

Community Integrated Management Plan

A'ana Alofi III - Upolu



Implementation Guidelines 2018

Foreword

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

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

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

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

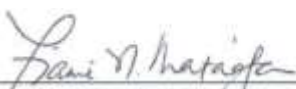
We wish to acknowledge the significant contributions of our District and Village communities and our key government partner stakeholders and implementing agencies, in particular:

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

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

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

Thank you


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




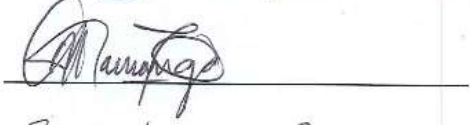
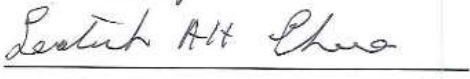
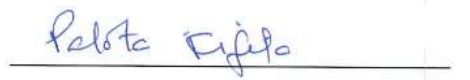




Participants in the Plan

The Community Integrated Management (CIM) Plan is a Partnership between the Government of Samoa and the villages within the plan. The Plan area starts from the ridge extending to the reef broadly covering four thematic areas; Infrastructure; Environment and Biological Resources; Livelihood and Food security; and Governance. Both partners have responsibilities for issues and solutions and the Plan gives an integrated approach to the provision of services and improvement of resilience now and in the future.

This Plan incorporates the constituency of A'ana Alofi III (Fasito'otai, Vailuutai, Faleatiu, Satapuala and Samea)

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

Date of Signing: 22 June 2018

Representatives:	Signature
Fasito'otai Village	
• Teuila Leituala Lotomau	
• Saemo Sasa	
• Taufono Ioane Toleafoa	
• Toleafoa Afamasaga M Finai	
• Leituala Lotomau Ah CHee	
Vailuutai Village	
• Palota Fifita	
• Leaitua Taua Falefitu	
• Inu Fasimalo	
• Taufono Seu Afamasaga	
• Faasina Maselusi	

Faleatiu Village

- Sei Vili Feiloivao
- Fialelei Palesoo
- Alofa Vili
- Letoaoaana Sua
- Faamaugofie Utupo

Sei Vili

Fialelei Palesoo

Alofa Vili

Letoaoaana Sua

Faamaugofie Utupo

Satapuala Village

- Vaili Mimita
- Vasa Vaili
- Koleti Ili Samu
- Ma'ave Togia
- Soli Tavae

Vaili Mimita

Vasa Vaili

Koleti Ili Samu

Ma'ave Togia

Soli TAVAE

Samea Village

- Tuifaasisina Tofaimaa
- Letelemaana Fuga Tiaina
- Malaga Teofilo Vaatiuola

Tuifaasisina Tofaimaa

Letelemaana Fuga Tiaina

Malaga Teofilo Vaatiuola

The Government of Samoa adopts the Community Integrated Management Plan for the Alii and Faipule of A'ana Alofi III as a Management Plan for the Implementation of the Community Integrated Management Strategy (CIMS)

The Ministry of Natural Resources and Environment, as lead organization of Government, on behalf of the participating Government Ministries and Corporations, confirms the participation of the Government of Samoa in the preparation of this Community Integrated Management Plan and its adoption as a Management Plan for the implementation of the Community Integrated Management Strategy 2015.



Ulu Bismarck Crawley
Chief Executive Officer, MNRE

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Acronyms

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

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

The Strategy has as its central vision "Resilience – Communities and their resources are Resilient to Natural Hazards". The CIM Plan takes this vision and provides the practical tools with which the communities and the government, in partnership, can implement the Strategy.

*To be resilient is to be adaptive, responsive and quick to recover so that communities are environmentally, socially and economically sustainable.
(CIM Strategy, August 2015)*

1.2 The Aim of the CIM Plan

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

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

1. Enhance awareness of hazard risks from the ridge to reef;
2. Improve climate resilience planning and development
3. Better adapt, respond and recover from natural disasters and other extreme events

1.3 The Structure of the Plan

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

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

2. Implementation Guidelines (IG)

2.1 Purpose of the Implementation Guidelines (IG)

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

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

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

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

2.2 Funding options to support CIM Plan Implementation

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

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

2.3 Duration of the Plan

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

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

1. The CIM Plan full review will be undertaken every 10 years or decade;
2. Once implemented, the solutions will be monitored on a bi-annual basis for progress and updated every five years in accordance with the Strategy for the Development of Samoa;
3. Detailed implementation of the solution will determine the monitoring requirements and Key Performance Indicators (KPI).

3. Description of District Environment

3.1 Physical and Natural Resource Setting

A'ana Alofi 3 is made up of the five villages of Fasito'otai, Vailuutai, Faleatiu, Satapuala and Samea. Between Satapuala and Samea is the STEC coconut plantation and Faleolo International Airport.

The coastline itself is mostly sandy cover including the Fasito'otai mangrove forest coastline. The reef system extends to more than 3 km offshore but breaks up into a relatively deep sandy lagoon off Faleolo Airport. The inner lagoon is of fine sand and is dominated by a band of seagrasses and macroalgae, and dead eroded *Porites*, while the outer lagoon consists of coarser reef sediments. Sporadic coral outcrops are found within 500m from the coast while more extensive coral gardens are found closer to the outer reef. The majority of the inshore area is covered by sand. All the villages in the district have traditional fishery reserves located close to the coast in sandy and muddy flats of the inshore reef.

The Fasito'otai mangrove forest covers both Fasito'otai and its sub-village of Vailuutai. It's amongst the largest mangrove forest along the northwest Upolu coastline between Vaiusu Mangrove Forest and Falelatai Mangrove forest. Therefore, it is a very important fish nursery for north Upolu. The mangrove forest although degraded is still in a very good condition apart from the areas bordering settlements, where rubbish is dumped or reclaimed for residential homes. Sea level rise has slowly resulted in some of the family homes being flooded during high tide and heavy rains.

The terrestrial biodiversity within the district is mostly secondary forest and the remains of the old WSTEC plantation. There is no native forest left in the district apart from Mt. Tafuaupolu which is located on the ridge area of the district. The district is not within a Key Biodiversity Area according to the study conducted on Priority Sites for Conservation in Samoa: KBAs (2010) because both terrestrial and marine environment are highly exposed and impacted by anthropogenic activities that has shaped the current outlook of the district. The villages of Fasito'otai, Vailuutai, Faleatiu and Satapuala all have independent water supplies that are linked to the Mt. Tafuaupolu catchment, however Satapuala village, STEC plantation, Fasito'otai, and Faleolo Airport all utilize the Aana underwater aquifer for water supply. No significant biodiversity of note for special conservation measures are present in the district apart from possible rehabilitation of the mangrove forest swamp in Fasito'otai.

Although most of the invasive species were found inland and around plantations, no specific activity is proposed for actions as families continually clear them once plantations reach these areas as well as they being in already disturbed vegetation areas. The only recommended activity is for the STEC plantation to undertake an invasive species eradication program within its property to minimize invasive species spreading.

3.2 Social and Economic Setting

The A'ana Alofi III District has a population of 6,177 persons (2016, Census Preliminary Count), most were from Fasito'otai (1,573), Satapuala (1,963), Faleatiu (675), Samea (292) and Vailu'utai 870. Development is mostly located along both sides of the main road in the coastal villages of Fasito'otai and Vailu'utai, as well as along established access roads, which has over 80 to 90 percent of the Satapuala and Faleatiu population.

Most of the families residing inland for Satapuala and Faleatiu water is supplied by spring fed reservoirs. Reticulated water supply is provided inland and intermittent, with burst / broken pipes becoming a regular occurrence. The village of Samea has been established to the south of the Mulifanua wharf and it is a result of resettlement from the site of the international airport. It is a sub-village of Satuimalufilufi and was considered in the Aiga ile Tai and Satuimalufilufi CIM Plan prepared in 2001.

The cash economy of the District consists of a mix of traditional and non-traditional work. A number of residents are employed in plantation work, fishing, and agricultural/cultivation activities. The District supports three primary schools, Fasito'otai, Faleatiu and Satapuala and one large secondary school. There are a number of churches along both the main road and inland Satapuala and Faleatiu roads. In addition, there are a number of small shops and home occupations throughout the area.

Aside from the Airport the other main commercial activities in the District is Aggie Grey's Sheraton Lagoon Resort and the STEC plantation. The resort occupies land between the Airport and the Mulifanua wharf and has raised the land close to the beach and modified the beach to ensure a good quality tourist experience. Both activities employ a number of local people. At the western end of the Airport there is also a small agricultural and fisheries station, as well as a solar farm.

The main road provides easy access to primary services such as shops and adjacent districts. It also provides direct access to Faleolo airport, which makes up part of the district. It is the main access route to the main hospital, and part of it is located within the coastal flood and erosion zones, although at the further edge of the zones from the coast, in the mangrove area of Fasito'otai and Vailuutai. In the event of an alternative emergency lack of access along the coastal corridor could be life threatening. Likewise primary services such as water, power and telephone, which generally follow the main road, would also be severely affected.

3.3 Climate Risk and Resilience

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

The A'ana Alofi III coastal area has a high Coastal Sensitivity Index, and has changed noticeably over the last several decades. The Fasito'otai mangrove inlet has shifted 60 metres south of the 1954 location. The old airport main road, which used to run along the Faleatiu, Satapuala and Magia coast has eroded by 0.5metres in parts. The road was diverted in the 1970s when the airport terminal building was shifted to its current location. A 4km long revetment runs along the coast of Faleolo International Airport. The majority of the coast has pockets of basalt gravel and coastal vegetation which provides some protection to coastal erosion. While the coastal areas and infrastructure are the lifeline of the district in terms of commuting to town, wharf and airport, for the CIM Plan updates we need to consider the broader landscape hazards, climate risks and responses to increase resilience. A 'ridge to reef' approach is used to ensure all hazards, risks and potential responses are canvassed in an integrated manner.

Coastal Hazards and Risks: While the erosive forces continue along the coast, some of this coastline has been reclaimed for residential and business development exposing them to the coastal erosion hazard zones. Such reclamations also change the current circulation and sand balance along the shore and near-shore areas. This in turn places greater erosion or flooding pressure elsewhere along the coastline, and can lead to near-shore waters not being adequately flushed by tidal variations and wave actions. There are also the direct pollution impacts from reclamations themselves, or effluent, polluted run-off or other wastes coming directly from the developments. While ecosystem based adaptation (EbA) measures are a preferred option, there is scope for adaptation projects to

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

enhance existing hard engineering ‘protection’ measures where infrastructure or community asset protection is essential. Elsewhere community pools have been nominated by community members for enhancement and protection. For some a mix of hard and ‘soft’ engineering options could provide suitable resilience. Improving local drainage primarily along the main coast road has been a priority for many in the villages. Some of the plantation access roads have also been the cause of local flooding and inundation, with water pooling within the central areas of villages, where these roads intersect with the main coastal road.

Inland Hazards and Risks: Consistent with the ‘ridge to reef’ (R2R) approach the new LiDAR mapping data was used to determine likely inland hazards and risks from terrestrial flooding, waterway erosion and sedimentation.

During the community consultations, it was evident that many coastal hazard issues, like severe waterway flooding, lowland inundation, uncontrolled runoff, bridge and culvert wash-outs and troublesome sedimentation – mostly had their origins in excessive inland clearance of forests, catchment land use changes, poor drainage along roads and poor sustainable land management practices. Such changes to the landscape in an uncontrolled manner severely affects the natural waterway systems, the run-off from nearby land and the groundwater flows. Pollutants and sediments can be transported to the coastal environs, then through to the lagoons and reefs. In the medium to long term the decline in the health of the lagoons and reefs reduces the efficiency of these natural barriers to climate change and natural disasters. Additionally, a better understanding of the hydro-geological and water resources of the catchment and how they interact with land cover and land use practices, enables the identification of options to address water security issues.

4. Aana Alofi 3 District Interventions

CIM Plan Solutions

Infrastructure	Best Solutions	Other Benefits	Guidelines to assist Implementation	Link to Sector Plans
Main Road West Coast Road (WCR) Inland connecting access road to all villages	<p>The WCR project will rehabilitate: - main road from Vaitele tai to Faleolo International Airport includes- widen lanes, footpaths, culverts/drainage and shoulders</p> <p>Complete sealing inland access road (Tuvao and Poloka) and connect the road with inland roads of neighboring villages – Fasito’otai, Vailu’utai and Faleatiu</p> <p>Responsibility: LTA / MWTI</p>	<p>Improve infrastructure resilience</p> <p>Climate proof the road transport network.</p> <p>Improves the rate of response and recovery to natural hazards and disasters.</p> <p>*Maintains lifeline access for all of Savaii</p> <p>*Improves coastal Protection</p> <p>*Minimises the impacts of flooding on the community and businesses</p> <p>*Improves the rate of surface water discharge.</p>	<p>Use existing information for guidance but not limited to:</p> <p>Environmental Social Safeguard Policy</p> <p>“Vulnerability Assessment of the Samoa Road Network (2017)”;</p> <p>“Review of National Road Standards in Samoa (2016)”;</p> <p>MWTI</p> <p>“Samoa Code of Environmental Practice (2007)”</p> <p>*National Infrastructure Strategic Plan 2011</p> <p>*Use updated Hazard Maps to inform designs</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>Environmental Code of Practice - West Coast Road (2012), LTA</p>	<p>Community Integrated Management Strategy, August 2015:</p> <p>Transport Sector Plan 2014-2019</p>
Drainage	Maintenance of road side drains and regular inspection of drainage system;	Reduce impact from flooding	Identify funding/budget requirements and implementation programme for construction and development	

	Responsibility: MWCSD / District / Village / MWTI and LTA		Work with the communities to keep the drainages clear of any debris Samoa CODE of Environmental Practice (PUMA - 2007) COEP 11 - Drainage	
Electricity Supply	<p>Install and connect power supply for residents inland.</p> <p>Install streetlights along the access roads where needed for community safety</p> <p>Relocate overhead lines to a more resilient location when being replaced Provide underground electricity lines in the long term</p> <p>Install and connect to solar power supply if made available</p> <p>Responsibility: EPC/MWTI/Villages</p>	<p>Maintain electricity supply at all times including during natural disasters</p> <p>Avoid accidents due to fallen electricity posts.</p>	<p>Monitor distribution networks to avoid overloading poles and contributing to line failures</p> <p>Development of a Renewable Energy and Energy Efficiency Framework, 2016</p>	Samoa Energy Sector Plan 2017-2020
Emergency Management	<p>Conduct evacuation center assessment scheduled mid 2017/2018</p> <p>Prepare Village Climate Disaster Management Plan (VCDMP)</p> <p>Implement CDCRM program and include installation of evacuation signs</p> <p>Emergency Radio Network (ERN) covered by Tafua Upolu</p> <p>Responsibility: MNRE/DMO</p>	<p>Improve preparedness and readiness response to natural disasters</p>	<p>Develop VCDMP guided by the Community Disaster Risk Management Plan and training</p>	National Disaster Management Plan 2017-2021

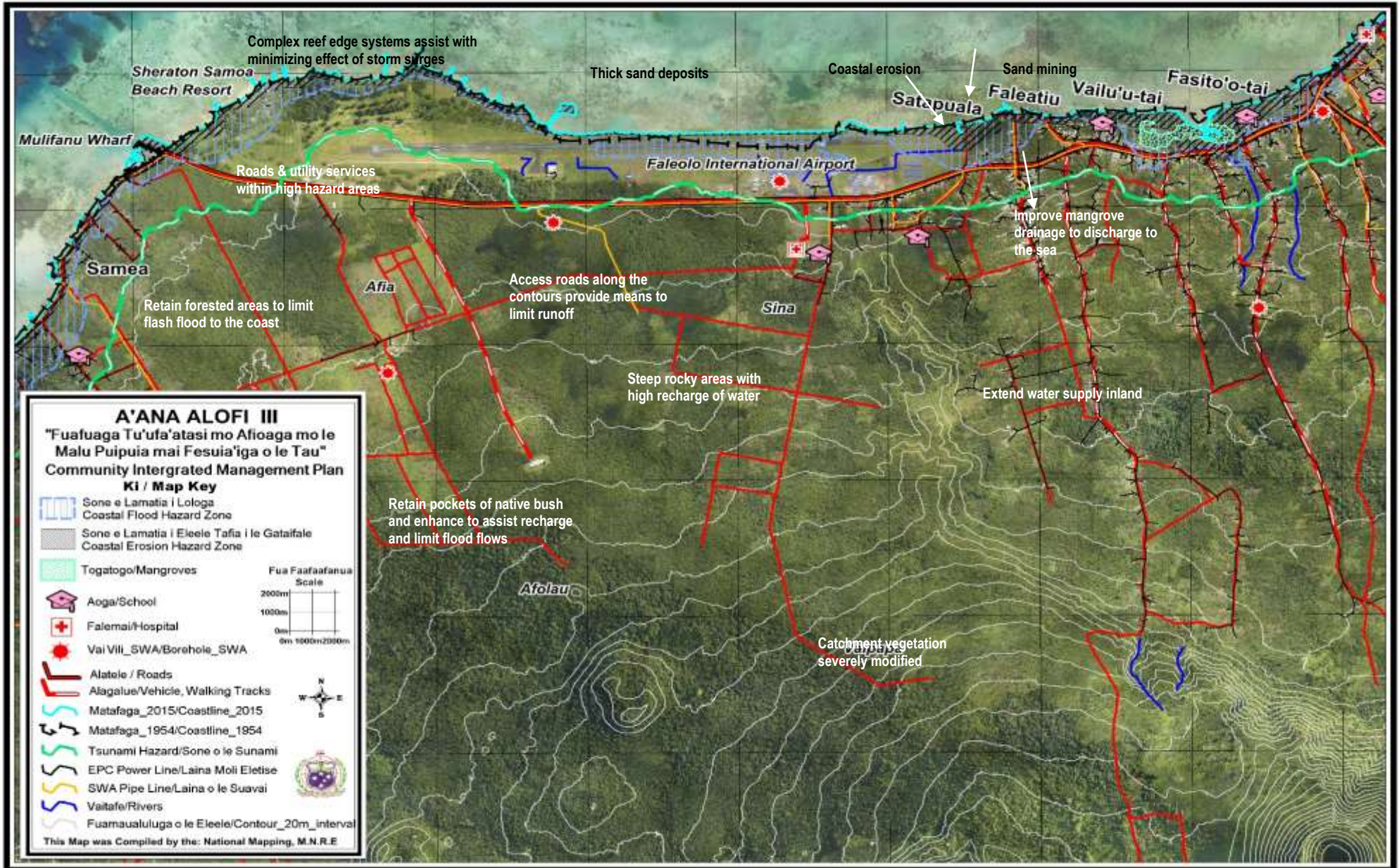
<p>Main water distribution network / Piped water to families living inland</p>	<p>Improve water supply system to connect all families without access to water: Implement SWA service on pressure management and leak detection work as part of Non-Revenue Water (NRW) reduction program for Rural areas</p> <p>Procurement and installation of Tank (Reservoir) inland of existing Vailuutai borehole for coverage extension to Fasitoo Tai and Faleatiu inland residents.</p> <p>Chlorination of water supply</p> <p>Assess site for potential borehole in Satapuala village to support all inland residents without access to piped water</p> <p>Responsibility: Samoa Water Authority / LTA /MOH/MNRE- WRD/District and villages</p>	<p>Improve access to clean quality water for inland families;</p> <p>Enhance resilience of water distribution network infrastructure due to the upgrade CRWCR project</p>	<p>Environmental & Social safeguard policies apply</p> <p>Implementation of the SWA (2016)10 year investment plan to improve water supply network to support all inland families without access to drinking water- - FY 17/18 work program including. Aana Alofi III</p>	<p>Community Integrated Management Strategy, August 2015)</p> <p>Water and Sanitation Sector Plan: Framework For Action 2016 - 2020,</p>
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Natural Resources and Environment	Best Solutions	Other Benefits	Guidelines to assist Implementation	Relevant Sector Plans
<p>Replanting /coastal restoration</p>	<p>Replant vegetation / littoral plants in coastal areas – mangrove and wetland ecosystems</p> <p>Encourage natural regeneration of coastal plants</p> <p>Responsibility: Village/ MNRE</p>	<p>Protects coastline against normal wave action</p> <p>Maintains natural ecosystem connectivity</p> <p>Increase sand build up minimizing erosion</p>	<p>MNRE Forestry to advice on appropriate species, and provide seedlings for different vegetation types suitable to the habitats (coastal lowland area - mangrove) and planting materials for villages that need them.</p> <p>Samoa’s National Biodiversity Strategy and Action Plan (NBSAP) 2015-2020</p> <p>MNRE Division of</p>	<p>National Environment Sector Plan 2017-2021</p>
<p>Waste Management</p>	<p>Village council to implement action</p>	<p>Improve ecological function and resilience</p>		

	<p>on: Enforcing rules to stop or remove the construction of toilets in or near the mangrove ecosystem and coast;</p> <p>Impose fines on people that dump solid waste into the mangrove area or beachfront;</p> <p>Waste Management awareness and education program for village</p> <p>Responsibility: Village/families/ MNRE</p>	<p>of mangrove ecosystem Improve sanitation problems</p>	<p>Environment and Conservation and PUMA to advice village on waste management and sanitation programs</p> <p>Waste Management Act 2010</p>	
<p>Sand mining for commercial and domestic use affecting the marine and coastal environment</p>	<p>Assess and identify sustainable sources of river sand for domestic and commercial use</p> <p>Village, government and the private sector to collaborate on designated areas for river sand mining</p> <p>Strengthen sand mining monitoring and enforcement</p> <p>Mass media awareness on sustainable sand mining practices Develop sand mining regulation</p> <p>Responsibility: MNRE / Village</p>	<p>Improve the sustainable management of sand as a natural resource</p> <p>Minimize impacts of coastal inundation and erosion</p> <p>Reduce impact to natural coastal protection mechanism via control of scale and site of extraction</p>	<p>Secure relevant permits before any sand mining occurs</p> <p>Incorporate environmental and social safeguards concerns including consultations with any affected community</p> <p>For access to sites, obtain written consents from Alii Faipule and landowners. Alii Faipule and landowner provide consent</p> <p>Develop sand mining regulation</p> <p>Follow existing MNRE guidelines for sand mining or extracting such as:</p> <p>PUMA Act 2004</p> <p>Lands and Survey Environment Act 1989</p> <p>(draft) Sand Mining Policy 2001</p>	<p>National Environment Sector Plan 2017-2021</p>

			Draft Soil Resource Management Bill, 2018 NAP Sustainable Land Management Plan 2015-2019	Water and Sanitation Sector Plan 2016-2020
Marine Reserve	Expand existing marine reserve – conservation of inshore fish species and coral reef ecosystem rehabilitation to cover the whole district Responsibility: MAF / MNRE/Village	Improve coral reef ecological functions and resilience	Community-based Fisheries Management Plan (CBFMP) NBSAP 2015-2020	National Environment Sector Plan 2017-2021 Agriculture Sector Plan 2016-2020
Water Catchment	Upgrade two existing water reservoir located inland Implement reforestation program to support the Fasito’otai water catchment Conduct consultations and awareness programs Responsibility: MNRE / village	Improve resilience of water catchment areas	Upper Watershed Conservation Policy 2015 (CDC Submission) Water Resource Management Act 2008	Water and Sanitation 2016-2020

Aana Alofi 3 District Map



4.1 Fasito'otai Village Interventions

CIM Plan Solutions

Infrastructure	Best Solutions	Other Benefits	Guidelines to assist Implementation	Relevant Sector Plans
Village infrastructure in hazard zones include: Households Schools Churches Businesses: gas station; shops; Women's Committee House	Relocate outside hazard zones Investments within the hazard zone adopt appropriate mitigation measures Raise building foundations at a level that takes into account the CFHZ in the vicinity Responsibility: MWCSD/MNRE/Village/Families / MWTI	Reduce cost in ongoing maintenance mitigate potential damage from coastal erosion and flooding accommodating the hazard.	Relocation to be guided by existing strategies and policies: Application of the National Building Code (Draft Sept 2016) and permit compliance *Refer to National Building Codes of Samoa *Use updated Hazard Maps to inform designs National Infrastructure Strategic Plan 2011 Application of National Building Code 2002 PUMA Act 2004	CIM Strategy (2015)
Access Road and Drainage	Implement storm water drainage along WCR and across inland roads to reduce flooding Complete sealing inland access road and include drainage. Upgrade drainage at Taufuapolu Road towards the wetland Responsibility: MWTI//LTA / Village/ Families	Improved coastal structure resilience for road and drainage system	Construction of access roads should be guided by: Environmental and Social Safeguard Policy Implementation of WCR project will cover main road improvement Samoa CODE of Environmental Practice (PUMA - 2007) Upolu West Coast Road, Environmental Code of Practice (2012) SMEC, Vulnerability Assessment of the Samoa Road Network (2016) Review of National	Transport Sector Plan 2014-2019

			Road Standard in Samoa (2016)	
Water (SWA)	<p>Implement the proposed extension of water supply from the Vailuutai bore hole to cover Fasitoo-Tai and Faleatiu;</p> <p>Responsibility: SWA / village</p>	Improve piped water access to all sub-villages with limited water supply	<p>Samoa Water Authority Pipeline Work Program for FY16/17 and FY17/18</p> <p>Environmental and Social Safeguard Policies apply - MoH Water Quality Standards</p> <p>SWA 10 Year Investment Plan (2016) to improve water supply network</p>	<p>Community Integrated Management Strategy, August 2015)</p> <p>Water and Sanitation Sector Plan: Framework For Action 2016 - 2020,</p>
Rainwater Harvesting Systems	<p>Supply of Rainwater Harvesting Systems specifically for families inland without any options of accessing water – rain water harvesting</p> <p>Quality water testing</p> <p>Responsibility: Village /UNDP-GEF SGP / CSSP/NGO/MoH</p>	Alternative water supply for improved water access	<p>Implementing rainwater harvesting and improving coastal spring should follow existing guides:</p> <p>Environmental and Social Safeguard Policy apply</p> <p>Community Engagement Plan (2015)</p> <p>Assess the need for a Development Consent from PUMA</p> <p>Samoa Code of Environmental Practice (2007)</p>	<p>Community Development Plan 2016-2021</p> <p>Water and Sanitation Plan 2016-2020</p>
Rehabilitate natural spring	<p>Upgrade two village pools located around the mangrove area to:</p> <ul style="list-style-type: none"> *enable water circulation and flushing from the pool into the mangrove; <p>repair and provide structural protection wall for village pool;</p> <p>Quality water testing</p> <p>*maintain and regularly clean-out debris from within the pool</p>	<p>Alternative water supply for improved water access for the whole village</p> <p>Back-up water supply for village domestic use when there is limited piped water</p>		

	<p>Responsibility: Village / MWTI / MNRE/CSSP/NGO</p>			
Electricity Supply	<p>Install and connect power supply for residents inland.</p> <p>Install streetlights along the access roads where needed for community safety</p> <p>Relocate overhead lines to a more resilient location when being replaced</p> <p>Provide underground electricity lines in the long term</p> <p>Install and connect to solar power supply if made available</p> <p>Responsibility: EPC/MWTI/Village</p>	<p>Maintain electricity supply at all times including during natural disasters</p> <p>Avoid accidents due to fallen electricity posts.</p>	<p>Monitor distribution networks to avoid overloading poles and contributing to line failures</p> <p>Development of a Renewable Energy and Energy Efficiency Framework, 2016</p>	Samoa Energy Sector Plan 2017-2020
Evacuation Shelter	<p>Identify suitable buildings away from hazard zone that meets the DMO standard for evacuation center as the designated safe haven for the village;</p> <p>Implement the CDCRM program with Village Secondary School – for disaster preparedness</p> <p>Responsibility: MNRE-DMO/ Village</p>	<p>Improve community adaptive capacity and resilience – through readiness actions when natural disaster strikes</p>	<p>Develop VCDMP guided by the Community Disaster Risk Management Plan and training</p> <p>CDCRM Program DMO</p> <p>Community Engagement Plan (2015)</p>	<p>Community Development Plan 2016-2021</p> <p>Natural Disaster Management Plan 2017-2021</p>

Natural Resources and Environment	Best Solutions	Other Benefits	Guidelines to assist Implementation	Relevant Sector Plans
Replanting /coastal restoration	<p>Replant vegetation / littoral plants in coastal areas – mangrove and wetland ecosystems</p> <p>Encourage natural regeneration of coastal plants</p> <p>Responsibility: Village/ MNRE</p>	<p>Protects coastline against normal wave action</p> <p>Maintains natural ecosystem connectivity</p> <p>Increase sand build up minimizing erosion</p>	<p>MNRE Forestry to advice on appropriate species, and provide seedlings for different vegetation types suitable to the habitats (coastal lowland area - mangrove) and planting materials for villages that need them.</p>	<p>National Environment Sector Plan 2017-2021</p>
Waste Management	<p>Village council to implement action on: Enforcing rules to stop or remove the construction of toilets in or near the mangrove ecosystem and coast;</p> <p>Impose fines on people that dump solid waste into the mangrove area or beachfront;</p> <p>Waste Management awareness and education program for village</p> <p>Responsibility: Village/families/ MNRE</p>	<p>Improve ecological function and resilience of mangrove ecosystem</p> <p>Improve sanitation problems</p>	<p>Samoa’s National Biodiversity Strategy and Action Plan (NBSAP) 2015-2020</p> <p>MNRE Division of Environment and Conservation and PUMA to advice village on waste management and sanitation programs</p> <p>Waste Management Act 2010</p>	
Sand mining for commercial and domestic use affecting the marine and coastal environment	<p>Assess and identify sustainable sources of river sand for domestic and commercial use</p> <p>Village, government and the private sector to collaborate on designated areas</p>	<p>Improve the sustainable management of sand as a natural resource</p> <p>Minimize impacts of coastal inundation and erosion</p>	<p>Secure relevant permits before any sand mining occurs</p> <p>Incorporate environmental and social safeguards concerns including consultations with any affected community</p>	<p>National Environment Sector Plan 2017-2021</p>

	<p>for river sand mining Strengthen sand mining monitoring and enforcement Mass media awareness on sustainable sand mining practices</p> <p>Develop sand mining regulation</p> <p>Responsibility: MNRE / Village</p>	<p>Reduce impact to natural coastal protection mechanism via control of scale and site of extraction</p>	<p>For access to sites, obtain written consents from Alii Faipule and landowners. Alii Faipule and landowner provide consent</p> <p>Develop sand mining regulation</p> <p>Follow existing MNRE guidelines for sand mining or extracting such as:</p> <p>PUMA Act 2004</p> <p>Lands and Survey Environment Act 1989</p> <p>(draft) Sand Mining Policy 2001</p> <p>Draft Soil Resource Management Bill, 2018</p> <p>NAP Sustainable Land Management Plan 2015-2019</p>	<p>Water and Sanitation Sector Plan 2016-2020</p>
<p>Marine Reserve</p>	<p>Expand existing marine reserve – conservation of inshore fish species and coral reef ecosystem rehabilitation</p> <p>Replicate establishment of marine reserve to neighboring villages</p> <p>Responsibility: MAF / MNRE/Village</p>	<p>Improve coral reef ecological functions and resilience</p>	<p>Community-based Fisheries Management Plan (CBFMP)</p> <p>NBSAP 2015-2020</p>	<p>National Environment Sector Plan 2017-2021</p> <p>Agriculture Sector Plan 2016-2020</p>

<p>Water Catchment</p>	<p>Upgrade two existing water reservoir located inland</p> <p>Implement reforestation program to support the Fasito'otai water catchment</p> <p>Conduct consultations and awareness programs</p> <p>Responsibility: MNRE / village</p>	<p>Improve resilience of water catchment areas</p>	<p>MNRE to undertake an Ecosystem-based Adaptation Approach for catchment area measures:</p> <p>Community to request through Forestry Division MNRE seedlings under their 2million tree replanting project</p> <p>National Action Programme: To combat land degradation and mitigate effect of drought, 2015-2020</p> <p>National Water Resources Management Strategy 2007-2017</p> <p>NBSAP 2015-2020</p> <p>Water Resources Act 2008</p> <p>Forestry Restoration Operational Plan 2016-2020</p> <p>MNRE-DEC to provide guidance on effective ways to remove invasive plants from watershed area</p> <p>National Invasive Species Action Plan 2008-2011</p> <p>Two Million Tree Planting Strategy 2015-2020Upper</p>	<p>Water and Sanitation 2016-2020</p>
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			Watershed Conservation Policy 2015 (CDC Submission)	
			Water Resource Management Act 2008	

Other CIM Plan Issues Identified	Comment
<p>Seawall –Provision of a seawall protection to reduce storm surges that can impact the Primary School located within CFHZ. Proposed seawall to a 20 year design standard for Fasito’otai: Approximate length: 200m and 3m height Approximate cost: \$T120,960 Benefit cost ratio: 2.3</p> <p>Responsibility: / MWTI /MESC/ Village</p>	<p>The PPCR-ECR project does not support funding seawall as the best solution for climate resilience. The most recommended option in the long term and for sustainability and enhance community resilience is for the school to relocate inland in the future, when a new school building is required.</p> <p>This is important for MESC to note for future school building requirements for the village of Fasito’otai.</p>

Livelihood and Food Security	Best Solutions	Other Benefits	Guidelines to assist Implementation	Relevant Sector Plans
Disturbed forests and plantation areas	<p>Restore and utilize fallow lands closer to the village with plantations rather than clearing inland and upland forests :</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>Diversify into other climate resilient species cash crops and fruit trees i.e cocoa, coconut, lemon and</p>	Improve food security and healthy living and increase community resilience and adaptive response to climate change	<p>MAF CROP Division to support farmers through guidance and trainings from Agricultural experts and awareness programs on crop diversification to suit the prolonged periods of drought or rainy season</p> <p>Provide tools and planting materials to improve crop diversification and resilience – address pest issues etc. This will lead to improve food security</p> <p>Strengthen partnership with farming NGO’s such as the: Samoa Farmers Association; Samoa Federated</p>	Agriculture Sector Plan 2016-2020

	<p>plant in suitable areas outside hazard zones</p> <p>Implement Sustainable Land management practices</p> <p>Implement integrated pest management programmes</p> <p>Responsibility: MAF / CSSP/WIBDI/Farmers Association/ METI/ SBEC / UNDP-GEF-SGP/MNRE / villages</p>		<p>Farmers Incorporated ; Women in Business Inc. and private sector to support rural farmers through training opportunities and marketing productivity</p> <p>Implementation of solutions are guided by the following: Draft Soil Resource Management Bill 2018</p> <p>Samoa National Action Programme to combat Land Degradation and to mitigate effects of drought 2015-2020</p> <p>National Invasive Species Strategy and Action Plan 2008-2011</p> <p>2 Million Tree Planting Strategy 2015-2020</p>	
Marine Restocking	<p>Restock reefs and lagoons with marine species such as clams, trochus, seaweeds and others for domestic consumption.</p> <p>Responsibility: MAF / MNRE/village</p>	<p>Increase diversity of marine species and coral reef ecosystem</p> <p>Reduce coral bleaching</p>	<p>Community-Based Fisheries Management Plan (CBFMP)</p>	Agriculture Sector Plan 2016-2020
Livestock	<p>Implement income generating activities such as establishing village community poultry farms.</p> <p>Responsibility: MAF / village</p>	<p>Improve opportunities for livelihood benefits</p>	<p>Village Development Committee guidance</p>	

Governance	Solutions Proposed	Implementation Guidelines	Comments
<p>Village bi-laws and institutional setting</p>	<p>Develop and enforce related by-laws to support implementation of CIM Plans</p> <p>Responsibility: MWCSD / MAF / MNRE and Villages</p>	<p>Village Fono Amendment Bill 2016, allows the villages to have their own faiga faavae “refer Clause 5 Amendment”.</p>	<p>The Amendment allows for the village to established their own governing constitution and have it registered with MWCSD and in this way village by-laws to manage community and public asset as we ll as natural resource management can be part of the village constitution.</p>
<p>Institutions</p>	<p>Encourage participation of youth and women in village decision making: Consultation framework that promotes representation of women and youth Process that informs the village on all projects either by government or NGO</p> <p>Responsibility: MWCSD / Villages</p>	<p>SDS 2016/17 - 2019/20 Community Development Plan 2016-2021</p>	<p>CIM Plan consultation witnessed the strong and active participation from both women and youth.</p>

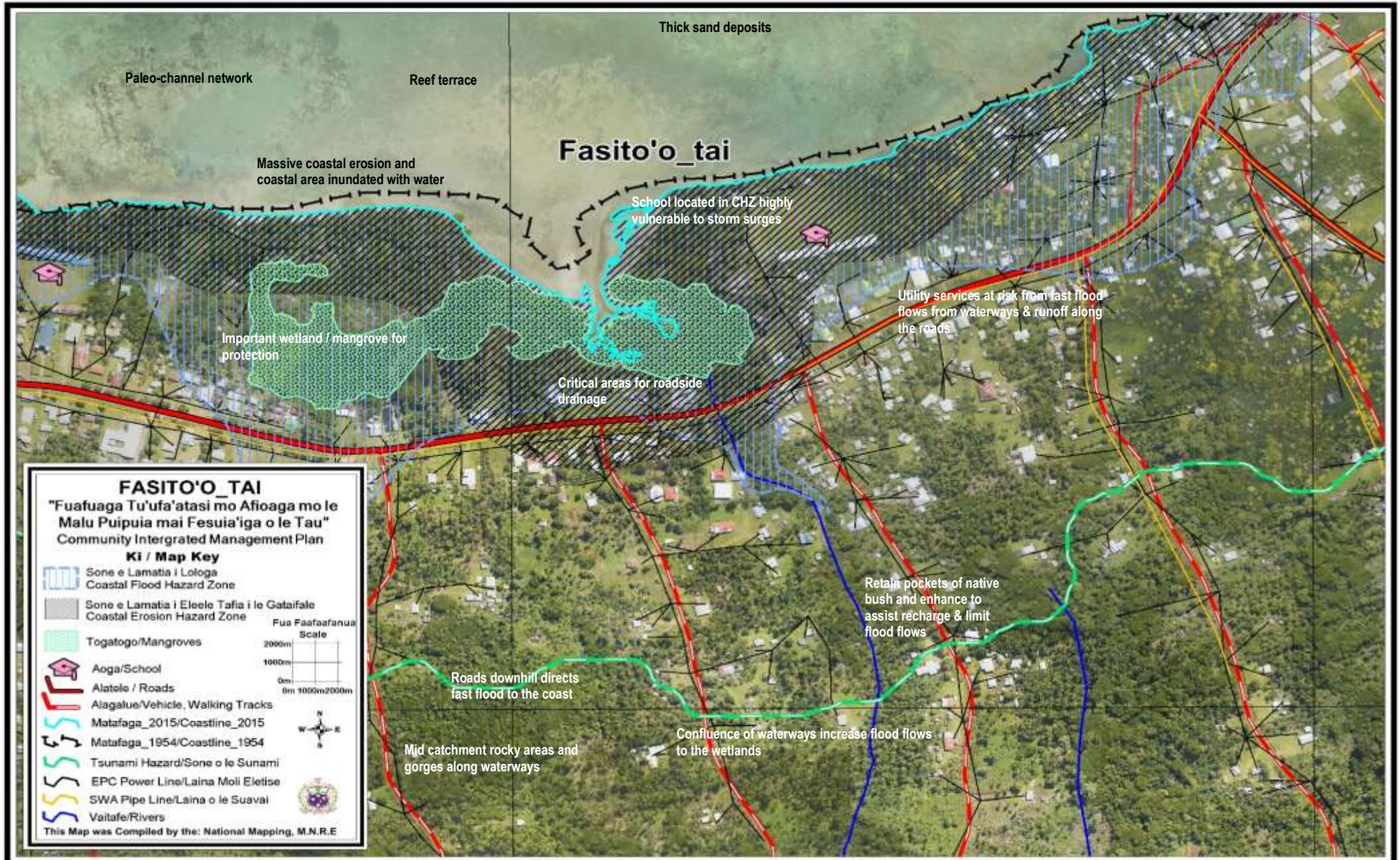


Water Storage inland Fasito'otai



Fasito'otai Secondary School and rugby field located within Coastal Hazard Zone

Fasito'o - tai Village Map



4.2 Vailuu'tai Village Interventions

Infrastructure	Best Solutions	Other Benefits	Guidelines to assist Implementation	Relevant Sector Plans
<p>Village infrastructure in CEHZ and/or CFHZ : Households Schools Churches shops; Women's Committee House</p>	<p>Relocate outside hazard zones</p> <p>Investments within the hazard zone adopt appropriate mitigation measures</p> <p>Raise building foundations at a level that takes into account the CFHZ in the vicinity</p> <p>*Design infrastructure appropriately to take into account the immediate hazard zones; for example, raise floor levels in flood prone areas</p> <p>Responsibility: MWCSO/ MNRE/Village / MWTI</p>	<p>Reduce cost in ongoing maintenance to mitigate potential damage from coastal erosion and flooding or accommodating the hazard.</p>	<p>Relocation to be guided by existing strategies and policies:</p> <p>Application of the National Building Code (Draft Sept 2016) and permit compliance</p> <p>*Refer to National Building Codes of Samoa</p> <p>*Use updated Hazard Maps to inform designs</p> <p>National Infrastructure Strategic Plan 2011</p> <p>PUMA Act 2004</p> <p>Application of the National Building Code (Draft 2016) and permit compliance</p>	<p>CIM Strategy (2015)</p>
<p>Access Road and Drainage</p>	<p>Implement storm water drainage along WCR and across inland roads to reduce flooding</p> <p>Complete sealing inland access road and include drainage.</p> <p>Upgrade drainage at Taufuapolu Road towards the wetland</p> <p>Responsibility: MWTI//LTA / Village/ Families</p>	<p>Improved coastal structure resilience for road and drainage system</p>	<p>Construction of access roads should be guided by: Relevant Environmental and Social Safeguard Policy</p> <p>Samoa CODE of Environmental Practice (PUMA - 2007)</p> <p>Review of National Road Standard in Samoa (2016)</p> <p>National Infrastructure Strategic Plan (2011)</p> <p>Vulnerability Assessment of the Samoa Road Network (2017)</p> <p>Upolu West Coast Road, Environmental Code of Practice (2012)</p>	<p>Transport Sector Plan 2014-2019</p>

<p>Water (SWA)</p>	<p>Implement the proposed extension of water supply from the Vailuutai bore hole to cover Fasitoo-Tai and Faleatiu;</p> <p>Conduct water quality testing</p> <p>Responsibility: SWA /MoH/ village</p>	<p>Improve piped water access to all sub-villages with limited water supply</p>	<p>Samoa Water Authority Pipeline Work Program for FY16/17 and FY17/18</p> <p>Environmental and Social Safeguard Policies apply - MoH Water Quality Standards</p> <p>SWA 10 Year Investment Plan (2016) to improve water supply network</p>	<p>Community Integrated Management Strategy, August 2015)</p> <p>Water and Sanitation Sector Plan: Framework For Action 2016 - 2020,</p>
<p>Coastal Spring / drinking water</p>	<p>Implement structural measures to upgrade coastal spring along main road</p> <p>- Need to test quality of the water if it is suitable for consumption first before a decision is made to protect the section of the coastal spring use for drinking.</p> <p>Responsibility: SWA/LTA/MOH/CSSP/NGO/villages</p>	<p>Increase adaptation option during drought period - for domestic use</p>	<p>WCR project to consider protecting coastal spring when widening road and upgrade current structure</p> <p>Environmental and Social Safeguard Policies apply -</p> <p>Community Engagement Plan (2015)</p> <p>West Coast Road - Environmental Code of Practice (2012)</p>	<p>Water and Sanitation Sector Plan: Framework For Action 2016 - 2020,</p> <p>National Environment Sector Plan 2017-2021</p>
<p>Electricity Supply</p>	<p>Install and connect power supply for residents inland.</p> <p>Install streetlights along the access roads where needed for community safety</p> <p>Relocate overhead lines to a more resilient location when being replaced</p> <p>Provide underground electricity lines in the long term</p> <p>Install and connect to solar power supply if made available</p> <p>Responsibility: EPC/MWTI/Village</p>	<p>Maintain electricity supply at all times including during natural disasters</p> <p>Avoid accidents due to fallen electricity posts.</p>	<p>Monitor distribution networks to avoid overloading poles and contributing to line failures</p> <p>Development of a Renewable Energy and Energy Efficiency Framework, 2016</p>	<p>Samoa Energy Sector Plan 2017-2020</p>

Environment & Natural Resources	Best Solutions Proposed	Other Benefits	Guidelines to assist Implementation	Relevant Sector Plans
Mangrove Conservation	<p>Implement village program to support conservation of mangrove area;</p> <p>*Conduct Mangrove Audit to established ecological status of marine species and health of mangrove ecosystem;</p> <p>* Replanting of mangrove seedlings to restore degraded areas;</p> <p>*Implement education and awareness program on importance of mangrove ecosystem</p> <p>Responsibility: Village/ MNRE</p>	<p>Protects coastline against normal wave action</p> <p>Maintains natural ecosystem connectivity</p> <p>Increase sand build up minimizing erosion</p>	<p>MNRE Forestry to advice on appropriate species, and provide seedlings for different vegetation types suitable to the habitats (coastal lowland area - mangrove) and planting materials for villages that need them.</p> <p>NBSAP 2015-2020</p> <p>Develop Mangrove Conservation Management Plan for the village</p> <p>Draft Review of Environment Management Conservation Bill 2016</p>	National Environment Sector Plan 2017-2021
Sand mining for commercial and domestic use affecting the marine and coastal environment	<p>Assess and identify sustainable sources of river sand for domestic and commercial use</p> <p>Village, government and the private sector to collaborate on designated areas for river sand mining</p> <p>Strengthen sand mining monitoring and enforcement</p> <p>Mass media awareness on</p>	<p>Improve the sustainable management of sand as a natural resource</p> <p>Minimize impacts of coastal inundation and erosion</p> <p>Reduce impact to natural coastal protection mechanism via control of scale and site of extraction</p>	<p>Secure relevant permits before any sand mining occurs</p> <p>Incorporate environmental and social safeguards concerns including consultations with any affected community</p> <p>For access to sites, obtain written consents from Alii Faipule and landowners. Alii Faipule and landowner provide consent</p>	National Environment Sector Plan 2017-2021

	<p>sustainable sand mining practices</p> <p>Develop sand mining regulation</p> <p>Responsibility: MNRE / Village</p>		<p>Develop sand mining regulation</p> <p>Follow existing MNRE guidelines for sand mining or extracting such as:</p> <p>PUMA Act 2004</p> <p>Lands and Survey Environment Act 1989</p> <p>(draft) Sand Mining Policy 2001</p> <p>Draft Soil Resource Management Bill, 2018</p> <p>NAP Sustainable Land Management Plan 2015-2019</p>	<p>Water and Sanitation Sector Plan 2016-2020</p>
<p>Fisheries Reserves</p>	<p>Strengthen monitoring and evaluation of fisheries reserves</p> <p>Maintain existing reserves and if possible, include additional fishery reserves for the other sub-villages</p> <p>Responsibility: MAF / MNRE / village</p>	<p>Increase marine species diversity including fish species and coral reef ecosystem</p> <p>Improve coral communities increase chances of less or no coral bleaching</p>	<p>Community Based Fisheries management Plan (CBFMP)</p> <p>Village Plans and By-laws</p> <p>NBSAP 2015-2020</p>	<p>Agriculture Sector Plan 2016-2020</p> <p>National Environment Sector Plan 2017-2021</p>
<p>Waste Management</p>	<p>Adopt and enforce Village by-laws on waste management and village beautification</p> <p>Consultation and awareness on waste management</p> <p>Responsibility: Village / MWCSO / MNRE</p>	<p>Improve hygiene and village cleanliness</p>	<p>Village By-laws</p> <p>National Beautification Program</p> <p>PUMA Act 2004</p> <p>Waste Management Policy, 2011</p> <p>Waste Management Act 2010</p>	<p>National Environment Sector Plan 2017-2021</p>

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

			<p>Action Programme to combat Land Degradation and to mitigate effects of drought 2015-2020</p> <p>National Invasive Species Strategy and Action Plan 2008-2011</p> <p>2 Million Tree Planting Strategy 2015-2020</p>	
Marine Restocking	<p>Restock reefs and lagoons with marine species such as clams, trochus, seaweeds and others for domestic consumption.</p> <p>Responsibility: MAF / village</p>	<p>Increase diversity of marine species and coral reef ecosystem</p> <p>Reduce coral bleaching</p>	Community-Based Fisheries Management Plan (CBFMP)	Agriculture Sector Plan 2016-2020
Livestock	<p>Implement poultry farm for village income generating activity</p> <p>Responsibility: MAF / village</p>	<p>Improve opportunities for livelihood benefits</p>	Village Development Committee guidance	

Governance	Best Solutions and Other Solutions Proposed	Implementation Guidelines	Comments
Village bi-laws and institutional setting	<p>Develop and enforce related by-laws to support implementation of CIM Plans</p> <p>Responsibility: MWCSO / MAF / MNRE and Villages</p>	Village Fono Amendment Bill 2016, allows the villages to have their own faiga faavae "refer Clause 5 Amendment".	The Amendment allows for the village to established their own governing constitution and have it registered with MWCSO and in this way village by-laws to manage community and public asset as well as natural resource management can be part of the village constitution.
Institutions	<p>Encourage participation of youth and women in village decision making: Consultation framework that promotes representation of women and youth</p> <p>Process that informs the village on all projects either by government or NGO</p>	<p>SDS 2016/17 - 2019/20</p> <p>Community Development Plan 2016-2021</p>	CIM Plan consultation witnessed the strong and active participation from both women and youth.

	Responsibility: MWCS D / Villages		
Disaster Management	<p>Provide awareness and education programs on reactive response to extreme events like bushfire</p> <p>Conduct readiness and preparedness program or response to extreme climatic events – tropical cyclones, heavy rainfall, bushfire etc.</p> <p>Responsibility: MNRE-DMO/FESA/SRCS/village</p>	<p>Improve rate of recovery</p> <p>More lives saved during natural disasters because of people proactive response.</p> <p>National Disaster Management Plan 2017-2021</p> <p>Community Development Sector Plan 2016-2021</p>	<p>MNRE-DMO to work with Civil Society Groups – NGOs, CBOs and communities in continuing emergency training for disaster preparedness</p> <p>Implement the Community Disaster and Climate Risk Management program for community Toolkit</p>
Village Drainage Clean up	<p>Undertake village inspection of culverts along inland / main roads;</p> <p>Implement district/village drainage/ culvert clean-up and awareness program</p> <p>Conduct village site inspection of culverts and drainage clearance to avoid clogging from debris and rubbish</p> <p>Responsibility: Village / MWCS D</p>	<p>Improved rate of recovery</p> <p>Reduce potential for flooding in village areas</p> <p>Safer village houses and roads</p> <p>Improved safety community and resilience</p>	<p>Prepare a local education programme on need for keeping drainage systems clean</p> <p>Women’s committee monitor hygiene and clean-up program</p> <p>Village beautification committee to monitor clean-up program for drainage and culverts</p>

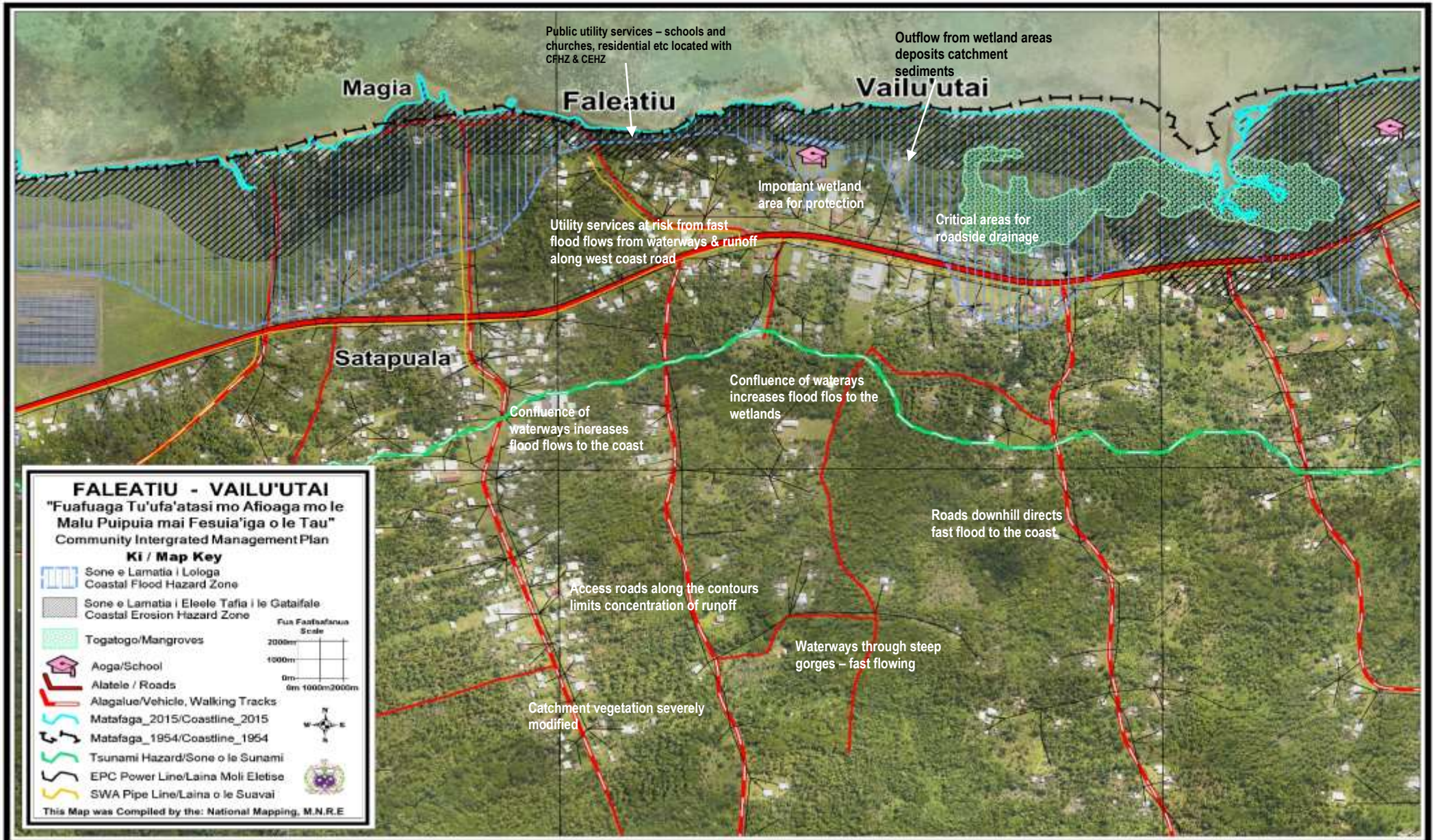


Village Pool Vailuutai – backup support for domestic use during water shortage



Mangrove area that covers the coast.

Vailuutai Village Map



4.3 Faleatiu Village Interventions

Infrastructure	Best Solutions	Other Benefits	Guidelines to assist Implementation	Relevant Sector Plans
Village infrastructure in CEHZ and/or CFHZ : Households Schools Churches shops; Women's Committee House	Relocate outside hazard zones Investments within the hazard zone adopt appropriate mitigation measures Raise building foundations at a level that takes into account the CFHZ in the vicinity Design infrastructure appropriately to take into account the immediate hazard zones; for example, raise floor levels in flood prone areas Responsibility: MWCSO/ MNRE/Village / MWTI	Reduce cost in ongoing maintenance to mitigate potential damage from coastal erosion and flooding or accommodating the hazard.	Relocation to be guided by existing strategies and policies: Application of the National Building Code (Draft Sept 2016) and permit compliance *Refer to National Building Codes of Samoa *Use updated Hazard Maps to inform designs National Infrastructure Strategic Plan 2011 PUMA Act 2004 Application of the National Building Code (Draft 2016) and permit compliance	CIM Strategy (2015)
Access Road and Drainage	Implement storm water drainage along WCR and across inland roads to reduce flooding Complete sealing inland access road and include drainage. Upgrade drainage at Taufuapolu Road towards the wetland	Improved coastal structure resilience for road and drainage system	Construction of access roads should be guided by: Relevant Environmental and Social Safeguard Policy Samoa CODE of Environmental Practice (PUMA - 2007) Review of National Road Standard in Samoa (2016)	Transport Sector Plan 2014-2019

	Responsibility: <i>MWTI//LTA / Village/ Families</i>		National Infrastructure Strategic Plan (2011) Vulnerability Assessment of the Samoa Road Network (2017) Upolu West Coast Road, Environmental Code of Practice (2012)	
Water (SWA)	Implement the proposed extension of water supply from the Vailuutai bore hole to cover Fasitoo-Tai and Faleatiu; Water quality testing Responsibility: SWA / MoH/ village	Improve piped water access to all sub-villages with limited water supply	Samoa Water Authority Pipeline Work Program for FY16/17 and FY17/18 Environmental and Social Safeguard Policies apply - MoH Water Quality Standards SWA 10 Year Investment Plan (2016) to improve water supply network	Community Integrated Management Strategy, August 2015) Water and Sanitation Sector Plan: Framework For Action 2016 - 2020,
Rainwater Harvesting Systems	Supply of Rainwater Harvesting Systems specifically for families inland without any options of accessing water – rain water harvesting Water quality testing Responsibility: MWCSDD / / MNRE-Water SEctor / CSSP/NGO/ Village	Alternative water supply for improved water access	Environmental and Social Safeguard Policy apply Community Engagement Plan (2015) Assess the need for a Development Consent from PUMA Samoa Code of Environmental Practice (2007)	Community Development Plan 2016-2021 Water and Sanitation Plan 2016-2020
Electricity Supply	Install and connect power supply for residents inland.	Maintain electricity supply at all times including during natural disasters	Monitor distribution networks to avoid	Samoa Energy Sector Plan 2017-2020

	<p>Install streetlights along the access roads where needed for community safety</p> <p>Relocate overhead lines to a more resilient location when being replaced Provide underground electricity lines in the long term</p> <p>Install and connect to solar power supply if made available</p> <p>Responsibility: <i>EPC/MWTI/Village</i></p>	<p>Avoid accidents due to fallen electricity posts.</p>	<p>overloading poles and contributing to line failures</p> <p>Development of a Renewable Energy and Energy Efficiency Framework, 2016</p>	
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Environment & Natural Resources	Best Solutions Proposed	Other Benefits	Guidelines to assist Implementation	Relevant Sector Plan
<p>Water Catchment</p>	<p>Upgrade two existing water reservoir located inland</p> <p>Implement reforestation program to support the Faleatiu water catchment</p> <p>Conduct consultation and awareness on water catchment areas</p> <p>Responsibility: <i>MNRE / village</i></p>	<p>Improve resilience of water catchment areas</p>	<p>MNRE to undertake an Ecosystem-based Adaptation Approach for catchment area measures:</p> <p>Community to request through Forestry Division MNRE seedlings under their 2million tree replanting project</p> <p>National Action Programme: To combat land degradation and mitigate effect of drought, 2015-2020</p> <p>National Water Resources Management Strategy 2007-2017</p> <p>NBSAP 2015-2020 Water Resources Act 2008</p>	<p>Water and Sanitation 2016-2020</p>

			<p>Forestry Restoration Operational Plan 2016-2020</p> <p>MNRE-DEC to provide guidance on effective ways to remove invasive plants from watershed area</p> <p>National Invasive Species Action Plan 2008-2011</p> <p>Two Million Tree Planting Strategy 2015-2020 Upper Watershed Conservation Policy 2015 (CDC Submission)</p> <p>Water Resource Management Act 2008</p> <p>Upper Watershed Conservation Policy 2015 (CDC Submission)</p> <p>Water Catchment Regulation 2013</p>	
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Livelihood and Food Security	Best Solutions	Other Benefits	Guidelines to assist Implementation	Relevant Sector Plans
Disturbed forests and plantation areas	<p>Restore and utilize fallow lands closer to the village with plantations rather than clearing inland and upland forests :</p> <p>Promote and facilitate planting of root-crops (i.e yams, sweet potato) which are more resilient to cyclones,</p>	<p>Improve food security and healthy living and increase community resilience and adaptive response to climate change</p>	<p>MAF CROP Division to support farmers through guidance and trainings from Agricultural experts and awareness programs on crop diversification to suit the prolonged periods of drought or rainy season</p>	<p>Agriculture Sector Plan 2016-2020</p>

	<p>droughts and floods. Promote agro-forestry and mixed planting including fruit trees species to reduce crop vulnerability to pests and diseases. Diversify into other climate resilient species cash crops and fruit trees i.e cocoa, coconut, lemon and plant in suitable areas outside hazard zones</p> <p>Implement Sustainable Land management practices</p> <p>Implement integrated pest management programmes</p> <p>Responsibility: MAF / CSSP/WIBDI/Farmers Association/ METI/ SBEC / UNDP-GEF-SGP/MNRE / villages</p>		<p>Provide tools and planting materials to improve crop diversification and resilience – address pest issues etc. This will lead to improve food security</p> <p>Strengthen partnership with farming NGO’s such as the: Samoa Farmers Association; Samoa Federated Farmers Incorporated ; Women in Business Inc. and private sector to support rural farmers through training opportunities and marketing productivity</p> <p>Implementation of solutions are guided by the following: Draft Soil Resource Management Bill 2018</p> <p>Samoa National Action Programme to combat Land Degradation and to mitigate effects of drought 2015-2020</p> <p>National Invasive Species Strategy and Action Plan 2008-2011</p> <p>2 Million Tree Planting Strategy 2015-2020</p>	
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Livestock	Implement poultry farm for village income generating activity Responsibility: MAF / village	Improve opportunities for livelihood benefits	Village Development Committee guidance	Community Development 2016-2021
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Governance	Best Solutions	Guidelines to assist Implementation	Comments
District /Village bi-laws and institutional setting	Develop and enforce related by-laws to support implementation of CIM Plans Responsibility: MWCS D / MAF / MNRE and Villages	Village Fono Amendment Bill 2016, allows the villages to have their own faiga faavae “ refer Clause 5 Amendment”.	The Amendment allows for the village to established their own governing constitution and have it registered with MWCS D and in this way village by-laws to manage community and public asset as we ll as natural resource management can be part of the village constitution.
Institutions	Encourage participation of youth and women in village decision making: Consultation framework that promotes representation of women and youth Process that informs the village on all projects either by government or NGO Responsibility: MWCS D / Villages	SDS 2016/17 - 2019/20 Community Development Plan 2016-2021	CIM Plan consultation witnessed the strong and active participation from both women and youth.
Disaster Management	Provide awareness and education programs on reactive response to extreme events like bushfire Conduct readiness and preparedness program or response to extreme climatic events – tropical cyclones, heavy rainfall, bushfire etc. Responsibility: MNRE-DMO/FESA/SRCS/village	Improve rate of recovery More lives saved during natural disasters because of people proactive response. National Disaster Management Plan 2017-2021 Community Development Sector Plan 2016-2021	MNRE-DMO to work with Civil Society Groups – NGOs, CBOs and communities in continuing emergency training for disaster preparedness Implement the Community Disaster and Climate Risk Management program for community Toolkit
Village Drainage Clean up	Undertake village inspection of culverts along inland / main roads; Implement district/village drainage/ culvert clean-up	Improved rate of recovery Reduce potential for flooding in village areas	Prepare a local education programme on need for keeping drainage systems clean Women’s committee monitor hygiene

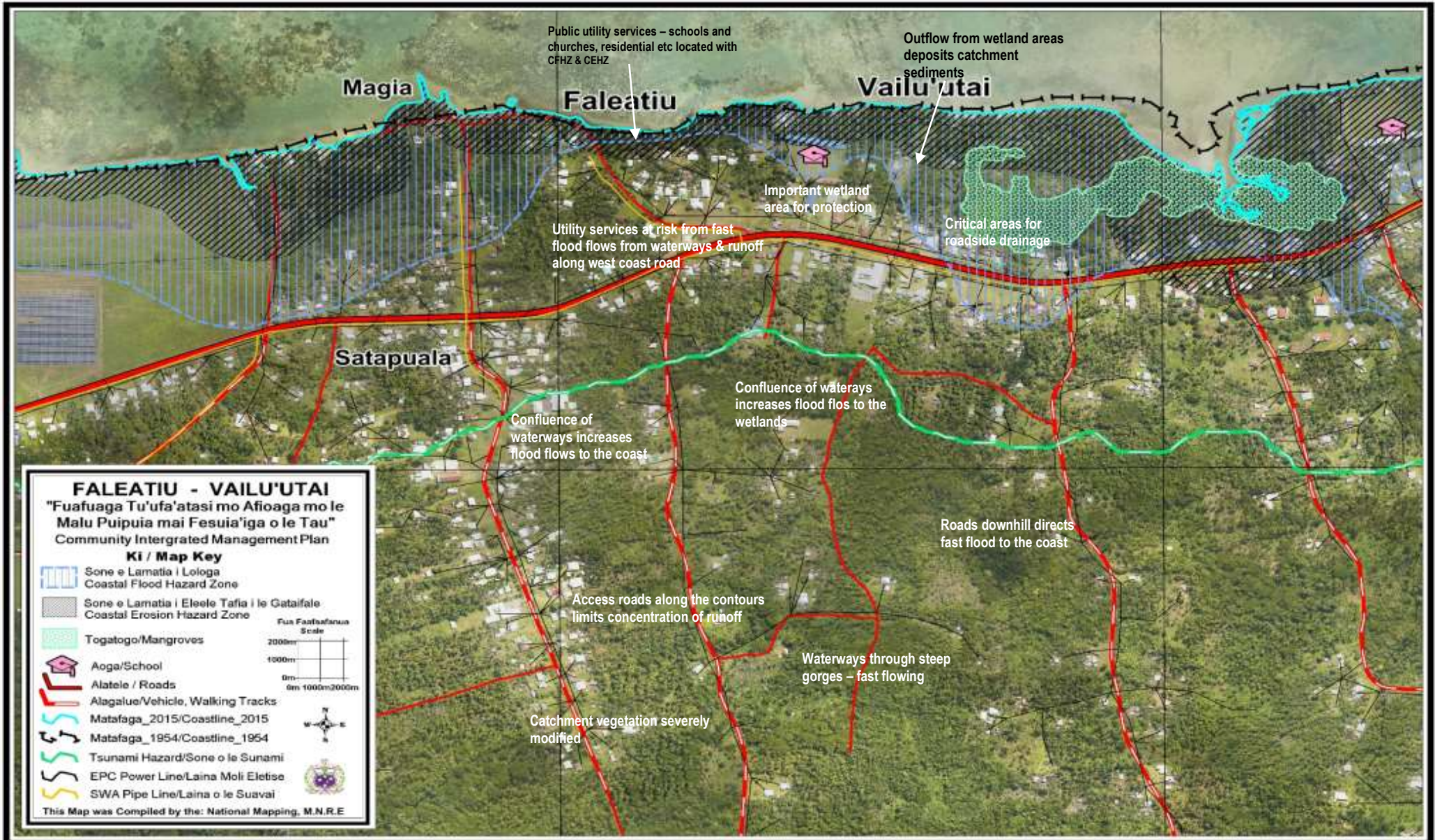
	<p>and awareness program</p> <p>Conduct village site inspection of culverts and drainage clearance to avoid clogging from debris and rubbish</p> <p><i>Responsibility: Village / MWCS D</i></p>	<p>Safer village houses and roads</p> <p>Improved safety community and resilience</p>	<p>and clean-up program</p> <p>Village beautification committee to monitor clean-up program for drainage and culverts</p>
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Old Water Storage inland Faleatiu supports a few families.



Faleatiu Village Map



4.4 Satapuala Village Interventions

Infrastructure	Best Solutions	Other Benefits	Guidelines to assist Implementation	Relevant Sector Plans
Access Road and Drainage	<p>Implement storm water drainage along WCR and across inland roads to reduce flooding</p> <p>Complete sealing inland access road (Tuvao and Poloka) and connect the road with inland roads of neighboring villages – Fasito’otai, Vailu’utai and Faleatiu</p> <p>Responsibility: MWTI//LTA / Village/ Families</p>	<p>Improved coastal structure resilience for road and drainage system</p> <p>Better use of economic resources</p> <p>Encourage more families to move inland away from hazard zone</p>	<p>Construction of access roads should be guided by:</p> <p>Relevant Environmental and Social Safeguard Policy</p> <p>Samoa CODE of Environmental Practice (PUMA - 2007)</p> <p>Review of National Road Standard in Samoa (2016)</p> <p>National Infrastructure Strategic Plan (2011)</p> <p>Vulnerability Assessment of the Samoa Road Network (2017)</p> <p>Upolu West Coast Road, Environmental Code of Practice (2012)</p>	Transport Sector Plan 2014-2019
Water (Independent Water Scheme Project (IWS) – awaiting implementation)	<p>Implement the IWS project to provide water to inland families without access to water;</p> <p>Protect existing water reservoir located inland which provide a central location for inland families to collect water</p> <p>Responsibility: IWSA/MWCSD/MNRE/ MoH/ village</p>	<p>Improve access to clean water for consumption</p>	<p>Environmental and Social Safeguard Policies apply –</p> <p>MoH Water Quality Standards</p>	<p>Community Integrated Management Strategy, August 2015)</p> <p>Water and Sanitation Sector Plan: Framework For Action 2016 - 2020, Community Development Plan 2016-2021</p>
Rainwater Harvesting Systems	<p>Supply of Rainwater Harvesting Systems specifically for families inland without any options of accessing water – rain</p>	<p>Alternative water supply for improved water access</p>	<p>Environmental and Social Safeguard Policies apply</p> <p>Community</p>	Community Development Plan 2016-2021

	<p>water harvesting</p> <p>Responsibility: Village /UNDP-GEF-SGP / MNRE-Water Sector / CSSP</p>		<p>Engagement Plan (2015)</p> <p>Assess the need for a Development Consent from PUMA</p> <p>Samoa Code of Environmental Practice (2007)</p>	<p>Water and Sanitation Plan 2016-2020</p>
Electricity Supply	<p>Install and connect power supply for residents inland.</p> <p>Install streetlights along the access roads where needed for community safety</p> <p>Relocate overhead lines to a more resilient location when being replaced Provide underground electricity lines in the long term</p> <p>Install and connect to solar power supply if made available</p> <p>Responsibility: EPC/MWTI/Village</p>	<p>Maintain electricity supply at all times including during natural disasters</p> <p>Avoid accidents due to fallen electricity posts.</p>	<p>Monitor distribution networks to avoid overloading poles and contributing to line failures</p> <p>Development of a Renewable Energy and Energy Efficiency Framework, 2016</p>	<p>Samoa Energy Sector Plan 2017-2020</p>
Evacuation Center	<p>Conduct CDCRM training and awareness in the Village Primary school suitable location for Safe Haven;</p> <p>Implement the CDCRM program with the Village – for disaster preparedness</p> <p>Responsibility: MNRE-DMO/ Village</p>	<p>Improve community adaptive capacity and resilience – through readiness actions when natural disaster strikes</p>	<p>CDCRM Program DMO</p> <p>Community Engagement Plan (2015)</p>	<p>Community Development Plan 2016-2021</p> <p>Natural Disaster Management Plan 2017-2021</p>

Environment & Natural Resources	Best Solutions Proposed	Other Benefits	Guidelines to assist Implementation	Relevant Sector Plans
Protect and restore Water Catchment	<p>Upgrade existing water reservoir located inland</p> <p>Implement reforestation</p>	<p>Improve resilience of water catchment areas</p>	<p>MNRE to undertake an Ecosystem-based Adaptation Approach for catchment area measures:</p>	<p>Water and Sanitation 2016-2020</p> <p>National Environment Sector Plan 2017-2021</p>

	<p>program to support the Satapuala water catchment</p> <p>Consultation and awareness on watershed</p> <p>Responsibility: MNRE / village</p>		<p>Community to request through Forestry Division MNRE seedlings under their 2million tree replanting project</p> <p>National Action Programme: To combat land degradation and mitigate effect of drought, 2015-2020</p> <p>National Water Resources Management Strategy 2007-2017</p> <p>NBSAP 2015-2020</p> <p>Water Resources Act 2008</p> <p>Forestry Restoration Operational Plan 2016-2020</p> <p>MNRE-DEC to provide guidance on effective ways to remove invasive plants from watershed area</p> <p>National Invasive Species Action Plan 2008-2011</p> <p>Two Million Tree Planting Strategy 2015-2020</p> <p>Upper Watershed Conservation Policy 2015 (CDC Submission)</p> <p>Water Resource Management Act 2008</p>	
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			Upper Watershed Conservation Policy 2015 (CDC Submission) Water Catchment Regulation 2013 Upper Watershed Conservation Policy 2015 (CDC Submission) Water Resources Management Act 2008	
Waste Management	Adopt and enforce Village by-laws on waste management and village beautification Consultation and awareness programs on waste management Responsibility: Village / MWCSO / MNRE	Improve hygiene and village cleanliness	Village By-laws National Beautification Program Village Fono Act Waste Management Act 2010 NBSP 2015-2020	National Environment Sector Plan 2017-2021

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

	<p>Diversify into other climate resilient species cash crops and fruit trees i.e cocoa, coconut, lemon and plant in suitable areas outside hazard zones</p> <p>Implement Sustainable Land management practices</p> <p>Implement integrated pest management programs</p> <p>Responsibility: MAF / CSSP/WIBDI/Farmers Association/ METI/ SBEC / UNDP-GEF-SGP/MNRE / villages</p>		<p>Strengthen partnership with farming NGO's such as the: Samoa Farmers Association; Samoa Federated Farmers Incorporated ; Women in Business Inc. and private sector to support rural farmers through training opportunities and marketing productivity</p> <p>Implementation of solutions are guided by the following: Draft Soil Resource Management Bill 2018</p> <p>Samoa National Action Programme to combat Land Degradation and to mitigate effects of drought 2015-2020</p> <p>National Invasive Species Strategy and Action Plan 2008-2011</p> <p>2 Million Tree Planting Strategy 2015-202</p>	
Livestock	<p>Implement poultry farm for village income generating activity</p> <p>Responsibility: MAF / village</p>	Improve opportunities for livelihood benefits	Village Development Committee guidance	

Governance	Best Solutions	Guidelines to assist Implementation	Comments
District /Village bi-laws and institutional setting	Develop and enforce related by-laws to support implementation of CIM Plans Responsibility: MWCSO / MAF / MNRE and Villages	Village Fono Amendment Bill 2016, allows the villages to have their own faiga faavae “refer Clause 5 Amendment”.	The Amendment allows for the village to establish their own governing constitution and have it registered with MWCSO and in this way village by-laws to manage community and public asset as well as natural resource management can be part of the village constitution.
Institutions	Encourage participation of youth and women in village decision making; Consultation framework that promotes representation of women and youth Process that informs the village on all projects either by government or NGO Responsibility: MWCSO / Villages	SDS 2016/17 - 2019/20 Community Development Plan 2016-2021	CIM Plan consultation witnessed the strong and active participation from both women and youth.

Other CIM Plan Issues	Comment
Install road humps in front of Primary School for road safety for school children Responsibility: MWTI / village	Village request this hump to slow down car speeding in front of the Primary School as they fear for the safety of the school children.

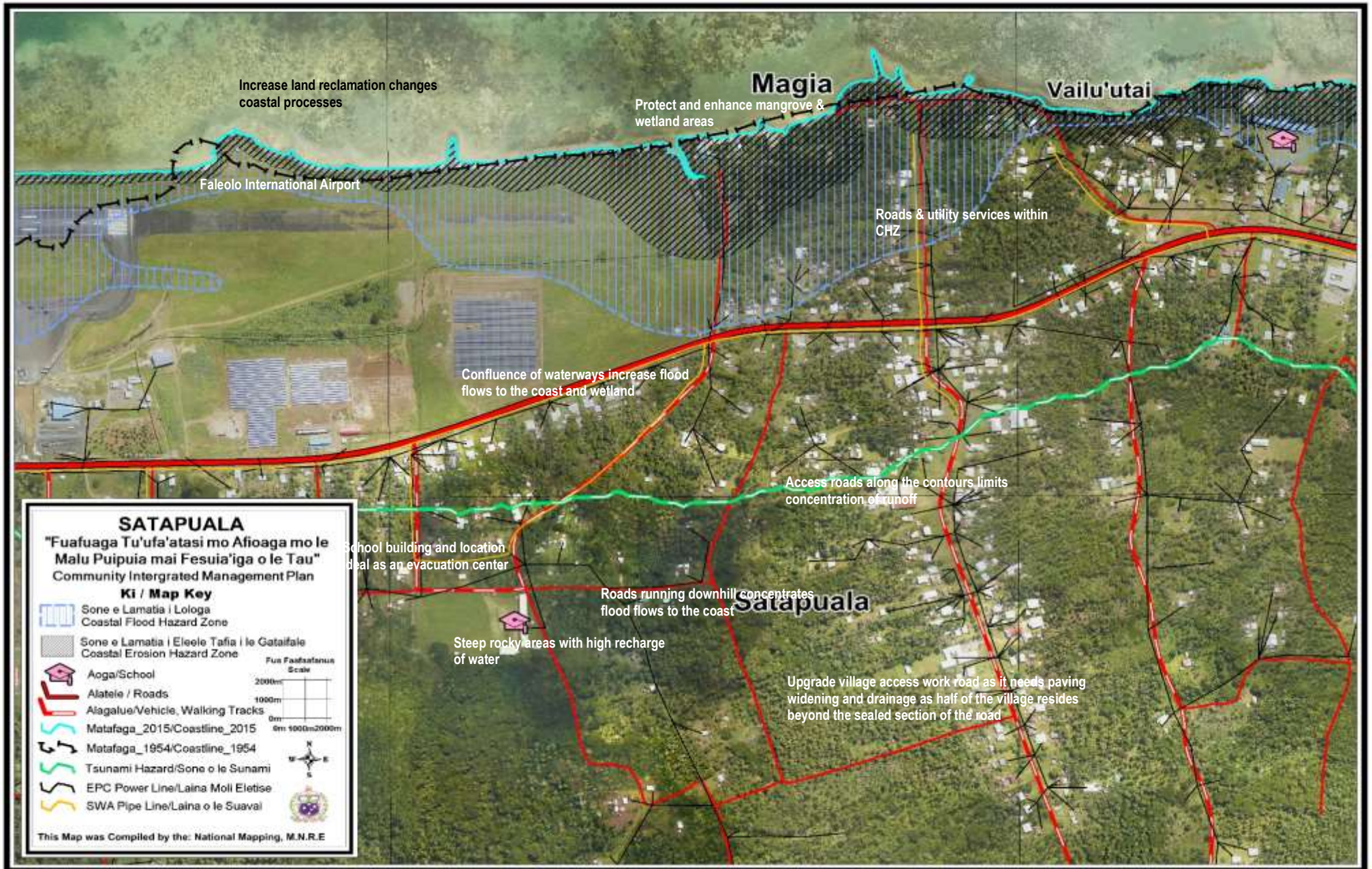


Inland access dirt road Satapuala intersection where it meets inland access road of neighboring villages – Faleatiu, Vailuutai and Fasito'otai



Satapuala Village Reservoir inland – very poor condition water is filtered through the water tank storage next to reservoir

Satapuala Village Map



4.5 Samea Village Interventions

Infrastructure	Best Solutions	Other Benefits	Guidelines to assist Implementation	Relevant Sector Plans
Village infrastructure in CEHZ and/or CFHZ : Households Schools Churches shops; Women's Committee House	Relocate outside hazard zones Investments within the hazard zone adopt appropriate mitigation measures Raise building foundations at a level that takes into account the CFHZ in the vicinity *Design infrastructure appropriately to take into account the immediate hazard zones; for example, raise floor levels in flood prone areas Responsibility: MWCS/D / MNRE/Village / MWTI	Reduce cost in ongoing maintenance to mitigate potential damage from coastal erosion and flooding or accommodating the hazard.	Relocation to be guided by existing strategies and policies: Application of the National Building Code (Draft Sept 2016) and permit compliance *Refer to National Building Codes of Samoa *Use updated Hazard Maps to inform designs National Infrastructure Strategic Plan 2011 PUMA Act 2004 Application of the National Building Code (Draft 2016) and permit compliance	CIM Strategy (2015)
Access Road and Drainage	Implement storm water drainage along main road by installing culverts to drain water from wetland into the sea Complete sealing inland access road and include drainage. Responsibility: MWTI//LTA / Village/ Families	Improved coastal structure resilience for road and drainage system	Construction of access roads should be guided by: Relevant Environmental and Social Safeguard Policy Samoa CODE of Environmental Practice (PUMA - 2007) Review of National Road Standard in Samoa (2016)	Transport Sector Plan 2014-2019

			<p>National Infrastructure Strategic Plan (2011)</p> <p>Vulnerability Assessment of the Samoa Road Network (2017)</p> <p>Upolu West Coast Road, Environmental Code of Practice (2012)</p>	
Rainwater Harvesting Systems	<p>Supply of Rainwater Harvesting Systems specifically for families inland without any options of accessing water – rain water harvesting</p> <p>Responsibility: Village / UNDP-GEF-SGP/ MNRE / CSSP</p>	Alternative water supply for improved water access	<p>Environmental and Social Safeguard Policies apply</p> <p>Community Engagement Plan (2015)</p> <p>Assess the need for a Development Consent from PUMA</p> <p>Samoa Code of Environmental Practice (2007)</p>	<p>Community Development Plan 2016-2021</p> <p>Water and Sanitation Plan 2016-2020</p>
Electricity Supply	<p>Install and connect power supply for residents inland.</p> <p>Install streetlights along the access roads where needed for community safety</p> <p>Relocate overhead lines to a more resilient location when being replaced</p> <p>Provide underground electricity lines in the long term</p> <p>Install and connect to solar power supply if made available</p> <p>Responsibility: EPC/MWTI/Village</p>	<p>Maintain electricity supply at all times including during natural disasters</p> <p>Avoid accidents due to fallen electricity posts.</p>	<p>Monitor distribution networks to avoid overloading poles and contributing to line failures</p> <p>Development of a Renewable Energy and Energy Efficiency Framework, 2016</p>	Samoa Energy Sector Plan 2017-2020
Evacuation Centre	Conduct CDCRM training and awareness in the Village Primary school suitable location for Safe	Improve community adaptive capacity and resilience –	CDCRM Program DMO	Community Development Plan 2016-2021

	Haven; Implement the CDCRM program with the Village – for disaster preparedness Responsibility: MNRE-DMO/ Village	through readiness actions when natural disaster strikes	Community Engagement Plan (2015)	Natural Disaster Management Plan 2017-2021
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Environment & Natural Resources	Best Solutions Proposed	Other Benefits	Guidelines to assist Implementation	Relevant Sector Plans
Replanting /coastal restoration	Replant vegetation / littoral plants in coastal areas – wetland ecosystems Encourage natural regeneration of coastal plants Responsibility: Village/ MNRE	Protects coastline against normal wave action Maintains natural ecosystem connectivity Increase sand build up minimizing erosion	MNRE Forestry to advice on appropriate species, and provide seedlings for different vegetation types suitable to the habitats (coastal lowland area - mangrove) and planting materials for villages that need them. Samoa’s National Biodiversity Strategy and Action Plan (NBSAP) 2015-2020	National Environment Sector Plan 2017-2021
Sand mining for commercial and domestic use affecting the marine and coastal environment	Assess and identify sustainable sources of river sand for domestic and commercial use Village, government and the private sector to collaborate on designated areas for river sand mining Strengthen sand mining monitoring and enforcement Mass media awareness on sustainable sand mining practices Develop sand mining regulation	Improve the sustainable management of sand as a natural resource Minimize impacts of coastal inundation and erosion Reduce impact to natural coastal protection mechanism via control of scale and site of extraction	Secure relevant permits before any sand mining occurs Incorporate environmental and social safeguards concerns including consultations with any affected community For access to sites, obtain written consents from Alii Faipule and landowners. Alii Faipule and landowner provide consent Develop sand mining regulation Follow existing MNRE	National Environment Sector Plan 2017-2021

	Responsibility: MNRE / Village		<p>guidelines for sand mining or extracting such as:</p> <p>PUMA Act 2004</p> <p>Lands and Survey Environment Act 1989</p> <p>(draft) Sand Mining Policy 2001</p> <p>Draft Soil Resource Management Bill, 2018</p> <p>NAP Sustainable Land Management Plan 2015-2019</p>	Water and Sanitation Sector Plan 2016-2020
Wetland conservation	<p>Conduct a biodiversity assessment of the wetland to determine its current degradation status;</p> <p>Conduct consultation and awareness program with the village about wetlands</p> <p>Implement a program to conserve or protect wetland ecosystem</p> <p>Responsibility: MNRE/Village</p>	Enhance ecological resilience of wetland ecosystem	<p>NBSAP 2015-2020</p> <p>Wetland Management Plan</p> <p>Forestry Division MNRE to provide technical advice on the rehabilitation of the wetland ecosystem</p>	National Environment Sector Plan 2017-2021
Waste Management	<p>Village council to implement action on: Enforcing rules to stop or remove the construction of toilets in or near wetland</p> <p>Impose fines on people that dump solid waste into the</p>	<p>Improve ecological function and resilience of mangrove ecosystem</p> <p>Improve sanitation problems</p>	<p>MNRE Division of Environment and Conservation and PUMA to advice village on waste management and sanitation programs</p> <p>NBSAP 2015-2020</p> <p>Village By-laws</p>	National Environment Sector Plan 2017-2021

	<p>mangrove area or beachfront;</p> <p>Waste Management awareness and education program for village</p> <p>Responsibility: Village/families/ MNRE</p>		<p>enforce waste management program</p> <p>National Beautification program</p> <p>Waste Management Act 2010</p>	
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Livelihood and Food Security	Best Solutions	Other Benefits	Guidelines to assist Implementation	Relevant Sector Plan
Disturbed forests and plantation areas	<p>Restore and utilize fallow lands closer to the village with plantations rather than clearing inland and upland forests :</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>Diversify into other climate resilient species cash crops and fruit trees i.e cocoa, coconut, lemon and plant in suitable areas outside hazard zones</p> <p>Implement Sustainable Land management practices</p> <p>Implement integrated pest management</p>	<p>Improve food security and healthy living and increase community resilience and adaptive response to climate change</p>	<p>MAF CROP Division to support farmers through guidance and trainings from Agricultural experts and awareness programs on crop diversification to suit the prolonged periods of drought or rainy season</p> <p>Provide tools and planting materials to improve crop diversification and resilience – address pest issues etc. This will lead to improve food security</p> <p>Strengthen partnership with farming NGO’s such as the: Samoa Farmers Association; Samoa Federated Farmers Incorporated ; Women in Business Inc. and private sector to support rural farmers through training opportunities and marketing productivity</p> <p>Implementation</p>	<p>Agriculture Sector Plan 2016-2020</p>

	<p>programs</p> <p>Responsibility: MAF / CSSP/WIBDI/Farmers Association/ METI/ SBEC / UNDP-GEF-SGP/MNRE / villages</p>		<p>of solutions are guided by the following:</p> <p>Draft Soil Resource Management Bill 2018</p> <p>Samoa National Action Programme to combat Land Degradation and to mitigate effects of drought 2015-2020</p> <p>National Invasive Species Strategy and Action Plan 2008-2011</p> <p>2 Million Tree Planting Strategy 2015-2020</p>	
Marine Restocking	<p>Established a marine reserve – restocking clams etc.</p> <p>Responsibility: MAF / MNRE/village</p>	<p>Increase diversity of marine species and coral reef ecosystem</p> <p>Reduce coral bleaching</p>	Village Development Committee guidance	
Livestock	<p>Implement poultry farm for village income generating activity</p> <p>Responsibility: MAF / village</p>	<p>Improve opportunities for livelihood benefits</p>	Village Development Committee guidance	Agriculture Sector Plan 2016-2020

Governance	Best Solutions	Guidelines to assist Implementation	Comments
District /Village bi-laws and institutional setting	Develop and enforce related by-laws to support implementation of CIM Plans Responsibility: MWCS D / MAF / MNRE and Villages	Village Fono Amendment Bill 2016, allows the villages to have their own faiga faavae “refer Clause 5 Amendment”.	The Amendment allows for the village to establish their own governing constitution and have it registered with MWCS D and in this way village by-laws to manage community and public asset as well as natural resource management can be part of the village constitution.
Institutions	Encourage participation of youth and women in village decision making; Consultation framework that promotes representation of women and youth Process that informs the village on all projects either by government or NGO Responsibility: MWCS D / Villages	SDS 2016/17 - 2019/20 Community Development Plan 2016-2021	CIM Plan consultation witnessed the strong and active participation from both women and youth.



Wetland next to the church in Samea village – water logged during rainy season and causes flooding



Water catchment source inland – staff WRD taking water samples – testing water quality

Samea Village Map

