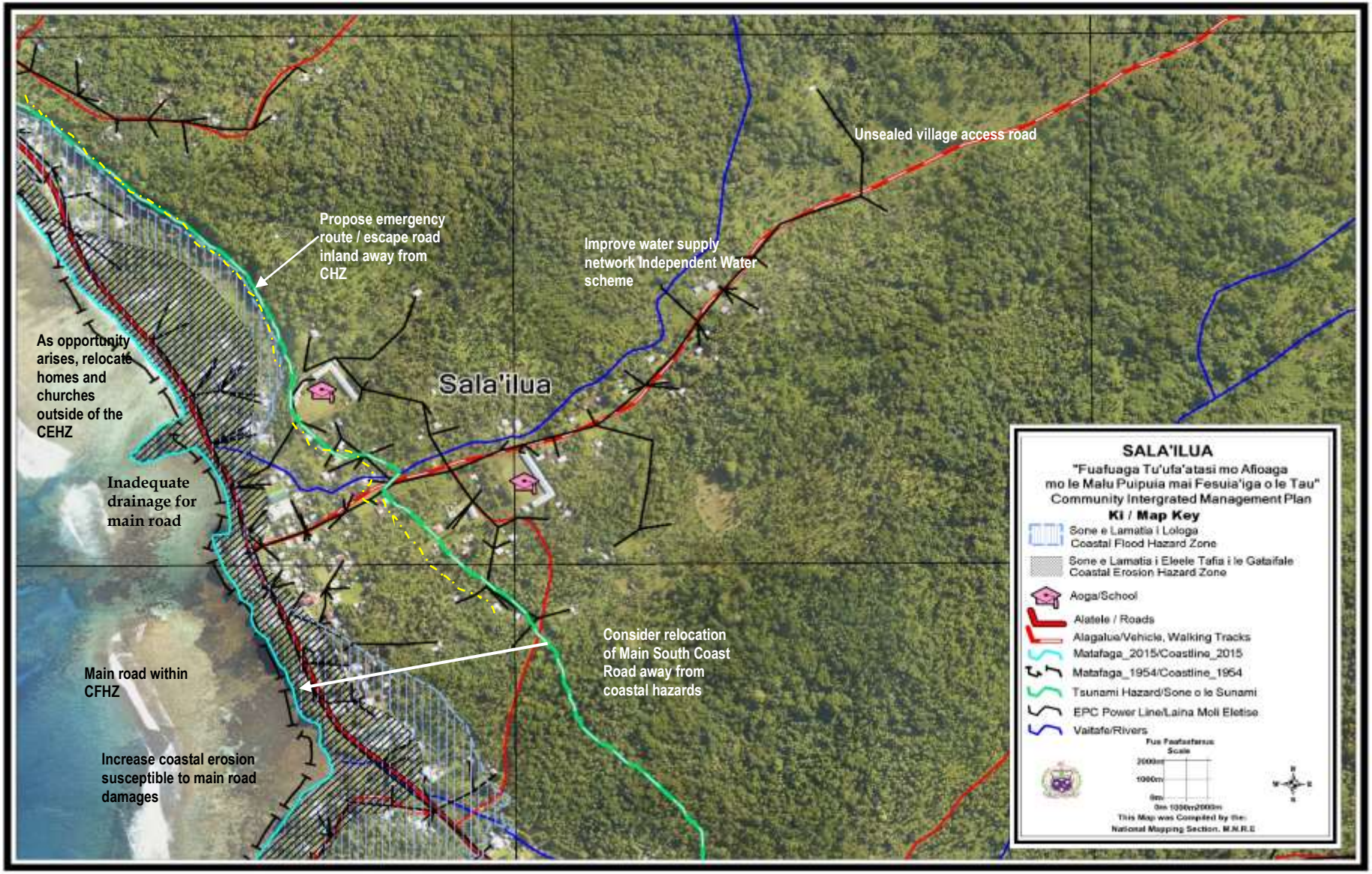
			NBSAP 2015-2020 National Water Strategy Plan 2007-2017 Water Resource Management Act 2008 Forestry Restoration Operational Plan 2016-2020 Forestry Management Act 2011 Two Million Tree Planting Strategy 2015-2020	
Marine Environment needs protection and management	Establish a Marine fisheries reserves for village Collect and dispose of crown-of-thorns (COTs) on a regular basis to prevent major outbreaks Ban the use of dynamites, herbal poisons (avaniukini), chemicals and other unsustainable fishing methods. Monitor the state of corals and implement coral gardening Conduct training on village based monitoring programs for marine areas ***Responsibility: MAF / MNRE / Villages***	Provides a sustainable source of food for the village Reduces coral bleaching and increases growth of new coral Improve resilience of coral reef ecosystem to combat climate change Reduce loss of marine habitats Protects marine biodiversity	Maintenance of marine reserve and protected area requires community consent and government approval along with biological surveys. Fisheries Division to advice villages on the Community-based Fisheries Management Program (CBFMP) – Develop Village Fisheries Management Plans NBSAP 2015-2020	National Environment Sector Plan 2017 - 2021 Agriculture Sector Plan 2016-2020
Forest Loss (loss of indigenous forest due to cyclone damages and land clearance)	Replanting of native tree species in open fallow lands Rehabilitate fallow land and degraded area	Reverse land degradation 2 Million Tree Planting	MNRE-Forestry Division to provide advice to community on reforestation / restoration program by providing tree seedlings for planting.	National Environment Sector Plan 2017-2021

	Implementation of replanting program for village of native tree species Community forest programs ***Responsibility: MNRE / village***		NBSAP 2015-2020 NAP – Sustainable Land Management Plan 2015-2019 Restoration Operational Plan 2016- 2020 Two Million Tree Planting Strategy 2015-2020 Forestry Management Act 2011	

Village Governance	**Best Solutions Proposed**	**Guideline to assist Implementation**	**Comments**
Emergency Response and disaster preparedness	Develop a village climate and disaster emergency plan Need to installed emergency evacuation signs ***Responsibility: MNRE-DMO / MWCSD / District***	Implement the National Disaster Management Plan 2017-2021	District has completed its CDCRM training and they requested that they want to expand to have emergency signs installed along the road for emergency response preparation towards a disaster.
Implement clean-up programs in the village	Conduct routine inspections and remove debris and rubbish from river channels, road side drains and culverts to remove blockages and improve discharge ***Responsibility: Village***	Village Beautification Committee monitor clean-up program Community Development 2016-2021	Village Women's Committee and Untitled men lead clean-up culverts, drainage and environment
Village management	Implement the management of the IWS through: Collection of village water bills to support maintenance of water network – village council All decision making on village affairs ***Responsibility: Village***	Village-by laws guide the management of everyday activities of the community	Village chiefs plays a strong role in the management of their Independent Water Scheme

Salailua village water reservoir Independent Water Scheme

Salailua Village Map



4.5 Siutu Village Interventions

Infrastructure	Best Solutions	Other Benefits	Guidelines to assist Implementation	Relevant Sector Plans
Village infrastructure in hazard zones include: Households Schools Churches Businesses, Women's Committee House	Relocate outside hazard zones Investments within the hazard zone adopt appropriate mitigation measures Raise building foundations at a level that takes into account the CFHZ in the vicinity ***Responsibility: Village/Families / MWTI***	Reduce cost in ongoing maintenance mitigate potential damage from coastal erosion and flooding accommodating the hazard.	PUMA Act 2004 Application of the National Building Code (Draft Sept 2016) and permit compliance	CIM Strategy (2015)
Access road to the village	Upgrade and resealed access road and roadside drainage Explore other appropriate engineering solutions for improving drainage and reducing flooding the gully along the main road Construct road humps, traffic signage and pedestrian crossings at appropriate locations ***Responsibility: LTA / village***	Improved rate of recovery Improved coastal protection Reduced potential for flooding in coastal areas Improved lifeline access Safer village houses and roads Improved sustainability of natural resources Improved safety and resilience of residents in the coastal hazard zones	LTA and MWTI should provide the design and close monitoring of road infrastructure development following the guidelines below: Programme drainage in budget and work programme Prepare assessment of road drainage systems Prepare a local education programme on need for keeping drainage systems clean Environmental and Social Safeguard policy Samoa Code of Environmental Practice (2007) Review of National Road Standards in Samoa (2016)	Community Integrated Management Strategy, August 2015 Transport Sector Plan 2014-2019
Access Road (inland plantation / residents)	Sealed existing village access road to plantations and families living inland Length: 1500m Estimated Cost: SAT$ 545,200.00 ***Responsibility: LTA / village***			

			National Infrastructure Strategic Plan (NISP) 2011 Vulnerability Assessment of the Samoa Road Network (2017) Programme road safety activities into budget and work programme	

Other CIM Plan issues and solutions identified

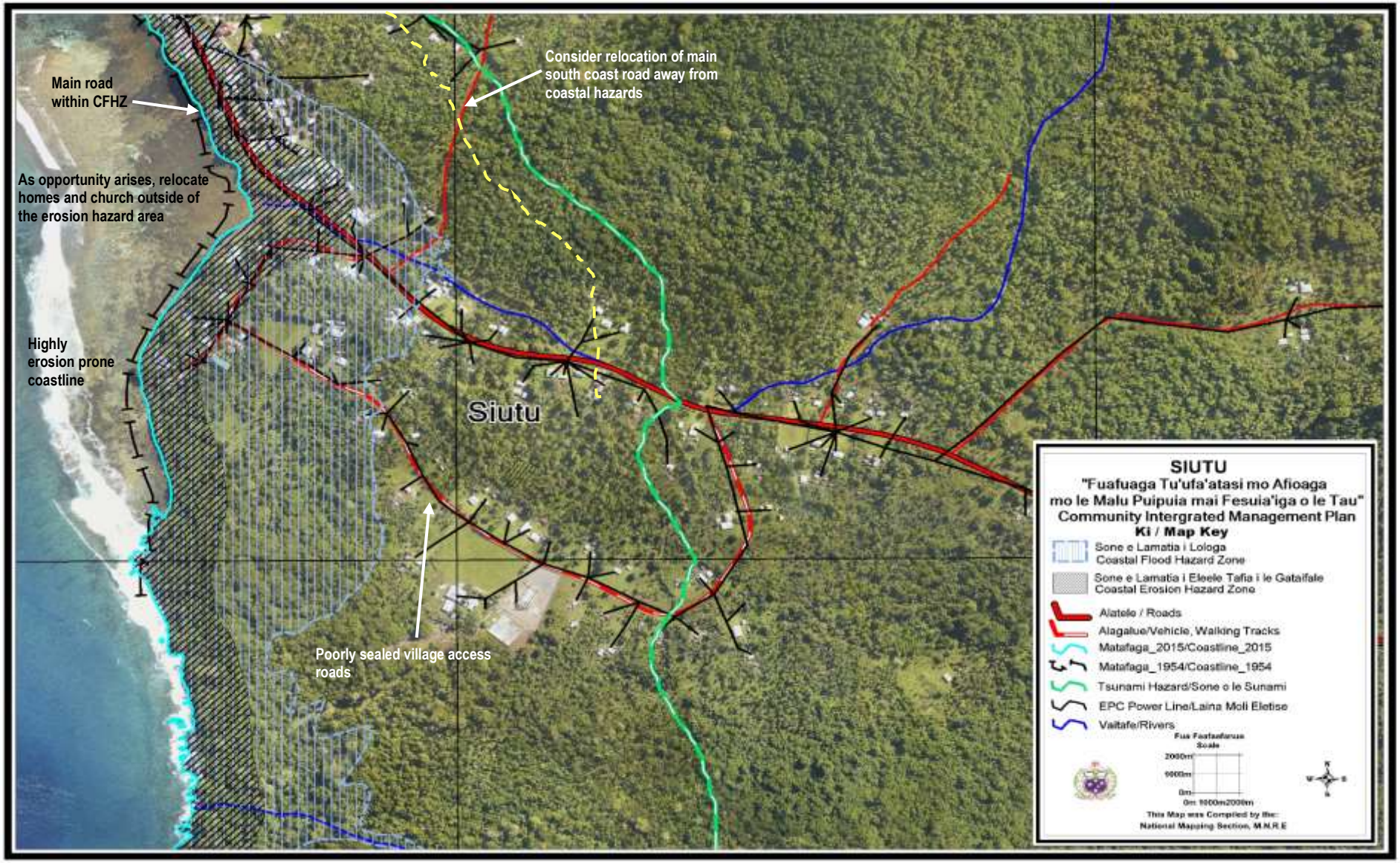
Infrastructure	Solutions/ Issues	Comment
Seawall	Request if the existing seawall can be extended to the south east of the coastal beachfront to cover the whole village. The extension is about 200m to protect most of the lands surrounding the village. ***Responsibility: LTA / MWTI / village***	According to the technical assessment by the CIM Plan Team and specific recommendations from the Spatial Risk Planner – there is no sufficient rationale behind the extension of the seawall. Much of the coastline along where they wish to construct the seawall is natural raised up from the high tide line.
Mulberry tree (u'a)	Replanting of mulberry tree for income generating activities Request tools to help with replanting such as fence to protect the plants ***Responsibility: Village / CSSP / SBEC / UNDP-GEF SGP***	Village requested tools especially fence to protect their mulberry trees from free roaming cows. This is not in-line with climate resilience objectives.
Mangrove ecosystem	Protection of rare mangrove species (*Xylocarpus* species) only 2acres remaining. Conduct a RAP to assess biodiversity ***Responsibility: MNRE / Village***	It was noted from a staff of MNRE-DEC that the mangrove ecosystem within this village is threatened from excessive use

Environment & Natural Resources	Best Solutions	Other Benefits	Guidelines to assist Implementation	Relevant Sector Plans
Marine Environment needs protection and management	Establish a Marine fisheries reserves for village Collect and dispose of crown-of-thorns (COTs) on a regular basis to prevent major outbreaks Ban the use of dynamites, herbal poisons (avaniukini), chemicals and other unsustainable fishing	Provides a sustainable source of food for the village Reduces coral bleaching and increases growth of new coral Improve resilience of coral reef ecosystem to combat climate change Reduce loss of	Maintenance of marine reserve and protected area requires community consent and government approval along with biological surveys. Fisheries Division to advice villages on the Community-based Fisheries Management Program (CBFMP) – Develop Village	National Environment Sector Plan 2017 - 2021 Agriculture Sector Plan 2016-2020

	methods. Monitor the state of corals and implement coral gardening Conduct training on village based monitoring programs for marine areas ***Responsibility: MAF / MNRE / Villages***	marine habitats Protects marine biodiversity	Fisheries Management Plans NBSAP 2015-2020	

Woman making tapa (siaopo material) from bark of a mulberry tree or u'a – Siutu Village income generating activity

Siutu Village Map



4.6 Taga Village Interventions

Infrastructure	Best Solutions	Other Benefits	Guidelines to assist Implementation	Relevant Sector Plans
Access Road to inland families and plantations Sealed road to Taga Blowhole Tourist Attraction	Inland Access Road – sealed existing access road to support village plantations and families living inland Length: 2km Estimated Cost: SAT$2,015,400.00 BCA: 1.6 ***Responsibility: LTA/village***	*Improved rate of recovery *Improved coastal protection *Reduced potential for flooding in coastal areas *Improved lifeline access *Safer village houses and roads *Improved sustainability of natural resources *Improved safety and resilience of residents in the coastal hazard zones	LTA and MWTI should provide the design and close monitoring of road infrastructure development following the guidelines below: Environmental and Social Safeguard policy Samoa Code of Environmental Practice (2007) Review of National Road Standards in Samoa (2016) National Infrastructure Strategic Plan (NISP) 2011 Vulnerability Assessment of the Samoa Road Network (2017) Programme road safety activities into budget and work programme	Community Integrated Management Strategy, August 2015 Transport Sector Plan 2014-2019
Evacuation Shelter	DMO to conduct assessment of existing buildings within the village located away from the hazard zone to identify a suitable building for Evacuation Shelter, prior to considering following request. ***Responsibility: MWCSD / MNRE /Village***	Improve public facility used by communities for safety during times of natural disasters Improve emergency escape route Increase resilience of communities to respond to emergency events	Emergency house or shelters priority are given to existing buildings within the village that suits the criteria for an Evacuation Shelter and are retrofit for this purpose, and most targeted are school buildings.	National Disaster Management Plan 2017-2021

Other CIM Plan Issues identified and solutions

Infrastructure	Solutions/ Issues	Comment
Taga Blowhole Road	Request for sealing the road to the Taga Blowhole to support tourist site attraction. Length: 1800m Estimated Cost: SAT$ 589,000.00 ***Responsibility: LTA / village***	The request for sealing the road to Taga Blowhole is more for tourism purpose but it won't contribute to climate resilience outcome.
Seawall	Village request for a seawall to the seaward side of the village pool. ***Responsibility: LTA / MWTI / village***	The request for a seawall would not be a feasible investment given the strong wave currents and massive coastal erosion made worse with continuous sand mining activities.
Village pool (So'otuna)	The upgrade of the village pool has been completed through the small sub-project funds from the PPCR-ECR project.	

Environment & Natural Resources	Best Solutions	Other Benefits	Guidelines to assist Implementation	Relevant Sector Plans
Marine / Fisheries Reserve	Assess the possibility of establishing a marine reserve Implement coral gardening Conduct training on village based monitoring programs for marine areas Procure a small dingy boat for ongoing monitoring of the marine reserve ***Responsibility: MAF / MNRE/ Village***	Reduce impact of land-based pollution Reduce impact of coral bleaching Improve resilience of coral reef ecosystem to combat climate change Reduce loss of marine habitats	MAF-Fisheries division to provide advice following existing guidelines: Community-based Fishery Management Plan NBSAP 2015-2020 Develop Management Plans for Marine Reserve or Protected Area	Agriculture Sector Plan 2016-2020 National Environment Sector Plan 2017-2021
Forest Cover	Continue the protection of the Taga Conservation Area Implement activities in the Taga Conservation Area management plan Implement community forestry program ***Responsibility: MNRE / village***	Increase biodiversity within the forest area Improved the ecological resilience of forest ecosystem	MNRE-Forestry Division to provide advice and technical support to communities on upland forest restorations guided by: Development of Savaii Upland Forest Management Plan National Water Management Strategy 2007-2017 National Action Programme to combat	National Environment Sector Plan 2017-2021

			land degradation and mitigate effects of drought 2015-2020 NBSAP 2015-2020 Forestry Restoration Operational Plan 2016-2020 Environmental Management Bill 2013 National Parks and Reserves Act 1974 Protection of Wildlife Regulation 2004 National Invasive Species Strategy and Action Plan 2008-2011 2 Million Tree Planting Strategy 2015-2020	
Sand mining for commercial and domestic use affecting the marine and coastal environment as well as terrestrial resources (mining activity on the side of Tafua crater)	Enforce close monitoring of extractive activities around the Tafua crater to prevent risk of a landslide Assess and identify sustainable sources of sand for domestic and commercial use Village, government and the private sector to collaborate on designated areas for sand mining Extractive industries (mining) monitored and corrected in the riverbank and coastal fringe Strengthen sand mining monitoring and enforcement Mass media awareness on sustainable sand	Village gains benefit from sand mining activities Reduce impact to natural coastal protection mechanism via control of scale and site of extraction Improve village resource management and sustainable development Minimize impacts of coastal inundation and erosion Improve the sustainable management of sand as a natural resource	Follow existing MNRE guidelines for sand mining or extracting such as: MNRE monitoring of sand extraction operations Secure relevant permits before any sand mining occurs Incorporate environmental and social safeguards concerns including consultations with any affected community Village environmental management plans established including annual monitoring systems For access to sites, obtain written consents from Alii Faipule and landowners.	National Environment Sector Plan 2017-2021

	mining practices Develop sand mining regulation ***Responsibility: MNRE / District & Village***		Lands and Survey Environment Act 1989 Consideration of EIA assessment of impact prior to any extraction PUMA Act 2004 NAP – Sustainable Land Management Plan 2015-2019 (draft) |Sand Mining Policy 2001 Draft Soil Resource Management Bill 2018	

Livelihood and Food Security	**Best Solutions and Other Solutions Proposed**	**Other Benefits**	**Implementation Guidelines**	**Link to Sector Plans**
Disturbed forests and plantation areas	Restore and utilize fallow lands closer to the village with plantations rather than clearing inland and upland forests : Promote and facilitate planting of root-crops (i.e yams, sweet potato which are more resilient to cyclones, droughts and floods. Promote agro-forestry and mixed planting including fruit trees species to reduce crop vulnerability to pests and diseases. Diversify into other climate resilient species cash crops and fruit trees i.e cocoa, coconut, lemon and plant in suitable areas outside hazard zones Implement Sustainable Land management practices Implement integrated	Improve food security and healthy living and increase community resilience and adaptive response to climate change	MAF CROP Division to support farmers through guidance and trainings from Agricultural experts and awareness programs on crop diversification to suit the prolonged periods of drought or rainy season Provide tools and planting materials to improve crop diversification and resilience – address pest issues etc. This will lead to improve food security Strengthen partnership with farming NGO's such as the: Samoa Farmers Association; Samoa Federated Farmers Incorporated ; Women in Business Inc. and private sector to support	Agriculture Sector Plan 2016-2020

	pest management programmes ***Responsibility: MAF / CSSP/WIBDI/Farmers Association/ METI/ SBEC / UNDP-GEF-SGP/MNRE / villages***		rural farmers through training opportunities and marketing productivity Implementation of solutions are guided by the following: Draft Soil Resource Management Bill 2018 Samoa National Action Programme to combat Land Degradation and to mitigate effects of drought 2015-2020 National Invasive Species Strategy and Action Plan 2008-2011 2 Million Tree Planting Strategy 2015-2020	
Tilapia farm (Aquaculture development) another source of food supply	Implement tilapia farm (aquaculture) as alternative source of food to reduce pressure on inshore fishing Construct tilapia farms ***Responsibility: MAF / village***	Improve food security	MAF-Fisheries Division development of Tilapia farm should be guided by: Environmental Social Safeguard Policy Code of Environmental Practice Community based Fisheries Management Plan	Agriculture Sector Plan 2016-2020

Village Governance	Best Solutions and Other Solutions Proposed	Implementation Guidelines	Comments
Village By-laws	Implement village by-laws for community to follow and include protection of natural resources both marine and terrestrial ***Responsibility: Village / MWCSD***	MWCSD to provide assistance to district /village in developing by-laws Community Development 2016-2021	Support the development of village by-laws that can guide governing structure of village and the implementation of government and non-government programs including CIM Plans.

Taga Village pool So'otuna upgraded under the PPCR-ECR small project

Taga old Village on the coast highly eroded almost reaching road.

Taga Village Map