

Community Integrated Management Plan

Salega District - Savaii



Implementation Guidelines 2018

Foreword

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

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

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

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


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

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

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

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

Thank you



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

Participants in the Plan

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

This Plan incorporates the Faipule District of Salega (Samata, Fagafau, Fogatuli, Sagone, Fai'a'ai, Vaipua and Fogasavaii villages)

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

Date of Signing: 15th June 2018

Representatives

Signatures:

Samata Village

- Soipoese Faamausili
- Fau Tua
- Legoga Togaga'e
- Loto F'asavalu
- Su'e Solofa

Handwritten signatures for Samata Village representatives on a set of five horizontal lines. The signatures are in blue ink and appear to be: 1. A large stylized 'S' or 'D' shape. 2. A signature that looks like 'Fau'. 3. A signature that looks like 'Legoga'. 4. A signature that looks like 'Loto'. 5. A signature that looks like 'Su'e'.


Fagafau Village

- Lua'i Malu
- Mafutaga Tapuvae
- Lua'i Isaako
- 'Ualotu Ale
- Falesii 'Aisa

Handwritten signatures for Fagafau Village representatives on a set of five horizontal lines. The signatures are in blue ink and appear to be: 1. A signature that looks like 'L. Malu'. 2. A signature that looks like 'Mafutaga'. 3. A signature that looks like 'Lua'i'. 4. A signature that looks like 'Ualotu'. 5. A signature that looks like 'Falesii'.


Fogatuli Village

- Afualo Apelu
- Elisapeta La'ulu
- Poutoa Tautele
- Fuatia Feleti
- Afualo Toese


 E. Lauha
 Poutoa Tautele
 Fuatia Feleti
 Afualo Toese


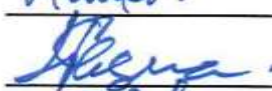

Sagone Village

- Ma'ilata Tuese
- Talele Faalogo
- Tupa'i Anesone


 T.F.
 T.A.

Fai'a'ai Village

- Leulua'i Fetalaiga Pepese
- Maria Paula
- Levu Iosua
- Lotu Talatau
- Fualau Failauga


 M. Paula


 F. Failauga

Vaipua Village

- Mafuatu Esau
- Salafai Lolimisieli
- Loli Mafiti
- Loli Enele
- Loli Siō




 Loli Enele
 Loli Siō

Fogasavaii Village

- Mo'oui Viliamu
- Maria M Sefo
- Faialofa Mooui Viliamu
- Ufie Muagutu
- Mauao Ionatana

Mo'oui

Maria M Sefo.

Faialofa M. V.

Ufie Muagutu.

Mauao Ionatana.

The Government of Samoa adopts the Community Integrated Management Plan for the Faipule District of Salega as a Management Plan for the Implementation of the Community Integrated Management Strategy (CIMS).

The Ministry of Natural Resources and Environment, as lead organization of Government, on behalf of the participating Government Departments and Corporations, confirms the participation of the Government of Samoa in the preparation of this Community Integrated Management Plan and its adoption as a Management Plan for the implementation of the Community Integrated Management Strategy.



Ulu Bismarck Crawley
CHIEF EXECUTIVE OFFICER, MNRE

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Acronyms

ASCH	Areas Sensitive to Coastal Hazards
BCA	Benefit Cost Analysis
CBFMP	Community Based Fisheries Management Plan
CCCS	Congregation Christian Church Samoa
CC	Climate Change
CCA	Climate Change Adaptation
CDCRM	Community Disaster & Climate Risk Management
CEP	Community Engagement Plan
CHZ	Coastal Hazard Zone
CEHZ	Coastal Erosion Hazard Zone
CFHZ	Coastal Flooding Hazard Zone
CIM	Community Integrated Management (Plan) or (Strategy)
CLHZ	Coastal Landslip Hazard Zone
COEP	Code of Environmental Practice
CSO	Civil Society Organization
CSSP	Civil Society Support Programme
DSP	District Sub Project
EbA	Ecosystem based Adaptation
ECCCR	Enhancing Coastal Community Climate Resilience
ECR	Enhancing Climate Resilience
EMP	Environmental Management Plan
EPC	Electric Power Corporation
ERN	Emergency Radio Network
HCSI	High Coastal Sensitive Index
IG	Implementation Guideline
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
NGO	Non-Government Organization
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
VCDMP	Village Climate Disaster Management Plan
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 Community Integrated Management (CIM) Plan for Salega District has been prepared as part of the Government of Samoa's Adaptation Fund - *Enhancing Resilience of Coastal Communities of Samoa to Climate Change Project*. The CIM Plan is one of the primary means of implementing the CIM Strategy, which was formally approved by the Government of Samoa in February, 2001 and updated in 2015 as providing the Strategic direction for enhancing the resilience of community livelihoods, infrastructure, environment and natural resources using a holistic and integrated ridge-to-reef approach. The Strategy has as its central vision:

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

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

1.2 The Aim of the CIM Plan

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

The CIM Plan will:

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

1.3 Structure of the Plan

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

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

2. Implementation Guidelines

2.1 Purpose of the Implementation Guidelines

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

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

2.2 Duration of the Plan

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

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

2.3 Financing of the Plan

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

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

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

- **Community Engagement Plan(CEP)**- the guidelines provided in the CEP is an excellent capacity building tool that can be used by CSO's and village communities themselves to aid development of small grant proposals to existing small grant funding mechanisms like CSSP and the UNDP-GEFSGP.

- ***District Sub Project (DSP)*** – the guidelines provided in the DSP targets single districts or multi-district projects with a large number of beneficiaries.

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

3. Description of Salega District

3.1 Physical and Natural Resource Setting

The District of Salega is located on the south-western side of Savaii between the Alataua West and Palauli West Districts. Local climatic conditions are influenced by winds and moisture content as the trade wind rise over the high mountain range inland. The coast has sandy beaches and a narrow coral reef system that creates a small lagoon system for part of the district. The coastal system supports fishing; a small demand for tourism and local consumption. Salega District is made up of 7 villages; Fagafau, Sagone, Fai'aai, Fogatuli, Vaipua, Samata and Fogasavaii and is the third largest populated district of Savaii¹.

The villages of the Salega district are well protected by coral reefs and human access to the reefs is made difficult by the high cliffs and rocky outcrops in most places. These same cliffs and rocky outcrops also provide protection for coastal vegetation from wave action but limits access to the beach areas. The rocky terrain not only impedes fishing activities but also restrict access by villagers to coastal springs on which they depended in past years before reticulated water became available. In many cases, coastal vegetation of the villages in this district is very much intact and the tree species have remained unchanged over time. The dominant coastal species include pu'a, futu, tauanave, fetau, and pulu (indian banyan) although at some places encroachment by other species especially lusina and fau (*Hibiscus tiliaceas*) are becoming obvious (Reti, 2016).

The coastal areas of the district of Salega are largely undisturbed due to the high cliffs and rocky terrain which support some species not commonly seen in coastal areas of other districts of Savaii. At Fagafau, native forest species on the coastal side of the main road are being cleared for taro plantations. The villages of the Salega district probably have more lowland forest on the coastal side of the main road than inland. Village plantations occupy land immediately behind village houses and cattle grazing under coconut trees are a common practice along both sides of the access roads. The cattle farms are small in size (between 1 and 2 acres) but do provide an environment suitable for the vao tuaniu or sword fern (*Nephrolepsishirsutula*) and vaopinati or peanut weed (*Senna tora*) to spread and dominate. Mint weed and vaofefepalagi (*Mimosa invisa*) are present in the district although they are not yet regarded as serious threats to the vegetation (Reti, 2016).

No destructive fishing practices were reported from the district but there is evidence of domestic sand extraction in some places. Commercial operators are reported to be dumping their rubbish over the cliffs into the sea below where they are hidden from sight. In some areas of the district, the cliffs look like a mini-landfill with domestic rubbish dumped quite close to the main South West Coast Road. Commercial rubbish removal companies resorted to dumping into the cliffs and outcrops of Salega due to the temporary closure of the Vai'aata Landfill mid-2016. Fai'aai reported an increase in different species of corals and seaweed and the lagoons are rougher than they used to be. Some villages have asked for help in replanting corals in their lagoon areas.

Village plantations and cattle grazing dominate the upland areas of the district. The forests that once provided shelter for the districts fauna and flora have been severely damaged by land clearing and strong winds that only small "pockets" of native forest species are evident but even these are under threat from encroaching invasive species such as the merremia vine (*Merremiapeltata*), pulumamoe (*Castillaelastica*), and puluvao (*Funtumiaelastica*).

The main South West Coast Road running through the district is considered a lifeline access as it is part of the national road network connecting the whole of Savaii; from the East (from Salelologa Wharf) to the West (Falealupo) and back around to the North. The main road is an important part of the district's infrastructure as it provides easy access to other work roads, schools, churches and village buildings. This district due to its large area has 9² other roads within LTA's normal road maintenance programme; Samata-i-Tai Access Road, Samata-i-Uta School Road, Samata-i-Uta Access Road, Vaipua Road, Vaipua Access Road, Fogasavaii Access Road, Fogasavaii Link Road, Savaii Sisifo Secondary School Road and Sagone Road³. The DRM District map shows several fluvial hazard zones within the Salega District.

¹SBS Census 2016 Preliminary Count- population count = 3,355

²No updated list of roads available from LTA but number could be more as there are several other 'roads' that are not counted under the national road network

³MWTI, 2016 Inspection report

3.2 Social and Economic Setting

Salega District currently has a population of 3,355; Samata 1,062⁴, Fagafau 240, Fogatuli 251, Sagone 625, Fai'aa'i 397, Vaipua 426 and Fogasavaii 354. Of the total 3,355, total male is 1,744, female 1,611⁵. Development runs ribbon like and is mostly scattered along or near the main South West Coast Road.

Primary services such as water, power and telephone generally follow the main road and are vulnerable to extreme events. Electricity reaches all of the inland areas where some families have moved. Telephone coverage is provided by both Digicel and BlueSky. 4 boreholes service this district; 1 each at Samata, Fogasavaii, Sagone and Fogatuli. There are 6 schools within the district; 1 secondary and 5 primaries- Savaii I Sisifo Secondary School, Faiaai/Fogatuli Primary, Sagone Primary, Samata-i-Tai and Samata-i-Uta Primaries and the Vaipua/Fogasavaii Primary School.

Because of its steep slopes, crop suitability in this district is very high for the major food crops such as banana, coconut, cocoa, breadfruit, taro and fruits such as lemon⁶. All are limited to areas of fertile soil on the lower slopes of Salega District (Dews, 2016).

The cash economy of the District is dominated by traditional work. The majority of residents are largely sustained by cattle farms and plantations. A few receive income through the Samata-i-Tai beaches, Fai'aa'i beaches and the Lover's Leap at Fagafau; a cliff-top lookout steeped in legend. There are also employment opportunities at a nearby tourist facility; the Satuiatua Beach Fales as well as schools within the district. There are also a number of shops throughout the district and a petrol station between Fogasavaii and Sagone.

3.3 Climate Risk and Resilience

The use of LiDAR mapping data, hydrologist and geomorphologist data and findings for this district has helped determine inland and coastal hazard zones and high risk areas for Salega. The immediate risks for some areas of Salega District are coastal landslips and fluvial hazards.

The district has a total area of 9,248 hectares. There are about 1,119 buildings in the district; about **139 of those buildings are located both in the immediate inundation zones and the fluvial hazard zones**. At present, the majority of buildings are located away from the tsunami evacuation zones, CFHZ, CLHZ and ASCH. There are 5 churches⁷ and 2 schools⁸ sitting outside hazard zones that could be designated as safe havens. Reinforcing critical lands, buildings and/or infrastructure within the hazard zones if they must remain where they are is crucial. Otherwise, relocation is recommended. New residential construction in the regulated floodplain must be elevated, anchored, and otherwise protected against flood damage from a flood event.

The main South West Coast Road crosses through all of these fluvial hazards making it susceptible to damages caused by inland flooding and storm water surges. Inadequate culvert sizes on the main road and non-existent drainages in access roads exacerbate the impacts of inland flooding on the main South West Coast Road. Any upgrades to roads in this district will need to consider the Drainage Infrastructure Database⁹ which systematically identifies the location, design and the condition of drainage infrastructure in the district.

During heavy rains, the ford at Sagone runs up the riverbanks flooding family homes sitting very near the riverbank encroachment control zone. The Sagone Access Road in some parts is less than 5mtrs away from this fluvial hazard and during heavy rains; the stream overtops the road and flows into homes on the opposite site of the access road. There is no footpath or footbridge so pedestrians have to cross the ford when the river overflows during heavy rains. There are no advisory edge markers and depth markers to warn vehicle and pedestrian traffic at this crossing¹⁰. Flooding and storm surges are further exacerbated by the Sagone Primary School blocking the natural channel where the river runs into the sea.

Rainwater harvesting is evidently a well accepted, effectively universal practice for the scattered population of Salega District. Since the idea is already well accepted in the district, continuation with this practice would appear to be the most logical recommendation for any rural water supply scheme. Stored rainwater should therefore be regarded as one of the primary sources for drinkable water in the Salega district. Clearly, the more rainwater

⁴Samata-i-Tai 416, Samata-i-Uta 646

⁵SBS Village Directory Census 2016 preliminary count

⁶Samoa Agricultural Census 2015

⁷1 church in Fagafau, 1 in Fogatuli, 1 in Sagone and 2 in Fogasavaii

⁸Vaipua/Fogasavaii Primary School and the Samata-i-Uta Primary School

⁹GWP Consultants LLP/MNRE, 2016

¹⁰There are no advisory edge markers and depth markers for any crossing in all of Savaii

harvesting that can be developed in the area, the less demand needs to be placed on more conventional piped SWA water supplies sourced from the locally, extremely sensitive, aquifer (Tokalauvere, 2017).

Agriculture livelihoods are limited to areas of fertile soil on the lower slopes. This agriculture area is above the influence of any sea level rise impacts. The water surface flows will be altered by climate change and local adaption through the maintenance of the upper level forests will be important. There are only small areas that have suitable soil fertility which will have to be managed in line with best practices that does limit top soil erosion, and reduces the extend of invasive species.

4.Salega District Interventions

CIM Plan Solutions

Infrastructure	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
Main South Coast Rd: areas prone to landslips	<p>Investigate replacement road inland (approx length 400mtrs) 2km from the coast as long term solution for high risk landslip area of road between Fagafau and Samata. Area also identified in <i>Assessment of the Samoa Road Network and Road Network Adaptation Strategy</i> as medium severity from land slips</p> <p>Where reclamations are proposed, Government and district to manage processes by requiring villagers to get the appropriate permits and consent</p> <p>Responsibility: LTA/ MWTI/ MNRE/ Villages/Families</p>	<p>Improve infrastructure resilience and rate of recovery</p> <p>Improve preparedness and readiness response to natural disasters</p> <p>Reduce impact from coastal erosion and natural disasters</p> <p>Safer villages, houses and roads</p> <p>Minimise national disaster recovery expenditure on damaged properties and public assets</p>	<p>Consult affected landowners and community</p> <p>Undertake a Cost Benefit Analysis to weigh options for funding</p> <p>Incorporate environmental and social safeguards concerns in the design and undertake consultations with affected communities</p> <p>Apply for necessary permits as required by law</p> <p>Utilise hazard maps and Geomorphologist Infrastructure Drainage Database to inform designs</p>	<p>CIM Strategy 2015</p> <p>TSP2014-2019 Goal 2 KO 1</p> <p>Community Sector Plan</p> <p>Vulnerability Assessment of the Samoa Road Network (2016) and Road Network Adaptation Strategy, LTA</p>
Drainage systems require maintenance and upgrade in high risk areas of main South Coast Road especially at junctions of Access Rd	<p>Upgrade drainage and culverts on main south-west coast road and junctions of access roads in accordance with <i>Vulnerability Assessment of the Samoa Road Network</i> recommendations</p> <p>Implement national standards for culverts and drains to facilitate the overland flow of storm water and reduce flooding</p> <p>Implement regular drainage inspection and maintenance</p>	<p>Improves climate resilience of infrastructure resilience and rate of response and recovery to natural hazards and disasters</p> <p>Minimises national disaster recovery expenditure on damaged properties, public and private assets</p>	<p>Use existing information for guidance but not limited to: <i>“Vulnerability Assessment of the Samoa Road Network (2017)”</i>; <i>“Review of National Road Standards in Samoa (2016)”</i>; <i>“Samoa Code of Environmental Practice (2007)”</i></p> <p>Undertake a Cost Benefit Analysis to weigh options for funding</p> <p>Incorporate environmental and</p>	<p>CIM Strategy 2015</p> <p>TSP2014-2019 Goal 2 KO 1</p> <p>Community Sector Plan</p>

	<p>Responsibility: LTA /MWTI/MWCSD /Village/ Families</p>		<p>social safeguards concerns in the design and undertake consultations with affected communities</p> <p>Apply for necessary permits as required by law</p> <p>Utilise hazard maps and Geomorphologist Infrastructure Drainage Database to inform designs</p> <p>Develop and register District/Village bylaws to include maintenance of drainages and illegal rubbish dumping into waterways</p>	
<p>Reticulated water supply, quality and network to be improved</p>	<p>Extend the water supply to families inland with no access to water</p> <p>Procure rainwater harvesting rainwater harvesting systems for vulnerable families as a short term solution</p> <p>District and villages to support SWA water rationing programs during times of drought</p> <p>District to support SWA efforts at exploratory boreholes in district</p> <p>Responsibility: SWA /MNRE/ District /Villages/ CSSP</p>	<p>Increase adaptation during drought periods</p> <p>Improve infrastructure resilience and rate of recovery</p> <p>Improve health and sanitation</p> <p>Reduce contamination of water supply</p> <p>Reduce impact from inland flooding</p>	<p>Develop/Update and register District/Village bylaws to include regulating developments around catchment areas and boreholes</p> <p>Implement SWA (2016) 10year investment plan to improve water supply network to support all inland families without access to drinking water</p> <p>Include in budget programming design, and extension costs of water supply and procurement of rainwater harvesting systems</p> <p>Utilize Hazard Maps and Geomorphologist findings to inform location and design</p>	<p>CIM Strategy 2015</p> <p>Water and Sanitation Sector Plan</p> <p>SWA 10 Year Investment Plan(2016)</p> <p>Community Engagement Plan</p>

<p>Village houses, school, churches, government and other village assets in high risk hazard zones</p>	<p>Relocate outside of high risk hazard zones when building/infrastructure requires replacement</p> <p>Investments within the hazard zones to adopt appropriate mitigation measures</p> <p>Conduct awareness raising campaign on flood resilient building practices and designs for at risk communities living in and near high risk hazard zones</p> <p>Design infrastructure to take into account the immediate hazard zones; for example, raise floor levels of houses in flood prone areas</p> <p>Develop landuse planning and development controls to restrict developments within high risk hazard zones such as CEHZ and CFHZ</p> <p>Families and village to limit building and developing on natural overland flow paths exacerbating inland flooding and storm water surges</p> <p>Where reclamations are proposed, Government and district to manage processes by requiring villagers to get the appropriate permits and consent</p> <p>Responsibility: Village / Families /MWTI/ MNRE</p>	<p>Minimise expenditure on damaged properties & personal assets</p> <p>Mitigate potential damage from coastal erosion and flooding accommodating the hazard</p> <p>Improve recovery to create more resilient villages</p> <p>Improve preparedness and readiness response to natural disasters</p> <p>Safer villages, houses and roads</p>	<p>MNRE to develop zonation strategy for safe areas</p> <p>Utilise hazard maps and Geomorphologist Drainage Infrastructure Database to inform designs</p> <p>Enforcement of National Building Code 2017</p> <p>Encourage insurance of significant investments and assets within hazard zones</p> <p>Designation of the IFHZ, CEHZ and CFHZ as an “at risk” zone with appropriate landuse planning controls and restrictions</p>	<p>National Building Code</p> <p>CIM Strategy 2015</p>
<p>Electricity supply</p>	<p>Provide underground lines in the long term Install and connect power supply for inland</p>	<p>Maintain electricity supply at all times including natural</p>	<p>Monitor distribution networks to avoid overloading poles</p>	<p>EPC Strategic Plan</p>

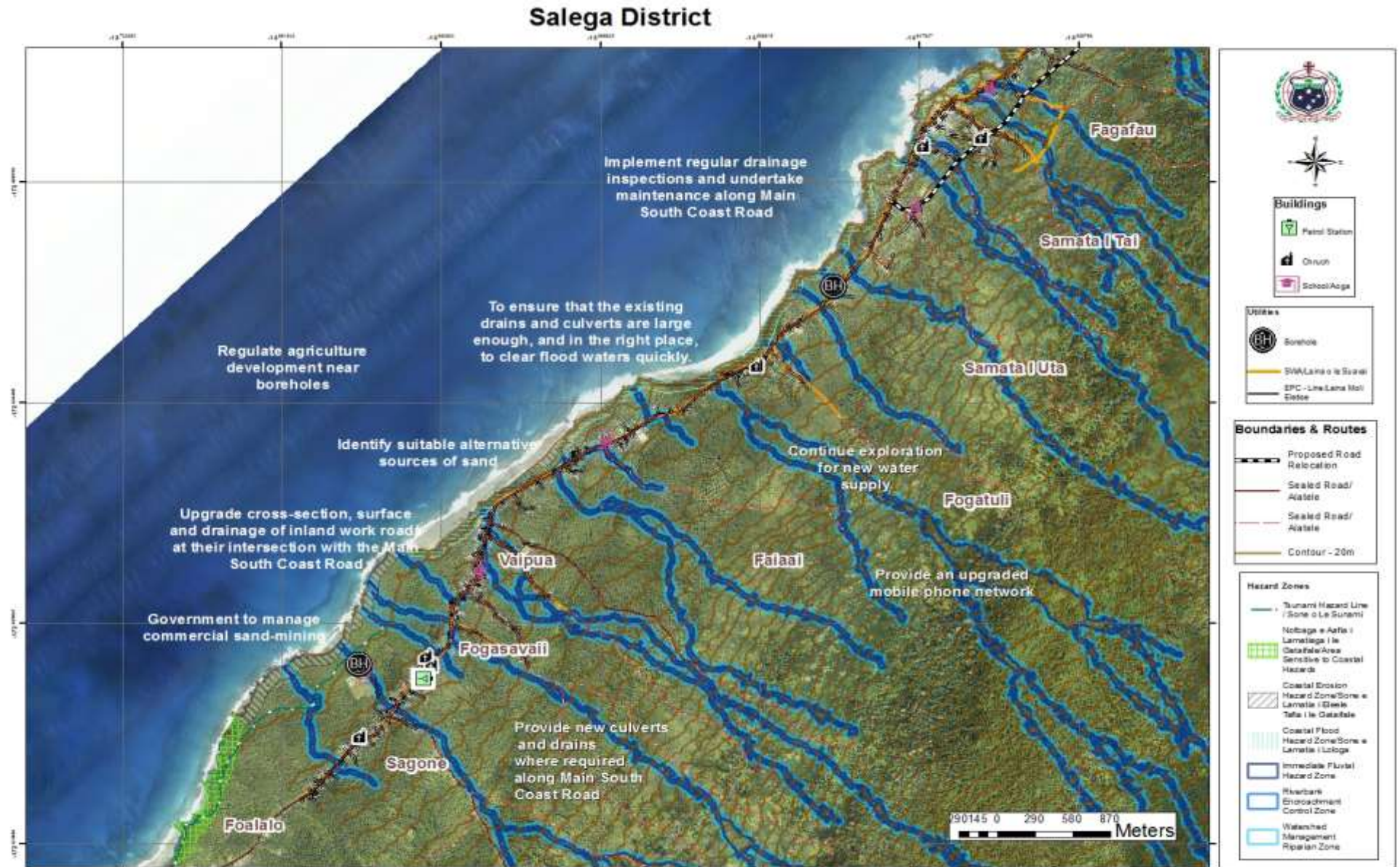
	<p>residents</p> <p>Relocate over headlines to a more resilient location when being replaced</p> <p>Install streetlights along the roads where needed for community safety</p> <p>Install and connect to solar power supply if made available</p> <p>Families to limit building and developments near electricity posts</p> <p>Responsibility: EPC/ MWTI/ Village/ Families</p>	<p>disasters</p> <p>Avoid accidents from fallen electricity posts</p>	<p>and contributing to line failures</p>	
Natural Resources and Environment	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
<p>Sand/rock extraction (domestic): coastline, rivers and riverbanks</p>	<p>Identify alternative sustainable sources of sand/rocks for domestic use</p> <p>Research the impacts of sand mining</p> <p>Village consultation on sand mining policy and regulation</p> <p>Village and government to collaborate closely on designated areas for sand/rock mining</p> <p>Raise awareness and support of sustainable land use practices</p> <p>Responsibility: MNRE/ Village/Families</p>	<p>Mitigate potential damage from coastal erosion and flooding accommodating the hazard</p> <p>Safer villages, houses and roads</p> <p>Reduce impact from coastal erosion</p> <p>Economic benefit for village from sustainable sandmining activities</p>	<p>MNRE to continue to identify specific sites for inshore/inland sustainable sand/rock mining to meet demand without compromising riverbanks</p> <p>Undertake assessments of identified sites</p> <p>Undertake consultation with villages affected by proposed sand/rock mining</p> <p>Develop and register District bylaws to include managing and monitoring domestic sand/rock mining of rivers</p> <p>Utilise Sui o Nu'u monthly meetings to monitor progress of CIM Plan activities</p>	<p>Village Fono Act (Amendment Bill 2016)</p> <p>Draft Soil Resource Management Bill</p>

<p>District upland forest</p>	<p>Formally declare Salega Upland Forest a Key Protected Area (KBA)</p> <p>Enforce Watershed Management Riparian Zone and Riverbank Encroachment Control and regulate developments around the upland forest area</p> <p>Conduct campaign for public awareness and establish a “neighbourhood watch” agreement with district to monitor and report on illegal deforestation</p> <p>District/village councils to help promote the development of the agroforestry sector by encouraging relevant land use practice and where possible resolve any associated land disputes</p> <p>Government, district and villages to monitor, report and apply penalty on offenders</p> <p>Responsibility: MNRE / District/Village/CSSP</p>	<p>Protects and enhance local species diversity</p> <p>Sustains ecosystem services and functions</p> <p>Reduce contamination of water supply</p> <p>Reduce impact from inland flooding</p>	<p>Develop an integrated land management plan with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area</p> <p>Develop a Forestry Conservation Programme/ Implementation Plan for Fa’asaleleaga 4 District</p> <p>Develop and register District/Village bylaws to include penalizing illegal deforestation in district lands</p> <p>Utilise Sui o Nu’u monthly meetings to monitor progress of district/village forestry programmes</p>	<p>Forestry for Sustainable Development Policy</p> <p>NESP 2018 - 2022</p>
<p>Governance</p>	<p>Best Solutions</p>	<p>Benefits</p>	<p>Guideline to assist with the implementation</p>	<p>Relevant Sector Plans, National Strategies & Policies</p>
<p>Strengthen the governance of natural resources and land use through Bylaws</p>	<p>Update and/or develop bylaws to manage the use of natural resources, and to control land use impacts; such as drainage maintenance, rubbish dumping, sand mining, stray animals and unregulated developments in water catchment areas and near boreholes.</p>	<p>Strengthen implementation of all national sector plans</p> <p>Strengthen monitoring of all National Acts, Regulation, Strategies, Plans and Policies</p> <p>Improve ability of communities to</p>	<p>Develop and register district/village bylaw to protect all district/village and government assets, environment, livelihood and food security especially activities affecting water catchment areas and coastline</p> <p>Utilise Sui o Nu’u monthly meetings to</p>	<p>Village Fono Act (Amendment Bill 2016)</p> <p>Community Sector Plan</p> <p>Community Development Plan 2016-2021</p>

	<p>Collaborate with Sui o Nuu to monitor the use of and impact on natural resources</p> <p>Facilitate continuous awareness raising programs with the villages</p> <p>Responsibility: MWCSD /Village</p>	<p>adapt, respond and recover quickly in the long term</p> <p>Improve accountability and enabling environment of communities</p>	<p>monitor progress of district/village bylaws</p>	
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Salega District Map



COORDINATE SYSTEM: GCS WGS 1984
 DATUM: WGS 1984
 UNITS: DEGREE

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

5. Samata Village Interventions

CIM Plan Solutions

Infrastructure	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
Village houses, school, churches, government and other village assets in high risk hazard zones	<p>Relocate outside of high risk hazard zones when building/infrastructure requires replacement</p> <p>Investments within the hazard zones to adopt appropriate mitigation measures</p> <p>Conduct awareness raising campaign on flood resilient building practices and designs for at risk communities living in and near high risk hazard zones</p> <p>Design infrastructure to take into account the landslip hazard zones;</p> <p>Develop landuse planning and development controls to restrict developments within high risk hazard zones</p> <p>Families and village to limit building and developing on natural overland flow paths exacerbating inland flooding and storm water surges</p> <p>Where reclamations are proposed, Government and district to manage processes by requiring villagers to get the appropriate permits and consent</p> <p>Responsibility: Village / Families /MWTI/ MNRE</p>	<p>Minimise expenditure on damaged properties & personal assets</p> <p>Mitigate potential damage from coastal erosion and flooding accommodating the hazard</p> <p>Improve recovery to create more resilient villages</p> <p>Improve preparedness and readiness response to natural disasters</p> <p>Safer villages, houses and roads</p>	<p>MNRE to develop zonation strategy for safe areas</p> <p>Utilise hazard maps and Geomorphologist Drainage Infrastructure Database to inform designs</p> <p>Enforcement of National Building Code 2017</p> <p>Encourage insurance of significant investments and assets within hazard zones</p> <p>Designation of the IFHZ, CEHZ and CFHZ as an “at risk” zone with appropriate landuse planning controls and restrictions</p>	<p>National Building Code</p> <p>CIM Strategy 2015</p>

<p>Drainage systems require maintenance and upgrade in high risk areas of main South Coast Road especially at junctions of Access Rd</p>	<p>Upgrade drainage and culverts on main south-west coast road and junctions of access roads in accordance with Vulnerability Assessment of the Samoa Road Network recommendations</p> <p>Implement national standards for culverts and drains to facilitate the overland flow of storm water and reduce flooding</p> <p>Implement regular drainage inspection and maintenance</p> <p>Responsibility: LTA /MWTI/MWCSD /Village/ Families</p>	<p>Improves climate resilience of infrastructure resilience and rate of response and recovery to natural hazards and disasters</p> <p>Minimises national disaster recovery expenditure on damaged properties, public and private assets</p>	<p>Use existing information for guidance but not limited to: “Vulnerability Assessment of the Samoa Road Network (2017)”; “Review of National Road Standards in Samoa (2016)”; “Samoa Code of Environmental Practice (2007)”</p> <p>Incorporate environmental and social safeguards concerns in the design and undertake consultations with affected communities</p> <p>Apply for necessary permits as required by law</p> <p>Utilise hazard maps and Geomorphologist Infrastructure Drainage Database to inform designs</p> <p>Develop and register District/Village bylaws to include maintenance of drainages and illegal rubbish dumping into waterways</p>	<p>CIM Strategy 2015</p> <p>TSP2014-2019 Goal 2 KO 1</p> <p>Community Sector Plan</p>
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<p>Upgrade Samata-i-Tai & Samata-i-Uta access roads and Samata-i-Uta School Road to facilitate relocation of houses away from hazard zones- and as potential escape route</p>	<p>Reconstruct Samata-i-Tai access road containing potential evacuation shelter (Church) to acceptable road standards</p> <p>Reconstruct Samata-i-Uta School Road containing potential evacuation shelter (Samata-i-Uta Primary School)</p> <p>Enforce environmental standards</p> <p>Where reclamations are proposed, Government and district to manage processes by requiring villagers to get the appropriate permits and consent</p> <p>Responsibility: LTA/ MWTI/ MNRE/ MWCS/ Villages /Families</p>	<p>Improves climate resilience of infrastructure resilience and rate of response and recovery to natural hazards and disasters</p> <p>Minimises national disaster recovery expenditure on damaged properties, public and private assets</p>	<p>Use existing information for guidance but not limited to: “Vulnerability Assessment of the Samoa Road Network (2017)”; “Review of National Road Standards in Samoa (2016)”; “Samoa Code of Environmental Practice (2007)”</p> <p>Undertake a Cost Benefit Analysis to weigh options for funding</p> <p>Incorporate environmental and social safeguards concerns in the design and undertake consultations with affected communities</p> <p>Apply for necessary permits as required by law</p> <p>Utilise hazard maps and Geomorphologist Infrastructure Drainage Database to inform designs</p> <p>Develop and register District/Village bylaws to include maintenance of drainages and illegal rubbish dumping into waterways</p>	<p>TSP2014-2019 Goal 2 KO 1</p> <p>Community Sector Plan</p> <p>Vulnerability Assessment of the Samoa Road Network (2016) and Road Network Adaptation Strategy, LTA</p>
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<p>Path to access fishing grounds</p>	<p>Village to identify suitable lands to construct a proper boat slipway</p> <p>Responsibility: Villages /Families/MNRE/CSSP</p>	<p>Increase adaptation during drought periods</p> <p>Improve community resilience and health</p>	<p>Village to consult landowners about dedicating areas for access road to fishing grounds and seek financing if land issues are resolved</p> <p>MNRE DEC to provide technical advice to guide village planning and avoid potential environmental impacts</p>	<p>NESP 2018 - 2022</p> <p>Community Engagement Plan</p>
<p>Reticulated water supply, quality and network to be improved</p>	<p>Extend the water supply to families inland with no access to water</p> <p>Procure rainwater harvesting systems for vulnerable families as a short term solution</p> <p>District and villages to support SWA water rationing programs during times of drought</p> <p>District to support SWA efforts at exploratory boreholes in district</p> <p>Responsibility: SWA /MNRE/ District /Villages/ CSSP</p>	<p>Increase adaptation during drought periods</p> <p>Improve infrastructure resilience and rate of recovery</p> <p>Improve health and sanitation</p> <p>Reduce contamination of water supply</p> <p>Reduce impact from inland flooding</p>	<p>Develop/Update and register District/Village bylaws to include regulating developments around catchment areas and boreholes</p> <p>Implement SWA (2016) 10year investment plan to improve water supply network to support all inland families without access to drinking water</p> <p>Include in budget programming design, and extension costs of water supply and procurement of rainwater harvesting systems</p> <p>Utilize Hazard Maps and Geomorphologist findings to inform location and design</p>	<p>CIM Strategy 2015</p> <p>Water and Sanitation Sector Plan</p> <p>SWA 10 Year Investment Plan(2016)</p> <p>Community Engagement Plan</p>

<p>Electricity supply</p>	<p>Provide underground lines in the long term Install and connect power supply for inland residents</p> <p>Relocate overhead lines to a more resilient location when being replaced</p> <p>Install streetlights along the roads where needed for community safety</p> <p>Install and connect to solar power supply if made available</p> <p>Families to limit building and developments near electricity posts</p> <p>Responsibility:EPC/ MWTI/ Village/ Families</p>	<p>Maintain electricity supply at all times including natural disasters</p> <p>Avoid accidents from fallen electricity posts</p>	<p>Monitor distribution networks to avoid overloading poles and contributing to line failures</p>	<p>EPC Strategic Plan</p>
<p>Evacuation Shelter and a connected escape route needed for emergency preparedness and response</p>	<p>Assess and/or select location for either an existing or new evacuation shelter, including safe access routes to the shelter</p> <p>Conduct evacuation shelter assessment and mark on CIM Plan hazard maps</p> <p>Develop a Village Climate Disaster Management Plan(VCDMP)</p> <p>Conduct trainings for People With Disabilities (PWDs) on emergency and disaster response strategies</p> <p>Implement CDCRM program</p> <p>Install relevant signs to guide the community on emergency response procedures and to locations of evacuation shelters</p>	<p>Improve resilience of public infrastructure</p> <p>Improve preparedness and readiness response to natural disasters</p>	<p>Enforcement of National Building Code 2017</p> <p>Utilise hazard maps and Geomorphologist findings to inform location and designs</p>	<p>National Disaster Management Plan2017-2021</p> <p>National Building Code</p> <p>National Policy for People with Disabilities</p>

	<p>Where no suitable houses exist, build emergency shelter(s) outside the hazard zones</p> <p>Retrofit identified and approved schools or churches outside hazard zones and designate as evacuation shelter</p> <p>Responsibility: MNRE /DMO/ MWTI/Village /CSSP/Council of Churches/MWCSD</p>			
Natural Resources and Environment	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
Village pool located in high risk hazard zones (coastal erosion and flooding from fluvial inundation, wave impacts and storm surges)	<p>Village pool 1 (Vaipuese) is currently in a poor location with an assessment needed for options to either rejuvenate or find a new site depending on the location of springs</p> <p>Village pool 2: Test the quality of the water source before any further investment on the pool is undertaken (eg: fence/repair works)</p> <p>Responsibility: CSSP/ NGOs/MNRE/Villages</p>	<p>Increase adaptation during drought periods</p> <p>Improve health and sanitation</p> <p>Reduce contamination of water supply</p>	<p>Utilise Hazard Maps and Geomorphologist findings for planning purposes</p> <p>MNRE Water & Sanitation to conduct water testing and analysis of village pool prior to any intervention</p> <p>Update Village bylaws to include managing and maintaining village natural resources</p>	<p>CIM Strategy 2015</p> <p>Water and Sanitation Sector Plan</p> <p>Community Engagement Plan</p>
Livelihood and Food Security	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
Pest management; invasive species	<p>Implement an eradication programme to eradicate, contain or exclude invasive species</p> <p>Replant with climate resilient native species</p> <p>Implement an inventory of invasive species and include information on their past, present and potential future</p>	<p>Maintains natural ecosystem</p> <p>Builds resilience of community livelihood and food security</p> <p>Reduce forest loss and land</p>	<p>Develop an integrated land management plan with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area</p>	<p>Agriculture Sector Plan 2016-2021</p> <p>Draft NESP 2018 - 2022</p> <p>Samoa's National Invasive Species Action Plan (NISAP)</p>

	<p>distribution, as well as impacts and possible actions that can be taken</p> <p>Conduct education and awareness programmes on the impacts of invasive species</p> <p>Implement the Integrated Pest Management Programme</p> <p>Implement Sustainable Land Management (SLM) practices</p> <p>Build the capacity of farmers to manage stray animals (pigs, cattle) that are contaminating water sources</p> <p>Conduct pilot site trials for climate ready plant varieties</p> <p>District to fence domestic animals</p> <p>Responsibility: Villages /District/ MNRE/MAF/ SROS</p>	<p>clearance</p>	<p>MAF to raise awareness of farmers on impacts to water flows from poor livestock management</p> <p>MAF to assist in establishment of pilot sites to trial climate ready plant varieties</p> <p>MNRE Forestry, DEC and MAF to collaborate on supply of climate resilient crops</p> <p>MNRE, MAF and SROS to implement aggressive, nationwide invasive species eradication programme based on inventory of invasive species and conduct campaign on public awareness accordingly</p> <p>Village to manage pig/cattle population (compounds, in particular around water supplies)</p> <p>Training for farmers on pests management particularly affecting fruit trees and crops</p>	
<p>Access to fishing grounds</p>	<p>Improve conditions for fishing people to use the lagoon and increase access to fishing grounds</p> <p>Responsibility: MNRE/MAF</p>	<p>Improve preparedness and readiness response to natural disasters</p>	<p>MNRE DEC to research reef openings and provide technical advice on alternative route for fishing grounds</p>	<p>NESP 2018 - 2022</p>

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

Non-CR issues raised during consultations	Proposed Solution	Comments
<p>Safety barriers/fence</p> <p><i>Responsibility: Village/Families</i></p>	Construct safety barrier around cliff top/ravine to protect children and elderly from falling off cliff	Not a CR issue. Village to seek assistance from other funding sources geared towards community safety projects
<p>Streetlights to reach houses for people who have moved further inland</p> <p><i>Responsibility: Village Mayor/EPC</i></p>	Village mayor to report directly to EPC number of families who have moved inland and develop proposal for EPC to consider	Not a CR issue. Relevant for consideration under EPC Community Service funding
<p>Samata-tai School grounds</p> <p><i>Responsibility: Village School Committee</i></p>	Improve school grounds for students	Not a CR issue. Village School Committee to seek assistance from other funding sources targeted at improving educational resources

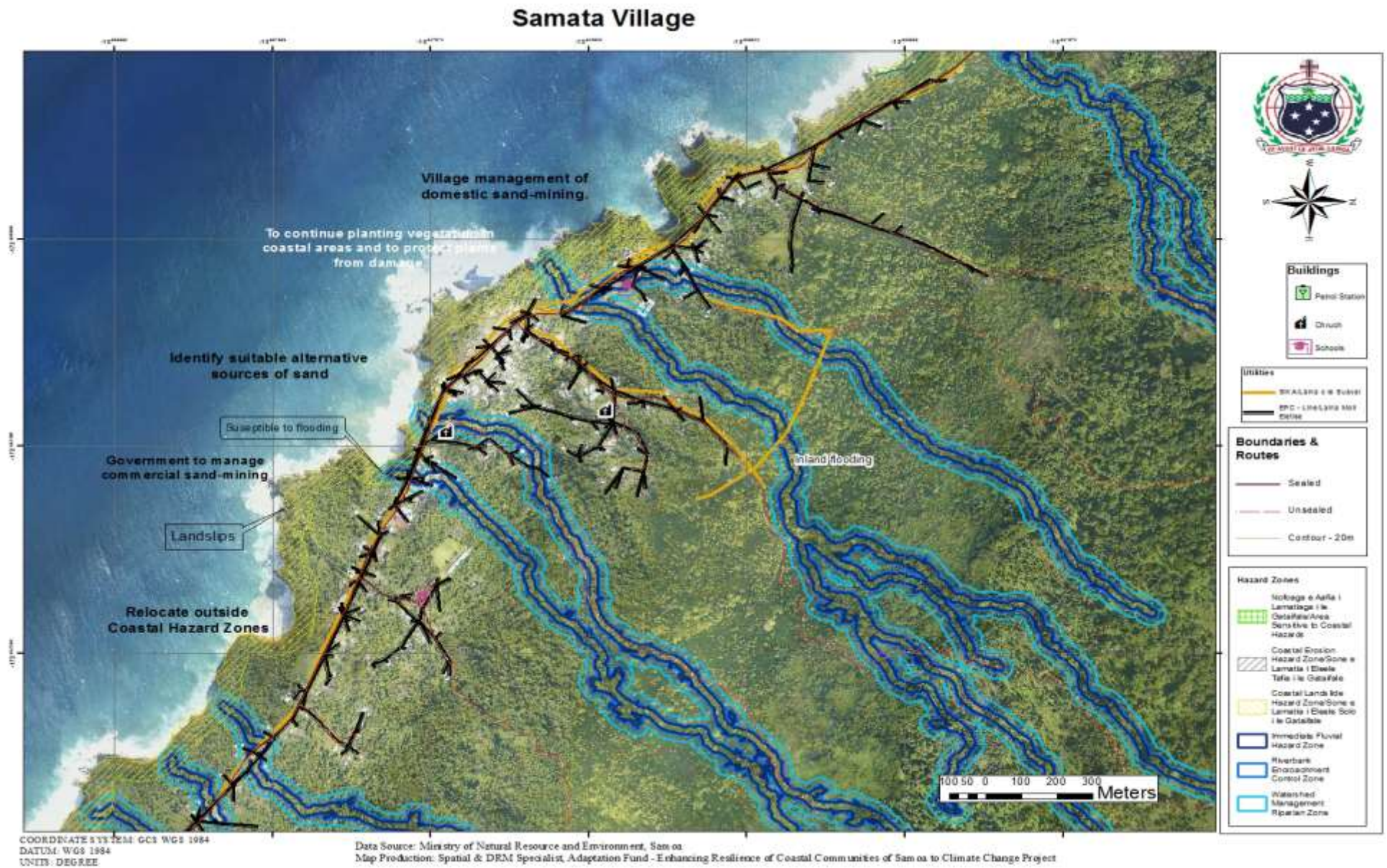


Village water storage tank for distribution



Illegal dumping

Samata Village Map



6.Fagafau Village Interventions

CIM Plan Solutions

Infrastructure	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant National, Sector Plans and Strategies
<p>Village houses, school, churches, government and other village assets in high risk hazard zones</p>	<p>Relocate outside of high risk hazard zones when building/infrastructure requires replacement</p> <p>Investments within the hazard zones to adopt appropriate mitigation measures</p> <p>Conduct awareness raising campaign on flood resilient building practices and designs for at risk communities living in and near high risk hazard zones</p> <p>Design infrastructure to take into account the landslip hazard zones;</p> <p>Develop landuse planning and development controls to restrict developments within high risk hazard zones</p> <p>Families and village to limit building and developing on natural overland flow paths exacerbating inland flooding and storm water surges</p> <p>Where reclamations are proposed, Government and district to manage processes by requiring villagers to get the appropriate permits and consent</p>	<p>Minimise expenditure on damaged properties & personal assets</p> <p>Mitigate potential damage from coastal erosion and flooding accommodating the hazard</p> <p>Improve recovery to create more resilient villages</p> <p>Improve preparedness and readiness response to natural disasters</p> <p>Safer villages, houses and roads</p>	<p>MNRE to develop zonation strategy for safe areas</p> <p>Utilise hazard maps and Geomorphologist Drainage Infrastructure Database to inform designs</p> <p>Enforcement of National Building Code 2017</p> <p>Encourage insurance of significant investments and assets within hazard zones</p> <p>Designation of the IFHZ, CEHZ and CFHZ as an “at risk” zone with appropriate landuse planning controls and restrictions</p>	<p>National Building Code</p> <p>CIM Strategy 2015</p>

	Responsibility: Village / Families /MWTI/ MNRE			
Drainage systems require maintenance and upgrade in high risk areas	<p>Upgrade drainage and culverts on main south- coast road and junctions of access roads in accordance with <i>Vulnerability Assessment of the Samoa Road Network</i> recommendations</p> <p>Implement national standards for culverts and drains to facilitate the overland flow of storm water and reduce flooding</p> <p>Implement regular drainage inspection and maintenance</p> <p>Responsibility: LTA /MWTI/MWCSD /Village/ Families</p>	<p>Improves climate resilience of infrastructure resilience and rate of response and recovery to natural hazards and disasters</p> <p>Minimises national disaster recovery expenditure on damaged properties, public and private assets</p>	<p>Use existing information for guidance but not limited to: <i>“Vulnerability Assessment of the Samoa Road Network (2017)”</i>; <i>“Review of National Road Standards in Samoa (2016)”</i>; <i>“Samoa Code of Environmental Practice (2007)”</i></p> <p>Undertake a Cost Benefit Analysis to weigh options for funding</p> <p>Incorporate environmental and social safeguards concerns in the design and undertake consultations with affected communities</p> <p>Apply for necessary permits as required by law</p> <p>Utilise hazard maps and Geomorphologist Infrastructure Drainage Database to inform designs</p> <p>Develop and register District/Village bylaws to include maintenance of drainages and illegal rubbish dumping into waterways</p>	<p>CIM Strategy 2015</p> <p>TSP2014-2019 Goal 2 KO 1</p> <p>Community Sector Plan</p>
Upgrade access/ work roads to facilitate relocation of houses away from hazard zones- and as potential escape route	<p>Widen road in front of school for easier access of evacuation shelter</p> <p>Enforce environmental safeguards</p> <p>Where reclamations are proposed, Government and district to manage processes by requiring villagers to get the appropriate permits and consent</p>	<p>Improve infrastructure resilience and rate of recovery</p> <p>Improve preparedness and readiness response to natural disasters</p> <p>Safer villages, houses and roads</p>	<p>Utilise DRM maps and Geomorphologist Drainage Infrastructure Database to inform location and design</p> <p>Include in budget programming CBA, design and construction. Road design standard to take account of forecast changes in sea level rise and increased rainfall intensity</p>	<p>CIM Strategy 2015</p> <p>TSP2014-2019 Goal 2 KO 1</p> <p>Community Sector Plan</p>

	Responsibility:LTA/M WTI/ MNRE/ Villages /Families/District			
Electricity supply	<p>Provide underground lines in the long term Install and connect power supply for inland residents</p> <p>Relocate over headlines to a more resilient location when being replaced</p> <p>Install streetlights along the roads where needed for community safety</p> <p>Install and connect to solar power supply if made available</p> <p>Families to limit building and developments near electricity posts</p> <p>Responsibility:EPC/ MWTI/ Village/ Families</p>	<p>Maintain electricity supply at all times including natural disasters</p> <p>Avoid accidents from fallen electricity posts</p>	<p>Monitor distribution networks to avoid overloading poles and contributing to line failures</p>	EPC Strategic Plan
Natural Resources and Environment	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
District/ Village Upland Forest deforestation	<p>Formally declare Salega Upland Forest a Key Protected Area (KBA)</p> <p>Enforce Watershed Management Riparian Zone and Riverbank Encroachment Control and regulate developments around the upland forest area</p> <p>Conduct campaign for public awareness and establish a “neighbourhood watch” agreement with district to monitor and report on illegal deforestation</p>	<p>Protects and enhance local species diversity</p> <p>Sustains ecosystem services and functions</p> <p>Reduce contamination of water supply</p> <p>Reduce impact from inland flooding</p>	<p>Develop an integrated land management plan with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area</p> <p>Develop a Forestry Conservation Programme / Implementation Plan for Fagafau and Salega District</p> <p>Develop and register District/Village bylaws to include penalizing illegal deforestation in district lands</p> <p>Utilise Sui o Nu’u</p>	<p>Forestry for Sustainable Development Policy</p> <p>Salega District Plan</p>

	<p>District/village councils to help promote the development of the agroforestry sector by encouraging relevant land use practice and where possible resolve any associated land disputes</p> <p>Government, district and villages to monitor, report and apply penalty on offenders</p> <p>Responsibility: MNRE/ District/Village/CSSP</p>		<p>monthly meetings to monitor progress of village programmes on waste management</p>	
<p>Sand/rock extraction (domestic): coastline, rivers and riverbanks</p>	<p>Identify alternative sustainable sources of sand/rocks for domestic use</p> <p>Research the impacts of sand mining</p> <p>Village consultation on sand mining policy and regulation</p> <p>Village and government to collaborate closely on designated areas for sand/rock mining</p> <p>Raise awareness and support of sustainable land use practices</p> <p>Responsibility: MNRE/ Village/Families</p>	<p>Mitigate potential damage from coastal erosion and flooding accommodating the hazard</p> <p>Safer villages, houses and roads</p> <p>Reduce impact from coastal erosion</p> <p>Economic benefit for village from sustainable sandmining activities</p>	<p>MNRE to continue to identify specific sites for inshore/inland sustainable sand/rock mining to meet demand without compromising riverbanks</p> <p>Undertake assessments of identified sites</p> <p>Undertake consultation with villages affected by proposed sand/rock mining</p> <p>Develop and register District bylaws to include managing and monitoring domestic sand/rock mining of rivers</p> <p>Utilise Sui o Nu'u monthly meetings to monitor progress of CIM Plan activities</p>	<p>Village Fono Act (Amendment Bill 2016)</p> <p>Draft Soil Resource Management Bill</p>
Livelihood and Food Security	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
<p>Pest management; invasive species</p>	<p>Implement an eradication programme to eradicate, contain or exclude invasive species</p> <p>Replant with climate resilient native species</p>	<p>Maintains natural ecosystem</p> <p>Builds resilience of community livelihood and food security</p> <p>Reduce forest loss</p>	<p>Develop an integrated land management plan with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area</p> <p>MAF to raise awareness of farmers on impacts to</p>	<p>Agriculture Sector Plan 2016-2021</p> <p>Draft NESP 2018 - 2022</p> <p>Samoa's National Invasive Species</p>

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

	<p>and near boreholes.</p> <p>Collaborate with Sui o Nuu to monitor the use of and impact on natural resources</p> <p>Facilitate continuous awareness raising programs with the villages</p> <p>Responsibility: MWCSD /Village</p>	<p>communities to adapt, respond and recover quickly in the long term</p> <p>Improve accountability and enabling environment of communities</p>	<p>progress of district/village bylaws</p>	
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Non-CR issues raised during consultations	Proposed Solution	Comments
<p>Safety barriers /fence</p> <p>Responsibility: Village/Families</p>	<p>Construct safety barrier around cliff top/ ravine to protect children and elderly from falling off cliff</p>	<p>Not a CR issue. Village to seek assistance from other funding sources geared towards community safety projects</p>

Fagafau Village Map



COORDINATE SYSTEM: GCS WGS 1984
 DATUM: WGS 1984
 UNITS: DEGREE

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

7. Fogatuli Village Interventions

CIM Plan Solutions

Infrastructure	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
<p>Village houses, school, churches, government and other village assets in high risk hazard zones</p>	<p>Relocate outside of high risk hazard zones when building/infrastructure requires replacement</p> <p>Investments within the hazard zones to adopt appropriate mitigation measures</p> <p>Conduct awareness raising campaign on flood resilient building practices and designs for at risk communities living in and near high risk hazard zones</p> <p>Design infrastructure to take into account the immediate hazard zones</p> <p>Develop landuse planning and development controls to restrict developments within high risk hazard zones</p> <p>Families and village to limit building and developing on natural overland flow paths exacerbating inland flooding and storm water surges</p> <p>Where reclamations/rock or sandmining are proposed, Government and district to manage processes by requiring villagers to get the appropriate permits and consent</p> <p>Responsibility: Village / Families /MWTI/ MNRE</p>	<p>Minimise expenditure on damaged properties & personal assets</p> <p>Mitigate potential damage from coastal erosion and flooding accommodating the hazard</p> <p>Improve recovery to create more resilient villages</p> <p>Improve preparedness and readiness response to natural disasters</p> <p>Safer villages, houses and roads</p>	<p>MNRE to develop zonation strategy for safe areas</p> <p>Utilise hazard maps and Geomorphologist Drainage Infrastructure Database to inform designs</p> <p>Enforcement of National Building Code 2017</p> <p>Encourage insurance of significant investments and assets within hazard zones</p> <p>Designation of the IFHZ, CEHZ and CFHZ as an “at risk” zone with appropriate landuse planning controls and restrictions</p>	<p>National Building Code</p> <p>CIM Strategy 2015</p>

<p>Drainage systems require maintenance and upgrade in high risk areas of main South Coast Road especially at junctions of Access Rd</p>	<p>Upgrade drainage and culverts in accordance with <i>Vulnerability Assessment of the Samoa Road Network</i> recommendations</p> <p>Implement national standards for culverts and drains to facilitate the overland flow of storm water and reduce flooding</p> <p>Implement regular drainage inspection and maintenance</p> <p>Responsibility: LTA /MWTI/MWCSD /Village/ Families</p>	<p>Improves climate resilience of infrastructure resilience and rate of response and recovery to natural hazards and disasters</p> <p>Minimises national disaster recovery expenditure on damaged properties, public and private assets</p>	<p>Use existing information for guidance but not limited to: <i>"Vulnerability Assessment of the Samoa Road Network (2017)"</i>; <i>"Review of National Road Standards in Samoa (2016)"</i>; <i>"Samoa Code of Environmental Practice (2007)"</i></p> <p>Undertake a Cost Benefit Analysis to weigh options for funding</p> <p>Incorporate environmental and social safeguards concerns in the design and undertake consultations with affected communities</p> <p>Apply for necessary permits as required by law</p> <p>Utilise hazard maps and Geomorphologist Infrastructure Drainage Database to inform designs</p> <p>Develop and register District/Village bylaws to include maintenance of drainages and illegal rubbish dumping into waterways</p>	<p>CIM Strategy 2015</p> <p>TSP2014-2019 Goal 2 KO 1</p> <p>Community Sector Plan</p>
<p>Reticulated water supply, quality and network to be improved</p>	<p>Extend the water supply to families inland with no access to water</p> <p>Procure rainwater harvesting rainwater harvesting systems for vulnerable families as a short term solution</p> <p>District and villages to support SWA water rationing programs during times of drought</p> <p>District to support SWA efforts at</p>	<p>Increase adaptation during drought periods</p> <p>Improve infrastructure resilience and rate of recovery</p> <p>Improve health and sanitation</p> <p>Reduce contamination of water supply</p> <p>Reduce impact from inland flooding</p>	<p>Develop/Update and register District/Village bylaws to include regulating developments around catchment areas and boreholes</p> <p>Implement SWA (2016) 10year investment plan to improve water supply network to support all inland families without access to drinking water</p> <p>Include in budget programming design, and extension costs of water supply and procurement of rainwater harvesting</p>	<p>CIM Strategy 2015</p> <p>Water and Sanitation Sector Plan</p> <p>SWA 10 Year Investment Plan(2016)</p> <p>Community Engagement Plan</p>

	<p>exploratory boreholes in district</p> <p>Responsibility: SWA /MNRE/ District /Villages/ CSSP</p>		<p>systems</p> <p>Utilize Hazard Maps and Geomorphologist findings to inform location and design</p> <p>Utilize Sui o Nu'u monthly meetings to monitor progress of village programs and responsibilities</p>	
Electricity supply	<p>Provide underground lines in the long term Install and connect power supply for inland residents</p> <p>Relocate overhead lines to a more resilient location when being replaced</p> <p>Install streetlights along the roads where needed for community safety</p> <p>Install and connect to solar power supply if made available</p> <p>Families to limit building and developments near electricity posts</p> <p>Responsibility: EPC/ MWTI/ Village/ Families</p>	<p>Maintain electricity supply at all times including natural disasters</p> <p>Avoid accidents from fallen electricity posts</p>	<p>Monitor distribution networks to avoid overloading poles and contributing to line failures</p>	EPC Strategic Plan
Natural Resources and Environment	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
District/ Village Upland Forest deforestation	<p>Formally declare Salega Upland Forest a Key Biodiversity Area (KBA)</p> <p>Enforce Watershed Management Riparian Zone and Riverbank Encroachment Control and regulate developments around the upland forest area</p> <p>Conduct campaign for public awareness and establish a "neighbourhood watch"</p>	<p>Protects and enhance local species diversity</p> <p>Sustains ecosystem services and functions</p> <p>Reduce contamination of water supply</p> <p>Reduce impact from inland flooding</p>	<p>Develop an integrated land management plan with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area</p> <p>Develop a Forestry Conservation Programme/ Implementation Plan for Fa'asaleleaga 4 District</p> <p>Develop and register District/Village bylaws</p>	<p>Forestry for Sustainable Development Policy</p> <p>NESP 2018 - 2022</p>

	<p>agreement with district to monitor and report on illegal deforestation</p> <p>village councils to help promote the development of the agroforestry sector by encouraging relevant land use practice and where possible resolve any associated land disputes</p> <p>Government, district and villages to monitor, report and apply penalty on offenders</p> <p>Responsibility: MNRE / District/Village/CSSP</p>		<p>to include penalizing illegal deforestation in district lands</p> <p>Utilise Sui o Nu'u monthly meetings to monitor progress of district/village forestry programmes</p>	
Village pool located in high risk hazard zones (coastal erosion and flooding from fluvial inundation, wave impacts and storm surges)	<p>Village pool is currently in a poor location with an assessment needed for options to either rejuvenate or find a new site depending on the location of springs</p> <p>Test the quality of the water source before any further investment on the pool is undertaken (eg: fence/repair works)</p> <p>Responsibility: CSSP/NGOs/MNRE/Villages</p>	<p>Increase adaptation during drought periods</p> <p>Improve health and sanitation</p> <p>Reduce contamination of water supply</p>	<p>Utilise Hazard Maps and Geomorphologist findings for planning purposes</p> <p>MNRE Water & Sanitation to conduct water testing and analysis of village pool prior to any intervention</p> <p>Update Village bylaws to include managing and maintaining village natural resources</p>	<p>CIM Strategy 2015</p> <p>Water and Sanitation Sector Plan</p> <p>Community Engagement Plan</p>
Livelihood and Food Security	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
Food security: threatened by changes in climate and inadequate soil for planting	<p>Promote and facilitate planting of root crops(i.e yams, sweet potato)which are more resilient to cyclones, droughts and floods</p> <p>Promote agro-forestry and mixed planting including fruit trees species to reduce crop vulnerability to pests and diseases</p> <p>Implement the Integrated Pest Management</p>	<p>Maintains natural ecosystem</p> <p>Builds resilience of community livelihood and food security</p> <p>Improve preparedness and readiness response to natural disasters</p>	<p>MAF to provide trainings, awareness raising and support in supply of nursery trees, technology and infrastructure</p> <p>MAF to provide trainings and awareness on crop diversification to suit the prolonged impacts of climate change such as drought or rainy seasons</p> <p>MAF to assist in establishment of pilot</p>	<p>AgricultureSector Plan2016-2021</p> <p>Community Engagement Plan</p> <p>Two Million Tree Strategy 2015-2020</p> <p>Restoration Operational Plan 2016-2020</p>

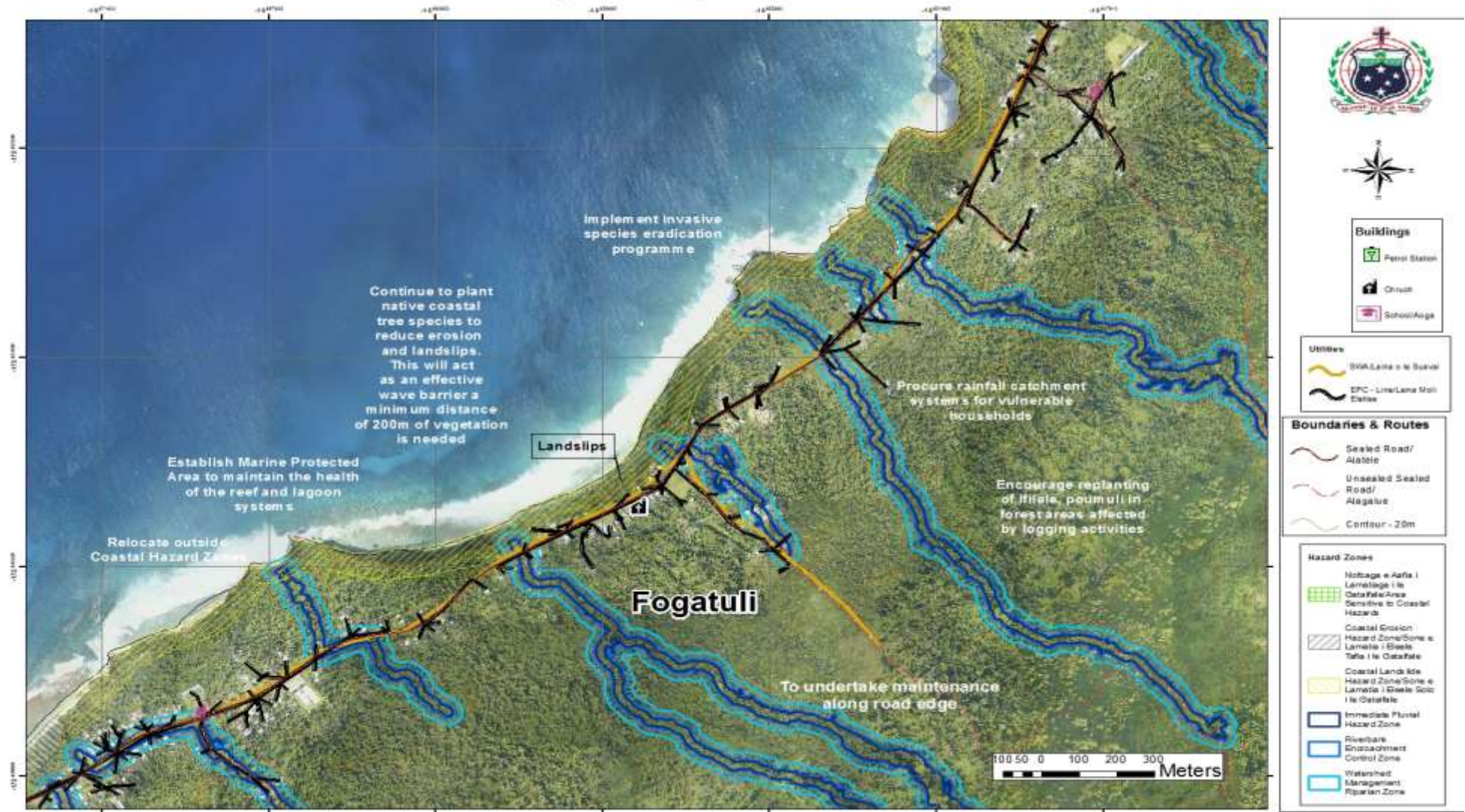
	<p>Programme</p> <p>Implement Sustainable Land Management (SLM) practices</p> <p>Conduct pilot site trials for climate ready plant varieties</p> <p>Responsibility: MAF/MNRE/villages/CSSP</p>		<p>sites to trial climate ready plant varieties</p> <p>Develop an integrated land management plan with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area</p>	
Pest management; invasive species	<p>Implement an eradication programme to eradicate, contain or exclude invasive species</p> <p>Replant with climate resilient native species</p> <p>Implement an inventory of invasive species and include information on their past, present and potential future distribution, as well as impacts and possible actions that can be taken</p> <p>Conduct education and awareness programmes on the impacts of invasive species</p> <p>Implement the Integrated Pest Management Programme</p> <p>Implement Sustainable Land Management (SLM) practices</p> <p>Build the capacity of farmers to manage stray animals (pigs, cattle) that are contaminating water sources</p> <p>Conduct pilot site trials for climate ready plant varieties</p> <p>District to fence domestic animals</p>	<p>Maintains natural ecosystem</p> <p>Builds resilience of community livelihood and food security</p> <p>Reduce forest loss and land clearance</p>	<p>Develop an integrated land management plan with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area</p> <p>MAF to raise awareness of farmers on impacts to water flows from poor livestock management</p> <p>MAF to assist in establishment of pilot sites to trial climate ready plant varieties</p> <p>MNRE Forestry, DEC and MAF to collaborate on supply of climate resilient crops</p> <p>MNRE, MAF and SROS to implement aggressive, nationwide invasive species eradication programme based on inventory of invasive species and conduct campaign on public awareness accordingly</p> <p>Village to manage pig/cattle population (compounds, in particular around water supplies)</p> <p>Training for farmers on pests management particularly affecting fruit trees and crops</p>	<p>Agriculture Sector Plan 2016-2021</p> <p>Draft NESP 2018 - 2022</p> <p>Samoa's National Invasive Species Action Plan (NISAP)</p>

	Responsibility: Villages /District/ MNRE/MAF/ SROS			
Access to fishing grounds	<p>Improve conditions for fishers to use the lagoon and increase access to fishing grounds</p> <p>Continue to enforce village ban on use of dynamites, herbal poisons (avaniukini) and other unsustainable fishing methods</p> <p>Responsibility: MNRE/ Village</p>	<p>Increase adaptation during drought periods</p> <p>Improve health</p>	MNRE DEC to provide technical advice on management of reef opening to enable village access to fishing grounds	NESP 2018 - 2022
Governance	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
Strengthen the governance of natural resources and land use through Bylaws	<p>Update and/or develop bylaws to manage the use of natural resources, and to control land use impacts; such as drainage maintenance, rubbish dumping, sand mining, stray animals and unregulated developments in water catchment areas and near boreholes.</p> <p>Collaborate with Sui o Nu'u to monitor the use of and impact on natural resources</p> <p>Facilitate continuous awareness raising programs with the villages</p> <p>Responsibility: MWCSO /Village</p>	<p>Strengthen implementation of all national sector plans</p> <p>Strengthen monitoring of all National Acts, Regulation, Strategies, Plans and Policies</p> <p>Improve ability of communities to adapt, respond and recover quickly in the long term</p> <p>Improve accountability and enabling environment of communities</p>	<p>Develop and register district/village bylaw to protect all district/village and government assets, environment, livelihood and food security especially activities affecting water catchment areas and coastline</p> <p>Utilise Sui o Nu'u monthly meetings to monitor progress of district/village bylaws</p>	<p>Village Fono Act (Amendment Bill 2016)</p> <p>Community Sector Plan</p> <p>Community Development Plan 2016-2021</p>

Non-CR issues raised during consultations	Proposed Solution	Comments
Cattle farms Responsibility: Village	Acquire cattle for village	Not a CR issue. Village to seek assistance from other funding sources geared towards community agricultural projects

Fogatuli Village Map

Fogatuli Village



- Buildings**
- Patrol Station
 - Church
 - School/Aiga

- Utilities**
- SVA-Line & to Savaia
 - EPC-Line/Line Main/Drain

- Boundaries & Routes**
- Sealed Road/Alatele
 - Unsealed Sealed Road/Alagalue
 - Contour - 20m

- Hazard Zones**
- Notitaga & Aafia / Laititaga / He Otafale Area Sensitive to Coastal Hazard
 - Coastal Erosion Hazard Zone/Sone & Lamata / Elele Tafia / He Otafale
 - Coastal Landslide Hazard Zone/Sone & Lamata / Elele Sone / He Otafale
 - Immediate Fluvial Hazard Zone
 - Riverbank Encroachment Control Zone
 - Watershed Management Riparian Zone

COORDINATE SYSTEM: GCS WGS 1984
 DATUM: WGS 1984
 UNITS: DEGREE

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

8. Sagone Village Interventions

CIM Plan Solutions

Infrastructure	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
<p>Village houses, school, churches, government and other village assets in high risk hazard zones</p>	<p>Relocate outside of high risk hazard zones when building/infrastructure requires replacement</p> <p>Investments within the hazard zones to adopt appropriate mitigation measures</p> <p>Conduct awareness raising campaign on flood resilient building practices and designs for at risk communities living in and near high risk hazard zones</p> <p>Design infrastructure to take into account the immediate hazard zones; for example, raise floor levels of houses in flood prone areas</p> <p>Develop landuse planning and development controls to restrict developments within high risk hazard zones</p> <p>Families and village to limit building and developing on natural overland flow paths exacerbating inland flooding and storm water surges</p> <p>Where reclamations/rock and sandmining are proposed, Government and district to manage processes by requiring villagers to get the appropriate permits and consent</p> <p>Responsibility: Village / Families /MWTI/ MNRE</p>	<p>Minimise expenditure on damaged properties & personal assets</p> <p>Mitigate potential damage from coastal erosion and flooding accommodating the hazard</p> <p>Improve recovery to create more resilient villages</p> <p>Improve preparedness and readiness response to natural disasters</p> <p>Safer villages, houses and roads</p>	<p>MNRE to develop zonation strategy for safe areas</p> <p>Utilise hazard maps and Geomorphologist Drainage Infrastructure Database to inform designs</p> <p>Enforcement of National Building Code 2017</p> <p>Encourage insurance of significant investments and assets within hazard zones</p> <p>Designation of the IFHZ, CEHZ and CFHZ as an “at risk” zone with appropriate landuse planning controls and restrictions</p>	<p>National Building Code</p> <p>CIM Strategy 2015</p>

<p>Drainage systems require maintenance and upgrade in high risk areas especially where the main South Coast Road meets new Sagone Access Road</p>	<p>Upgrade drainage and culverts in accordance with <i>Vulnerability Assessment of the Samoa Road Network</i> recommendations</p> <p>Implement national standards for culverts and drains to facilitate the overland flow of storm water and reduce flooding</p> <p>Implement regular drainage inspection and maintenance</p> <p>Responsibility: LTA /MWTI/MWCSD /Village/ Families</p>	<p>Improves climate resilience of infrastructure resilience and rate of response and recovery to natural hazards and disasters</p> <p>Minimises national disaster recovery expenditure on damaged properties, public and private assets</p>	<p>Use existing information for guidance but not limited to: <i>"Vulnerability Assessment of the Samoa Road Network (2017)"</i>; <i>"Review of National Road Standards in Samoa (2016)"</i>; <i>"Samoa Code of Environmental Practice (2007)"</i></p> <p>Undertake a Cost Benefit Analysis to weigh options for funding</p> <p>Incorporate environmental and social safeguards concerns in the design and undertake consultations with affected communities</p> <p>Apply for necessary permits as required by law</p> <p>Utilise hazard maps and Geomorphologist Infrastructure Drainage Database to inform designs</p> <p>Develop and register District/Village bylaws to include maintenance of drainages and illegal rubbish dumping into waterways</p>	<p>CIM Strategy 2015</p> <p>TSP2014-2019 Goal 2 KO 1</p> <p>Community Sector Plan</p>
<p>Channel widening at Sagone Ford</p>	<p>Upgrade cross culvert road crossing</p> <p>Upgrade causeway to facilitate free flow of river into sea</p> <p>Conduct feasibility study to assess potential impact on area around Sagone Primary School and neighbouring houses</p>	<p>Improve infrastructure resilience and rate of recovery</p> <p>Reduce impact from inland flooding</p> <p>Safer villages, houses and roads</p>	<p>Utilise DRM maps and Geomorphologist Infrastructure Database to inform location and design</p> <p>Implement recommendations of Feasibility Study</p>	<p>TSP2014-2019 Goal 2 KO 1</p> <p>Community Sector Plan</p>

	Responsibility: Village/ MNRE/LTA			
Natural Resources and Environment	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
Village Upland Forest deforestation	<p>Formally declare Sagone Upland Forest a Key Protected Area (KBA)</p> <p>Enforce Watershed Management Riparian Zone and Riverbank Encroachment Control and regulate developments around the upland forest area</p> <p>Conduct campaign for public awareness and establish a “neighbourhood watch” agreement with district to monitor and report on illegal deforestation</p> <p>village councils to help promote the development of the agroforestry sector by encouraging relevant land use practice and where possible resolve any associated land disputes</p> <p>Government, district and villages to monitor, report and apply penalty on offenders</p> <p>Responsibility: MNRE / District/Village/CSSP</p>	<p>Protects and enhance local species diversity</p> <p>Sustains ecosystem services and functions</p> <p>Reduce contamination of water supply</p> <p>Reduce impact from inland flooding</p>	<p>Develop an integrated land management plan with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area</p> <p>Develop and register District/Village bylaws to include penalizing illegal deforestation in district lands</p> <p>Utilise Sui o Nu’u monthly meetings to monitor progress of district/village forestry programmes</p>	<p>Forestry for Sustainable Development Policy</p> <p>NESP 2018 - 2022</p>
Livelihood and Food Security	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
Coconut farm	<p>Replant area near coast with coconuts as alternative source of food and as income generating activity</p> <p>Responsibility: Village/MAF/MNRE</p>	<p>Improve preparedness and readiness response to natural disasters</p> <p>Alternative source of income for village</p>	<p>Village to consult landowners about dedicating areas for coconut farm</p> <p>MNRE Forestry, DEC and MAF to collaborate on supply of climate resilient crops</p> <p>MAF to provide</p>	<p>AgricultureSectorPlan2016-2021</p> <p>NESP 2018 - 2022</p> <p>Salega District Plan</p>

			<p>trainings, awareness raising and support in supply of nursery trees, technology and infrastructure to have a sustainable mechanism for replanting</p> <p>MAF to provide trainings and awareness on crop diversification to suit the prolonged impacts of climate change such as drought or rainy seasons</p> <p>MAF to assist in establishment of pilot sites to trial climate ready plant varieties</p> <p>MAF to provide technical advice, seedlings and planting material for village and families as a trial</p>	
Pest management; invasive species	<p>Implement an eradication programme to eradicate, contain or exclude invasive species</p> <p>Replant with climate resilient native species</p> <p>Implement an inventory of invasive species and include information on their past, present and potential future distribution, as well as impacts and possible actions that can be taken</p> <p>Conduct education and awareness programmes on the impacts of invasive species</p> <p>Implement the Integrated Pest Management Programme</p> <p>Implement Sustainable Land Management (SLM) practices</p>	<p>Maintains natural ecosystem</p> <p>Builds resilience of community livelihood and food security</p> <p>Reduce forest loss and land clearance</p>	<p>Develop an integrated land management plan with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area</p> <p>MAF to raise awareness of farmers on impacts to water flows from poor livestock management</p> <p>MAF to assist in establishment of pilot sites to trial climate ready plant varieties</p> <p>MNRE Forestry, DEC and MAF to collaborate on supply of climate resilient crops</p>	<p>Agriculture Sector Plan 2016-2021</p> <p>Draft NESP 2018 - 2022</p> <p>Samoa's National Invasive Species Action Plan (NISAP)</p>

	<p>Build the capacity of farmers to manage stray animals (pigs, cattle) that are contaminating water sources</p> <p>Conduct pilot site trials for climate ready plant varieties</p> <p>District to fence domestic animals</p> <p>Responsibility: Villages /District/ MNRE/MAF/ SROS</p>		<p>MNRE, MAF and SROS to implement aggressive, nationwide invasive species eradication programme based on inventory of invasive species and conduct campaign on public awareness accordingly</p> <p>Village to manage pig/cattle population (compounds, in particular around water supplies)</p> <p>Training for farmers on pests management particularly affecting fruit trees and crops</p>	
Governance	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
<p>Strengthen the governance of natural resources and land use through Bylaws</p>	<p>Update and/or develop bylaws to manage the use of natural resources, and to control land use impacts; such as drainage maintenance, rubbish dumping, sand mining, stray animals and unregulated developments in water catchment areas and near boreholes.</p> <p>Collaborate with Sui o Nu'u to monitor the use of and impact on natural resources</p> <p>Facilitate continuous awareness raising programs with the villages</p> <p>Responsibility: MWCS D /Village</p>	<p>Strengthen implementation of all national sector plans</p> <p>Strengthen monitoring of all National Acts, Regulation, Strategies, Plans and Policies</p> <p>Improve ability of communities to adapt, respond and recover quickly in the long term</p> <p>Improve accountability and enabling environment of communities</p>	<p>Develop and register district/village bylaw to protect all district/village and government assets, environment, livelihood and food security especially activities affecting water catchment areas and coastline</p> <p>Utilise Sui o Nu'u monthly meetings to monitor progress of district/village bylaws</p>	<p>Village Fono Act (Amendment Bill 2016)</p> <p>Community Sector Plan</p> <p>Community Development Plan 2016-2021</p>

Sagone Village Map

Sagone Village



Buildings

- Petrol Station
- Church
- School/Aoga

Boundaries & Routes

- Sealed Road/Alatele
- Unsealed Sealed Road/Alagalua
- Contour - 20m

Utilities

- SWALains o le Suvaia
- EPC - Line/Laina Moli Baitie
- Borehole

Hazard Zones

- Tsunami Hazard Line / Bone o Le Sunami
- Notoga e Aafia i Lamatiaga i le Gatafala/Area Sensitive to Coastal Hazards
- Coastal Erosion Hazard Zone/Sone e Lamatia i Elesele Tafia i le Gatafala
- Coastal Landslide Hazard Zone/Sone e Lamatia i Elesele Sob i le Gatafala
- Immediate Fluvial Hazard Zone
- Riverbank Encroachment Control Zone
- Watershed Management Riparian Zone

COORDINATE SYSTEM: GCS WGS 1984
 DATUM: WGS 1984
 UNITS: DEGREE

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

9. *Fai'a'ai Village Interventions*

CIM Plan Solutions

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

	<p>water surges</p> <p>Where reclamations/rock and sandmining activities are proposed, Government and district to manage processes by requiring villagers to get the appropriate permits and consent</p> <p>Responsibility: Village/Families/MWTI/MNRE</p>			
<p>Drainage systems require maintenance and upgrade in high risk areas of main North Coast Road especially at junctions of Access Rd</p>	<p>Upgrade drainage and culverts in accordance with <i>Vulnerability Assessment of the Samoa Road Network</i> recommendations</p> <p>Implement national standards for culverts and drains to facilitate the overland flow of storm water and reduce flooding</p> <p>Implement regular drainage inspection and maintenance</p> <p>Responsibility: LTA/MWTI/MWCSD/Village/Families</p>	<p>Improves climate resilience of infrastructure resilience and rate of response and recovery to natural hazards and disasters</p> <p>Minimises national disaster recovery expenditure on damaged properties, public and private assets</p>	<p>Use existing information for guidance but not limited to: <i>“Vulnerability Assessment of the Samoa Road Network (2017)”</i>; <i>“Review of National Road Standards in Samoa (2016)”</i>; <i>“Samoa Code of Environmental Practice (2007)”</i></p> <p>Undertake a Cost Benefit Analysis to weigh options for funding</p> <p>Incorporate environmental and social safeguards concerns in the design and undertake consultations with affected communities</p> <p>Apply for necessary permits as required by law</p> <p>Utilise hazard maps and Geomorphologist Infrastructure Drainage Database to inform designs</p> <p>Develop and register District/Village</p>	<p>CIM Strategy 2015</p> <p>TSP2014-2019 Goal 2 KO 1</p> <p>Community Sector Plan</p>

			bylaws to include maintenance of drainages and illegal rubbish dumping into waterways	
Evacuation Shelter and a connected escape route needed for emergency preparedness and response	<p>Assess and/or select location for either an existing or new evacuation shelter, including safe access routes to the shelter</p> <p>Conduct evacuation shelter assessment and mark on CIM Plan hazard maps</p> <p>Develop a Village Climate Disaster Management Plan(VCDMP)</p> <p>Conduct trainings for People With Disabilities (PWDs) on emergency and disaster response strategies</p> <p>Implement CDCRM program</p> <p>Install relevant signs to guide the community on emergency response procedures and to locations of evacuation shelters</p> <p>Where no suitable houses exist, build emergency shelter(s) outside the hazard zones</p> <p>Retrofit identified and approved schools or churches outside hazard zones and designate as evacuation shelter</p>	<p>Improve resilience of public infrastructure</p> <p>Improve preparedness and readiness response to natural disasters</p>	<p>Enforcement of National Building Code 2017</p> <p>Utilise hazard maps and Geomorphologist findings to inform location and designs</p>	<p>National Disaster Management Plan2017-2021</p> <p>National Building Code</p> <p>National Policy for People with Disabilities</p>

	<i>Responsibility: MNRE /DMO/ MWTI/Village /CSSP/Council of Churches/MWCSD</i>			
Access path to village pool and beach (cliff side)	<p>Conduct EIA to assess feasibility of upgrading coastal access and implement recommendations</p> <p>Where reclamations, sand mining, extraction or other major coastal works are proposed, Government and village to manage processes by requiring villagers to get the appropriate permits and consent</p> <p><i>Responsibility: Village MNRE</i></p>	<p>Improve preparedness and readiness response to natural disasters</p>	<p>Utilise DRM maps and Geomorphologist Infrastructure Database to inform location and design</p>	<p>Community Sector Plan</p>
Reticulated water supply, quality and network to be improved	<p>Extend the water supply to families inland with no access to water</p> <p>Procure rainwater harvesting rainwater harvesting systems for vulnerable families as a short term solution</p> <p>District and villages to support SWA water rationing programs during times of drought</p> <p>District to support SWA efforts at exploratory boreholes in district</p> <p><i>Responsibility: SWA /MNRE/ District /Villages/ CSSP</i></p>	<p>Increase adaptation during drought periods</p> <p>Improve infrastructure resilience and rate of recovery</p> <p>Improve health and sanitation</p> <p>Reduce contamination of water supply</p> <p>Reduce impact from inland flooding</p>	<p>Develop/Update and register District/Village bylaws to include regulating developments around catchment areas and boreholes</p> <p>Implement SWA (2016) 10year investment plan to improve water supply network to support all inland families without access to drinking water</p> <p>Include in budget programming design, and extension costs of water supply and procurement of rainwater harvesting systems</p> <p>Utilize Hazard Maps and Geomorphologist findings to inform</p>	<p>CIM Strategy 2015</p> <p>Water and Sanitation Sector Plan</p> <p>SWA 10 Year Investment Plan(2016)</p> <p>Community Engagement Plan</p>

Natural Resources and Environment	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
<p>Sand/rock extraction (domestic): coastline, rivers and riverbanks</p>	<p>Identify alternative sustainable sources of sand/rocks for domestic use</p> <p>Research the impacts of sand mining</p> <p>Village consultation on sand mining policy and regulation</p> <p>Village and government to collaborate closely on designated areas for sand/rock mining</p> <p>Raise awareness and support of sustainable land use practices</p> <p>Responsibility: MNRE/ Village/Families</p>	<p>Mitigate potential damage from coastal erosion and flooding accommodating the hazard</p> <p>Safer villages, houses and roads</p> <p>Reduce impact from coastal erosion</p> <p>Economic benefit for village from sustainable sandmining activities</p>	<p>location and design</p> <p>MNRE to continue to identify specific sites for inshore/inland sustainable sand/rock mining to meet demand without compromising riverbanks</p> <p>Undertake assessments of identified sites</p> <p>Undertake consultation with villages affected by proposed sand/rock mining</p> <p>Develop and register District bylaws to include managing and monitoring domestic sand/rock mining of rivers</p>	<p>Village Fono Act (Amendment Bill 2016)</p> <p>Draft Soil Resource Management Bill</p>
<p>Village pool located in high risk hazard zones (coastal erosion and flooding from fluvial inundation, wave impacts and storm surges)</p>	<p>Village pool is currently in a poor location with an assessment needed for options to either rejuvenate or find a new site depending on the location of springs</p> <p>Test the quality of the water source before any further investment on the pool is undertaken (eg: fence/repair works)</p>	<p>Increase adaptation during drought periods</p> <p>Improve health and sanitation</p> <p>Reduce contamination of water supply</p>	<p>Utilise Hazard Maps and Geomorphologist findings for planning purposes</p> <p>MNRE Water & Sanitation to conduct water testing and analysis of village pool prior to any intervention</p> <p>Update Village bylaws to include managing and maintaining village natural resources</p>	<p>CIM Strategy 2015</p> <p>Water and Sanitation Sector Plan</p> <p>Community Engagement Plan</p>

	<i>Responsibility: CSSP/NGOs/MNRE/ Villages</i>			
Livelihood and Food Security	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
Food security: threatened by changes in climate and inadequate soil for planting	<p>Promote and facilitate planting of root crops (i.e yams, sweet potato) which are more resilient to cyclones, droughts and floods</p> <p>Promote agro-forestry and mixed planting including fruit trees species to reduce crop vulnerability to pests and diseases</p> <p>Implement the Integrated Pest Management Programme</p> <p>Implement Sustainable Land Management (SLM) practices</p> <p>Conduct pilot site trials for climate ready plant varieties</p> <p><i>Responsibility: MAF/ MNRE/villages/CSSP</i></p>	<p>Maintains natural ecosystem</p> <p>Builds resilience of community livelihood and food security</p> <p>Improve preparedness and readiness response to natural disasters</p>	<p>MAF to provide trainings, awareness raising and support in supply of nursery trees, technology and infrastructure</p> <p>MAF to provide trainings and awareness on crop diversification to suit the prolonged impacts of climate change such as drought or rainy seasons</p> <p>MAF to assist in establishment of pilot sites to trial climate ready plant varieties</p> <p>Develop an integrated land management plan with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area</p>	<p>Agriculture Sector Plan 2016-2021</p> <p>Community Engagement Plan</p> <p>Two Million Tree Strategy 2015-2020</p> <p>Restoration Operational Plan 2016-2020</p>
Governance	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
Strengthen the governance of natural resources and land use through Bylaws	Update and/or develop bylaws to manage the use of natural resources, and to control land use impacts; such as drainage maintenance, rubbish dumping,	<p>Strengthen implementation of all national sector plans</p> <p>Strengthen monitoring of all National Acts, Regulation,</p>	Develop and register district/village bylaw to protect all district/village and government assets, environment, livelihood and food security especially activities affecting	<p>Village Fono Act (Amendment Bill 2016)</p> <p>Community Sector Plan</p> <p>Community</p>

	<p>sand mining, stray animals and unregulated developments in water catchment areas and near boreholes.</p> <p>Collaborate with Sui o Nuu to monitor the use of and impact on natural resources</p> <p>Facilitate continuous awareness raising programs with the villages</p> <p>Responsibility: <i>MWCSD/Village</i></p>	<p>Strategies, Plans and Policies</p> <p>Improve ability of communities to adapt, respond and recover quickly in the long term</p> <p>Improve accountability and enabling environment of communities</p>	<p>water catchment areas and coastline</p> <p>Utilise Sui o Nu'u monthly meetings to monitor progress of district/village bylaws</p>	<p>Development Plan 2016-2021</p>
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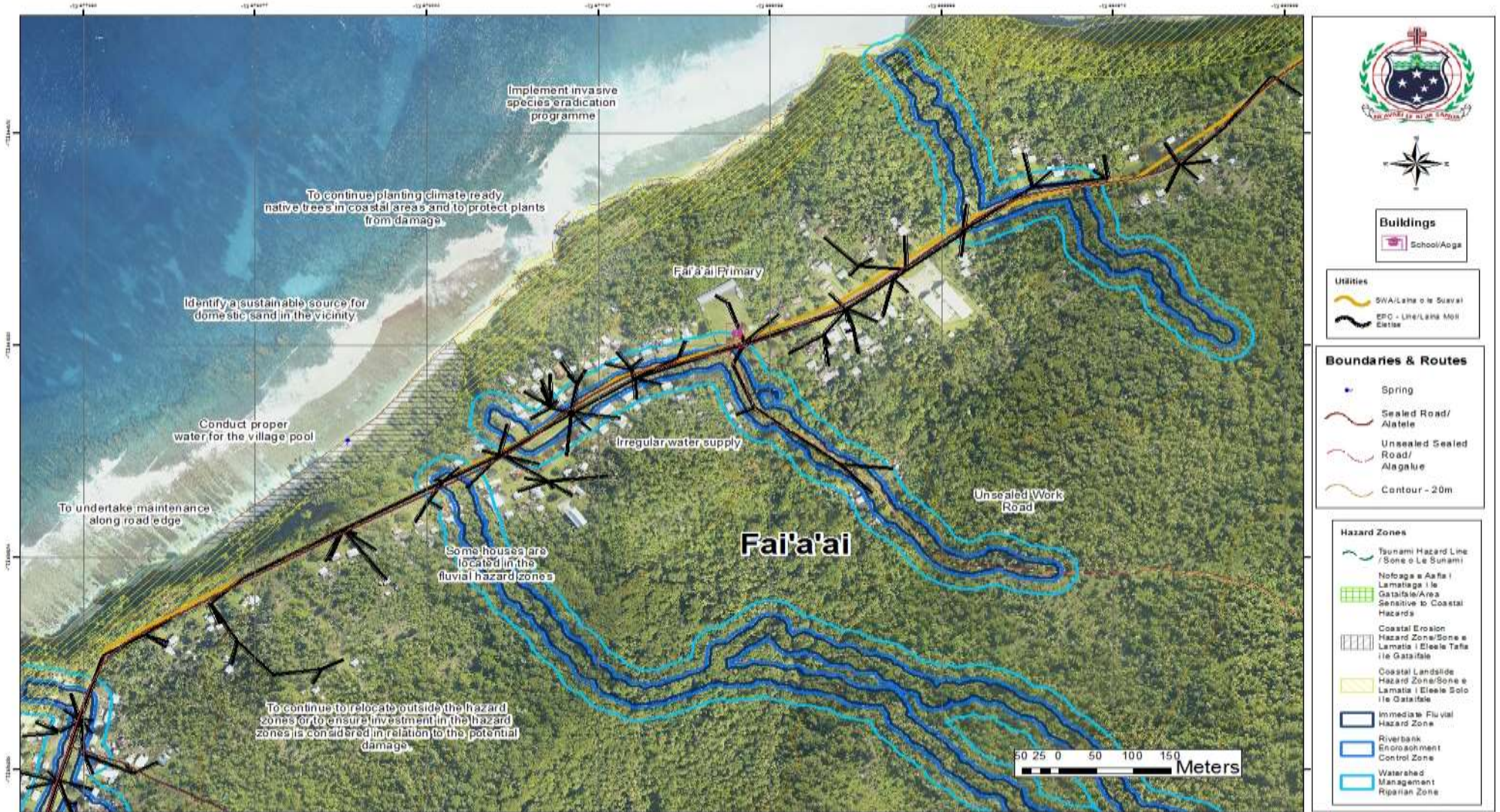
Access to village plantation land



Main Water Supply

Fai'a'ai Village Map

Fai'a'ai Village



COORDINATE SYSTEM: GCS WGS 1984
 DATUM: WGS 1984
 UNITS: DEGREE

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

10. Vaipu'a Village Interventions

CIM Plan Solutions

Infrastructure	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
Village houses, school, churches, government and other village assets in high risk hazard zones	<p>Relocate outside of high risk hazard zones when building/infrastructure requires replacement</p> <p>Investments within the hazard zones to adopt appropriate mitigation measures</p> <p>Conduct awareness raising campaign on flood resilient building practices and designs for at risk communities living in and near high risk hazard zones</p> <p>Design infrastructure to take into account the immediate hazard zones</p> <p>Develop land use planning and development controls to restrict developments within high risk hazard zones</p> <p>Families and village to limit building and developing on natural overland flow paths exacerbating inland flooding and storm water surges</p> <p>Where reclamations are proposed, Government and district to manage processes by requiring villagers to get the appropriate permits</p>	<p>Minimise expenditure on damaged properties & personal assets</p> <p>Mitigate potential damage from coastal erosion and flooding accommodating the hazard</p> <p>Improve recovery to create more resilient villages</p> <p>Improve preparedness and readiness response to natural disasters</p> <p>Safer villages, houses and roads</p>	<p>MNRE to develop zonation strategy for safe areas</p> <p>Utilise hazard maps and Geomorphologist Drainage Infrastructure Database to inform designs</p> <p>Enforcement of National Building Code 2017</p> <p>Encourage insurance of significant investments and assets within hazard zones</p> <p>Designation of the IFHZ, CEHZ and CFHZ as an "at risk" zone with appropriate land use planning controls and restrictions</p>	<p>National Building Code</p> <p>CIM Strategy 2015</p>

	and consent Responsibility: Village / Families /MWTI/ MNRE			
Reticulated water supply, quality and network to be improved	<p>Extend the water supply to families inland with no access to water</p> <p>Procure rainwater harvesting rainwater harvesting systems for vulnerable families as a short term solution</p> <p>District and villages to support SWA water rationing programs during times of drought</p> <p>District to support SWA efforts at exploratory boreholes in district</p> <p>Responsibility: SWA /MNRE/ District /Villages/ CSSP</p>	<p>Increase adaptation during drought periods</p> <p>Improve infrastructure resilience and rate of recovery</p> <p>Improve health and sanitation</p> <p>Reduce contamination of water supply</p> <p>Reduce impact from inland flooding</p>	<p>Develop/Update and register District/Village bylaws to include regulating developments around catchment areas and boreholes</p> <p>Implement SWA (2016) 10year investment plan to improve water supply network to support all inland families without access to drinking water</p> <p>Include in budget programming design, and extension costs of water supply and procurement of rainwater harvesting systems</p> <p>Utilize Hazard Maps and Geomorphologist findings to inform location and design</p> <p>Utilize Sui o Nu'u monthly meetings to monitor progress of village programs and responsibilities</p>	<p>CIM Strategy 2015</p> <p>Water and Sanitation Sector Plan</p> <p>SWA 10 Year Investment Plan(2016)</p> <p>Community Engagement Plan</p>
Evacuation Shelter and a connected escape route needed for emergency preparedness and response	<p>Assess and/or select location for either an existing or new evacuation shelter, including safe access routes to the shelter</p> <p>Develop a Village Climate Disaster Management Plan(VCDMP)</p> <p>Conduct trainings for People With Disabilities (PWDs) on emergency and disaster response strategies</p>	<p>Improve resilience of public infrastructure</p> <p>Improve preparedness and readiness response to natural disasters</p>	<p>Enforcement of National Building Code 2017</p> <p>Utilise hazard maps and Geomorphologist findings to inform location and designs</p>	<p>National Disaster Management Plan2017-2021</p> <p>National Building Code</p> <p>National Policy for People with Disabilities</p>

	<p>Implement CDCRM program</p> <p>Install relevant signs to guide the community on emergency response procedures and to locations of evacuation shelters</p> <p>Where no suitable houses exist, build emergency shelter(s) outside the hazard zones</p> <p>Retrofit identified and approved schools or churches outside hazard zones and designate as evacuation shelter</p> <p>Responsibility: MNRE /DMO/ MWTI/Village /CSSP/Council of Churches/MWCSD</p>			
Natural Resources and Environment	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
Sand/rock extraction (domestic): coastline, rivers and riverbanks	<p>Identify alternative sustainable sources of sand/rocks for domestic use</p> <p>Research the impacts of sand mining</p> <p>Village consultation on sand mining policy and regulation</p> <p>Village and government to collaborate closely on designated areas for sand/rock mining</p> <p>Raise awareness and support of sustainable land use practices</p> <p>Responsibility: MNRE/Village/Families</p>	<p>Mitigate potential damage from coastal erosion and flooding accommodating the hazard</p> <p>Safer villages, houses and roads</p> <p>Reduce impact from coastal erosion</p> <p>Economic benefit for village from sustainable sandmining activities</p>	<p>MNRE to continue to identify specific sites for inshore/inland sustainable sand/rock mining to meet demand without compromising riverbanks</p> <p>Undertake assessments of identified sites</p> <p>Undertake consultation with villages affected by proposed sand/rock mining</p> <p>Develop and register District bylaws to include managing and monitoring domestic sand/rock mining of rivers</p>	<p>Village Fono Act (Amendment Bill 2016)</p> <p>Draft Soil Resource Management Bill</p>

			Utilise Sui o Nu'u monthly meetings to monitor progress of CIM Plan activities	
Livelihood and Food Security	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
<p>Food security: threatened by changes in climate and inadequate soil for planting</p>	<p>Promote and facilitate planting of root crops(i.e yams, sweet potato)which are more resilient to cyclones, droughts and floods</p> <p>Promote agro-forestry and mixed planting including fruit trees species to reduce crop vulnerability to pests and diseases</p> <p>Implement the Integrated Pest Management Programme</p> <p>Implement Sustainable Land Management (SLM) practices</p> <p>Conduct pilot site trials for climate ready plant varieties</p> <p>Responsibility: MAF/MNRE/villages/CSSP</p>	<p>Maintains natural ecosystem</p> <p>Builds resilience of community livelihood and food security</p> <p>Improve preparedness and readiness response to natural disasters</p>	<p>MAF to provide trainings, awareness raising and support in supply of nursery trees, technology and infrastructure</p> <p>MAF to provide trainings and awareness on crop diversification to suit the prolonged impacts of climate change such as drought or rainy seasons</p> <p>MAF to assist in establishment of pilot sites to trial climate ready plant varieties</p> <p>Develop an integrated land management plan with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area</p>	<p>AgricultureSectorPlan2016-2021</p> <p>Community Engagement Plan</p> <p>Two Million Tree Strategy 2015-2020</p> <p>Restoration Operational Plan 2016-2020</p>
<p>Pest management; invasive species</p>	<p>Implement an eradication programme to eradicate, contain or exclude invasive species</p> <p>Replant with climate resilient native species</p> <p>Implement an inventory of invasive species and include information on their past, present and potential future distribution, as well as impacts and possible actions that can be</p>	<p>Maintains natural ecosystem</p> <p>Builds resilience of community livelihood and food security</p> <p>Reduce forest loss and land clearance</p>	<p>Develop an integrated land management plan with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area</p> <p>MAF to raise awareness of farmers on impacts to water flows from poor livestock management</p> <p>MAF to assist in establishment of pilot sites to trial climate ready plant varieties</p>	<p>Agriculture Sector Plan 2016-2021</p> <p>Draft NESP 2018 - 2022</p> <p>Samoa's National Invasive Species Action Plan (NISAP)</p>

	<p>taken</p> <p>Conduct education and awareness programmes on the impacts of invasive species</p> <p>Implement the Integrated Pest Management Programme</p> <p>Implement Sustainable Land Management (SLM) practices</p> <p>Build the capacity of farmers to manage stray animals (pigs, cattle) that are contaminating water sources</p> <p>Conduct pilot site trials for climate ready plant varieties</p> <p>District to fence domestic animals</p> <p>Responsibility: Villages /District/ MNRE/MAF/ SROS</p>		<p>MNRE Forestry, DEC and MAF to collaborate on supply of climate resilient crops</p> <p>MNRE, MAF and SROS to implement aggressive, nationwide invasive species eradication programme based on inventory of invasive species and conduct campaign on public awareness accordingly</p> <p>Village to manage pig/cattle population (compounds, in particular around water supplies)</p> <p>Training for farmers on pests management particularly affecting fruit trees and crops</p>	
Governance	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
Strengthen the governance of natural resources and land use through Bylaws	<p>Update and/or develop bylaws to manage the use of natural resources, and to control land use impacts; such as drainage maintenance, rubbish dumping, sand mining, stray animals and unregulated developments in water catchment areas and near boreholes.</p> <p>Collaborate with Sui o Nuu to monitor the use of and impact on natural resources</p>	<p>Strengthen implementation of all national sector plans</p> <p>Strengthen monitoring of all National Acts, Regulation, Strategies, Plans and Policies</p> <p>Improve ability of communities to adapt, respond and recover quickly in the long term</p> <p>Improve accountability</p>	<p>Develop and register district/village bylaw to protect all district/village and government assets, environment, livelihood and food security especially activities affecting water catchment areas and coastline</p> <p>Utilise Sui o Nu'u monthly meetings to monitor progress of district/village bylaws</p>	<p>Village Fono Act (Amendment Bill 2016)</p> <p>Community Sector Plan</p> <p>Community Development Plan 2016-2021</p>

	<p>Facilitate continuous awareness raising programs with the villages</p> <p>Responsibility: <i>MWCSD /Village</i></p>	<p>and enabling environment of communities</p>		
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Vaipua Village Map



COORDINATE SYSTEM: GCS WGS 1984
 DATUM: WGS 1984
 UNITS: DEGREE

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

11. Fogasavaii Village Interventions

CIM Plan Solutions

Infrastructure	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
<p>Village houses, school, churches, government and other village assets in high risk hazard zones</p>	<p>Relocate outside of high risk hazard zones when building/infrastructure requires replacement</p> <p>Investments within the hazard zones to adopt appropriate mitigation measures</p> <p>Conduct awareness raising campaign on flood resilient building practices and designs for at risk communities living in and near high risk hazard zones</p> <p>Design infrastructure to take into account the immediate hazard zones</p> <p>Develop landuse planning and development controls to restrict developments within high risk hazard zones</p> <p>Families and village to limit building and developing on natural overland flow paths exacerbating inland flooding and storm water surges</p> <p>Where reclamations are proposed, Government and district to manage processes by requiring villagers to get the appropriate permits and consent</p>	<p>Minimise expenditure on damaged properties & personal assets</p> <p>Mitigate potential damage from coastal erosion and flooding accommodating the hazard</p> <p>Improve recovery to create more resilient villages</p> <p>Improve preparedness and readiness response to natural disasters</p> <p>Safer villages, houses and roads</p>	<p>MNRE to develop zonation strategy for safe areas</p> <p>Utilise hazard maps and Geomorphologist Drainage Infrastructure Database to inform designs</p> <p>Enforcement of National Building Code 2017</p> <p>Encourage insurance of significant investments and assets within hazard zones</p> <p>Designation of the IFHZ, CEHZ and CFHZ as an “at risk” zone with appropriate landuse planning controls and restrictions</p>	<p>National Building Code</p> <p>CIM Strategy 2015</p>

	Responsibility: Village / Families /MWTI/ MNRE			
Drainage systems require maintenance and upgrade in high risk areas of main South Coast Road especially at junctions of Access Rd	<p>Upgrade drainage and culverts in accordance with <i>Vulnerability Assessment of the Samoa Road Network</i> recommendations</p> <p>Implement national standards for culverts and drains to facilitate the overland flow of storm water and reduce flooding</p> <p>Implement regular drainage inspection and maintenance</p> <p>Responsibility: LTA /MWTI/MWCSD /Village/ Families</p>	<p>Improves climate resilience of infrastructure resilience and rate of response and recovery to natural hazards and disasters</p> <p>Minimises national disaster recovery expenditure on damaged properties, public and private assets</p>	<p>Use existing information for guidance but not limited to: <i>"Vulnerability Assessment of the Samoa Road Network (2017)"; "Review of National Road Standards in Samoa (2016)"; "Samoa Code of Environmental Practice (2007)"</i></p> <p>Undertake a Cost Benefit Analysis to weigh options for funding</p> <p>Incorporate environmental and social safeguards concerns in the design and undertake consultations with affected communities</p> <p>Apply for necessary permits as required by law</p> <p>Utilise hazard maps and Geomorphologist Infrastructure Drainage Database to inform designs</p> <p>Develop and register District/Village bylaws to include maintenance of drainages and illegal rubbish dumping into waterways</p>	<p>CIM Strategy 2015</p> <p>TSP2014-2019 Goal 2 KO 1</p> <p>Community Sector Plan</p>
Evacuation Shelter and a connected escape route needed for emergency preparedness and response	<p>Assess and/or select location for either an existing or new evacuation shelter, including safe access routes to the shelter</p> <p>Develop a Village Climate Disaster Management</p>	<p>Improve resilience of public infrastructure</p> <p>Improve preparedness and readiness response to natural disasters</p>	<p>Enforcement of National Building Code 2017</p> <p>Utilise hazard maps and Geomorphologist findings to inform location and designs</p>	<p>National Disaster Management Plan2017-2021</p> <p>National Building Code</p> <p>National Policy for People with Disabilities</p>

	<p>Plan(VCDMP)</p> <p>Conduct trainings for People With Disabilities (PWDs) on emergency and disaster response strategies</p> <p>Implement CDCRM program</p> <p>Install relevant signs to guide the community on emergency response procedures and to locations of evacuation shelters</p> <p>Where no suitable houses exist, build emergency shelter(s) outside the hazard zones</p> <p>Retrofit identified and approved schools or churches outside hazard zones and designate as evacuation shelter</p> <p>Responsibility: MNRE /DMO/ MWTI/Village /CSSP/Council of Churches/MWCSD</p>			
<p>Reticulated water supply, quality and network to be improved</p>	<p>Extend the water supply to families inland with no access to water</p> <p>Procure rainwater harvesting rainwater harvesting systems for vulnerable families as a short term solution</p> <p>District and villages to support SWA water rationing programs during times of drought</p> <p>District to support SWA efforts at exploratory boreholes in district</p>	<p>Increase adaptation during drought periods</p> <p>Improve infrastructure resilience and rate of recovery</p> <p>Improve health and sanitation</p> <p>Reduce contamination of water supply</p> <p>Reduce impact from inland flooding</p>	<p>Develop/Update and register District/Village bylaws to include regulating developments around catchment areas and boreholes</p> <p>Implement SWA (2016) 10year investment plan to improve water supply network to support all inland families without access to drinking water</p> <p>Include in budget programming design, and extension costs of water supply and procurement of rainwater harvesting</p>	<p>CIM Strategy 2015</p> <p>Water and Sanitation Sector Plan</p> <p>SWA 10 Year Investment Plan(2016)</p> <p>Community Engagement Plan</p>

	Responsibility: <i>SWA /MNRE/ District /Villages/ CSSP</i>		systems Utilize Hazard Maps and Geomorphologist findings to inform location and design Utilize Sui o Nu'u monthly meetings to monitor progress of village programs and responsibilities	
Coastal access path to village pool and beach (cliff side)	Conduct EIA to assess feasibility of upgrading coastal access and implement recommendations Where sandmining/ rock extraction and/or reclamations are proposed, Government and district to manage processes by requiring villagers to get the appropriate permits and consent Responsibility: <i>Village MNRE</i>	Improve preparedness and readiness response to natural disasters	Utilise DRM maps and Geomorphologist Infrastructure Database to identify specific location and condition of current drainage/ infrastructure requiring maintenance and upgrade works	Community Sector Plan NESP 2018 - 2022
Natural Resources and Environment	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
Sand/rock extraction (domestic): coastline, rivers and riverbanks	Identify alternative sustainable sources of sand/rocks for domestic use Research the impacts of sand mining Village consultation on sand mining policy and regulation Village and government to collaborate closely on designated areas for sand/rock mining Raise awareness and support of sustainable land use practices Responsibility: <i>MNRE/ Village/Families</i>	Mitigate potential damage from coastal erosion and flooding accommodating the hazard Safer villages, houses and roads Reduce impact from coastal erosion Economic benefit for village from sustainable sandmining activities	MNRE to continue to identify specific sites for inshore/inland sustainable sand/rock mining to meet demand without compromising riverbanks Undertake assessments of identified sites Undertake consultation with villages affected by proposed sand/rock mining Develop and register District bylaws to include managing and monitoring domestic sand/rock mining of rivers Utilise Sui o Nu'u monthly meetings to	Village Fono Act (Amendment Bill 2016) Draft Soil Resource Management Bill

Livelihood and Food Security	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
<p>Food security: threatened by changes in climate and inadequate soil for planting</p>	<p>Promote and facilitate planting of root crops(i.e yams, sweet potato)which are more resilient to cyclones, droughts and floods</p> <p>Promote agro-forestry and mixed planting including fruit trees species to reduce crop vulnerability to pests and diseases</p> <p>Implement the Integrated Pest Management Programme</p> <p>Implement Sustainable Land Management (SLM) practices</p> <p>Conduct pilot site trials for climate ready plant varieties</p> <p>Responsibility: MAF/MNRE/villages/CSSP</p>	<p>Maintains natural ecosystem</p> <p>Builds resilience of community livelihood and food security</p> <p>Improve preparedness and readiness response to natural disasters</p>	<p>monitor progress of CIM Plan activities</p> <p>MAF to provide trainings, awareness raising and support in supply of nursery trees, technology and infrastructure</p> <p>MAF to provide trainings and awareness on crop diversification to suit the prolonged impacts of climate change such as drought or rainy seasons</p> <p>MAF to assist in establishment of pilot sites to trial climate ready plant varieties</p> <p>Develop an integrated land management plan with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area</p>	<p>AgricultureSectorPlan 2016-2021</p> <p>Community Engagement Plan</p> <p>Two Million Tree Strategy 2015-2020</p> <p>Restoration Operational Plan 2016-2020</p>
<p>Pest management; invasive species</p>	<p>Implement an eradication programme to eradicate, contain or exclude invasive species</p> <p>Replant with climate resilient native species</p> <p>Implement an inventory of invasive species and include information on their past, present and potential future distribution, as well as impacts and possible actions that can be taken</p>	<p>Maintains natural ecosystem</p> <p>Builds resilience of community livelihood and food security</p> <p>Reduce forest loss and land clearance</p>	<p>Develop an integrated land management plan with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area</p> <p>MAF to raise awareness of farmers on impacts to water flows from poor livestock management</p> <p>MAF to assist in establishment of pilot sites to trial climate ready plant varieties</p> <p>MNRE Forestry, DEC and MAF to collaborate</p>	<p>Agriculture Sector Plan 2016-2021</p> <p>Draft NESP 2018 - 2022</p> <p>Samoa's National Invasive Species Action Plan (NISAP)</p>

	<p>Conduct education and awareness programmes on the impacts of invasive species</p> <p>Implement the Integrated Pest Management Programme</p> <p>Implement Sustainable Land Management (SLM) practices</p> <p>Build the capacity of farmers to manage stray animals (pigs, cattle) that are contaminating water sources</p> <p>Conduct pilot site trials for climate ready plant varieties</p> <p>District to fence domestic animals</p> <p>Responsibility: Villages /District/ MNRE/MAF/ SROS</p>		<p>on supply of climate resilient crops</p> <p>MNRE, MAF and SROS to implement aggressive, nationwide invasive species eradication programme based on inventory of invasive species and conduct campaign on public awareness accordingly</p> <p>Village to manage pig/cattle population (compounds, in particular around water supplies)</p> <p>Training for farmers on pests management particularly affecting fruit trees and crops</p>	
Governance	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
<p>Strengthen the governance of natural resources and land use through Bylaws</p>	<p>Update and/or develop bylaws to manage the use of natural resources, and to control land use impacts; such as drainage maintenance, rubbish dumping, sand mining, stray animals and unregulated developments in water catchment areas and near boreholes.</p> <p>Collaborate with Sui o Nu'u to monitor the use of and impact on natural resources</p>	<p>Strengthen implementation of all national sector plans</p> <p>Strengthen monitoring of all National Acts, Regulation, Strategies, Plans and Policies</p> <p>Improve ability of communities to adapt, respond and recover quickly in the long term</p> <p>Improve accountability and enabling environment of communities</p>	<p>Develop and register district/village bylaw to protect all district/village and government assets, environment, livelihood and food security especially activities affecting water catchment areas and coastline</p> <p>Utilise Sui o Nu'u monthly meetings to monitor progress of district/village bylaws</p>	<p>Village Fono Act (Amendment Bill 2016)</p> <p>Community Sector Plan</p> <p>Community Development Plan 2016-2021</p>

	<p>Facilitate continuous awareness raising programs with the villages</p> <p>Responsibility: <i>MWCSD /Village</i></p>			
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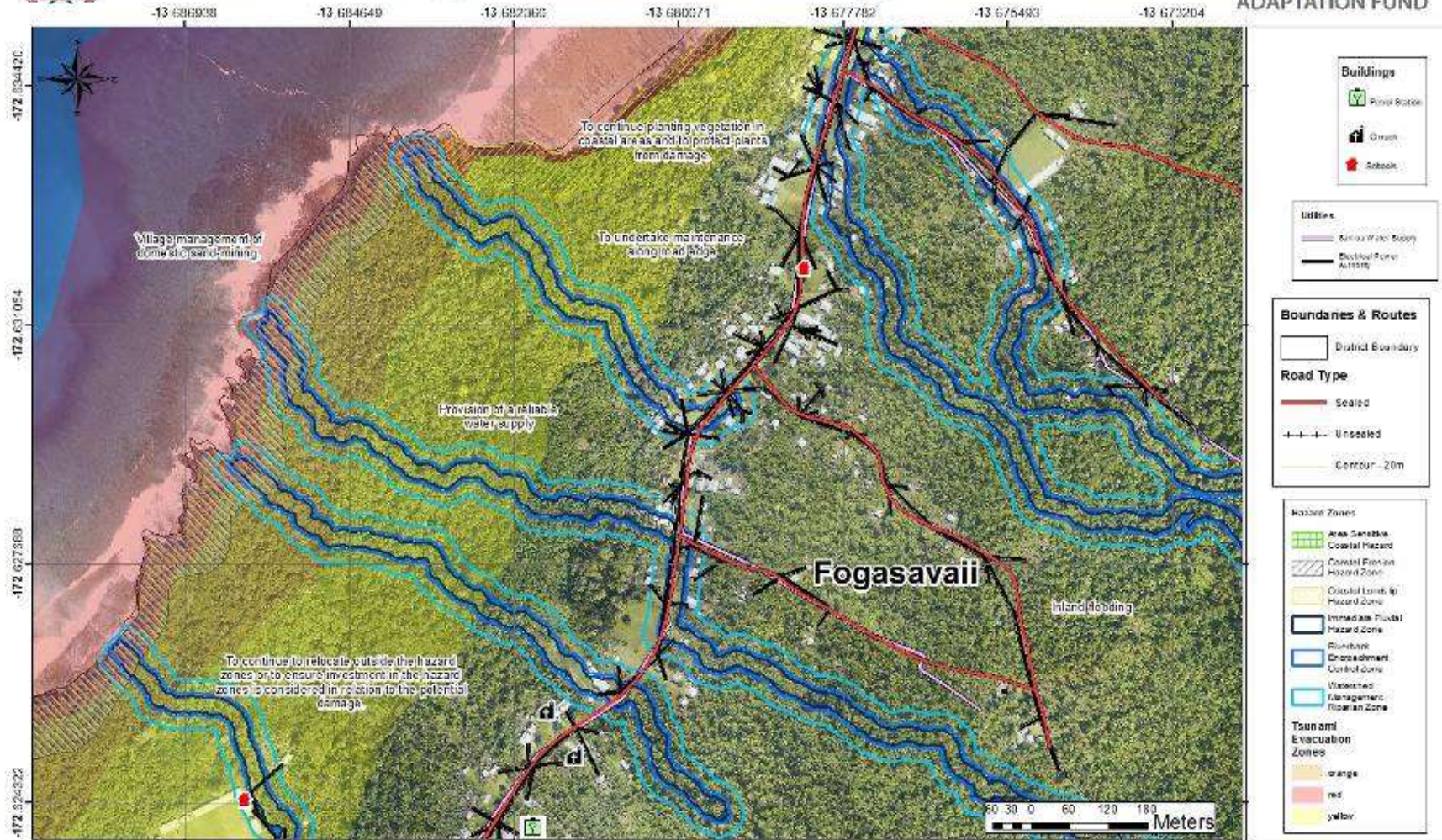
Fogasavaii Village Map



Fogasavaii Village



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Savaii AF Districts Overview Map of Coastal Inundation Zones

