Tourism DevelopmentArea 1
South East Upolu
Management Plan

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SAMOA
The Treasured Islands of the South Pacific

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PROJECT DETAILS

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EXECUTIVE SUMMARY

This Management Plan identifies and prioritises adaptive measures for tourism management planning for South East Upolu, building on the community's vision and integrating climate change adaptation and disaster risk management measures.

Community Vision for Lalomanu and Saleapaga

A sustainable tourism development area based on a partnership approach between the communities, the tourism operators and the government to protect and promote the natural assets of the area to tourists and accordingly enhance the quality of life of the Lalomanu and Saleapaga communities.

We can achieve this through:

1. *Ensuring security of tourists and tourism assets:*
    - *investigating relocation of accommodation fales where appropriate away from beach with day fales maintained on the beachside;*
    - *building/completing an escape route to the mountain;*
    - *building a disaster fale for the community; and*
    - *improving access to water supply.*
2. *Improving protection of the coastline to safeguard the coastal environment and people:*
    - *improving waste disposal services and no littering and waste disposal in the beach areas;*
    - *planting more native plants and flowers on the beach area;*
    - *re-establishing coral gardening and other marine protected area activities; and*
    - *improving enforcement of environmental protection legislation and agreements.*
3. *Improving employment opportunities associated with the tourism industry integrating the supply and value chain.*

The recommended adaptation measures have been presented according to the following intervention categories:

- shoreline protection (including enhanced design and siting of tourism facilities and surrounding landscape);
- water resources management;
- Ecosystem responses (including development of climate conscious tourism products, alternative tourism sites and recreational activities); and
- disaster preparedness and emergency facilities in case of disaster events.

Figures 1 and 2 below present an overview of the recommended structural options for Lalomanu while Figure 3 presents and overview of the recommended structural options for Saleapaga.

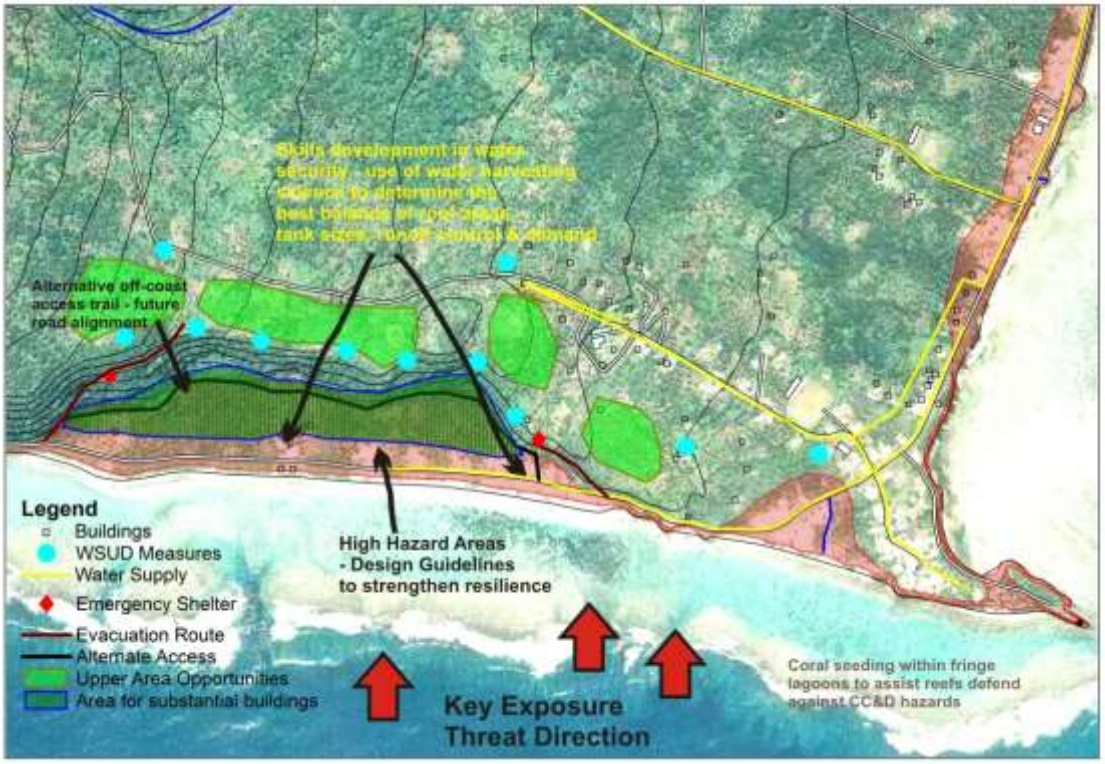

Figure 1 Overview of Structural Management Plan Options for Lalomanu

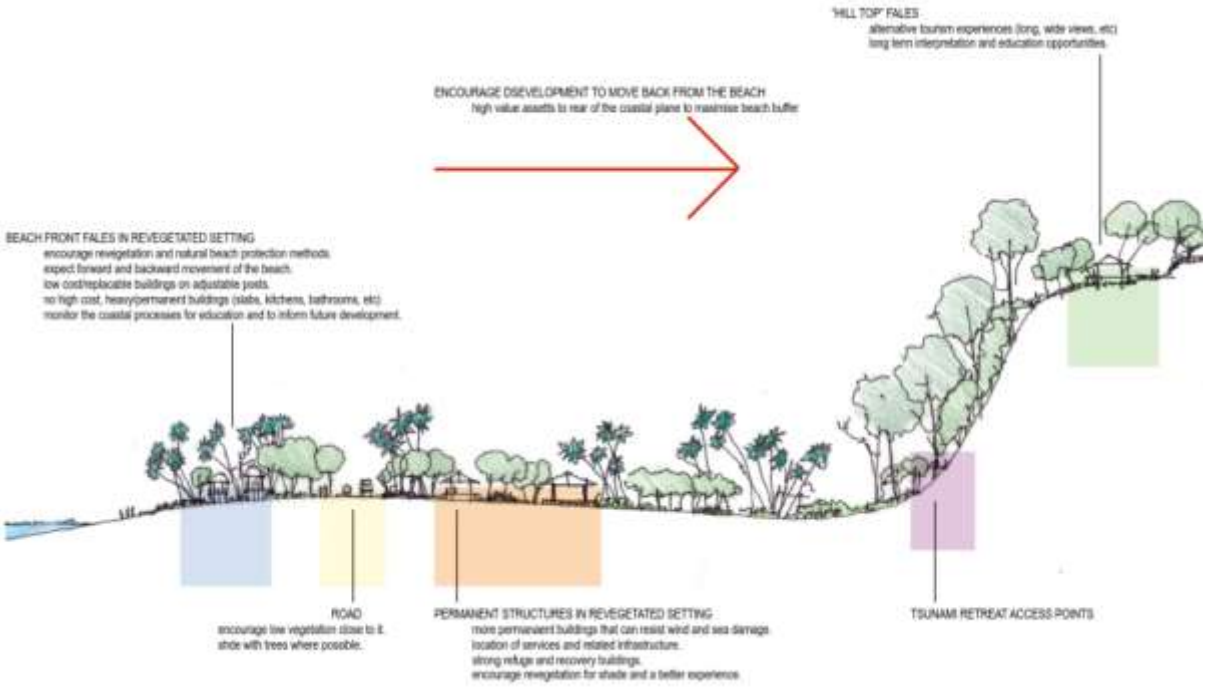

Figure 2 Typical Section of Structural Management Plan Options for Lalomanu

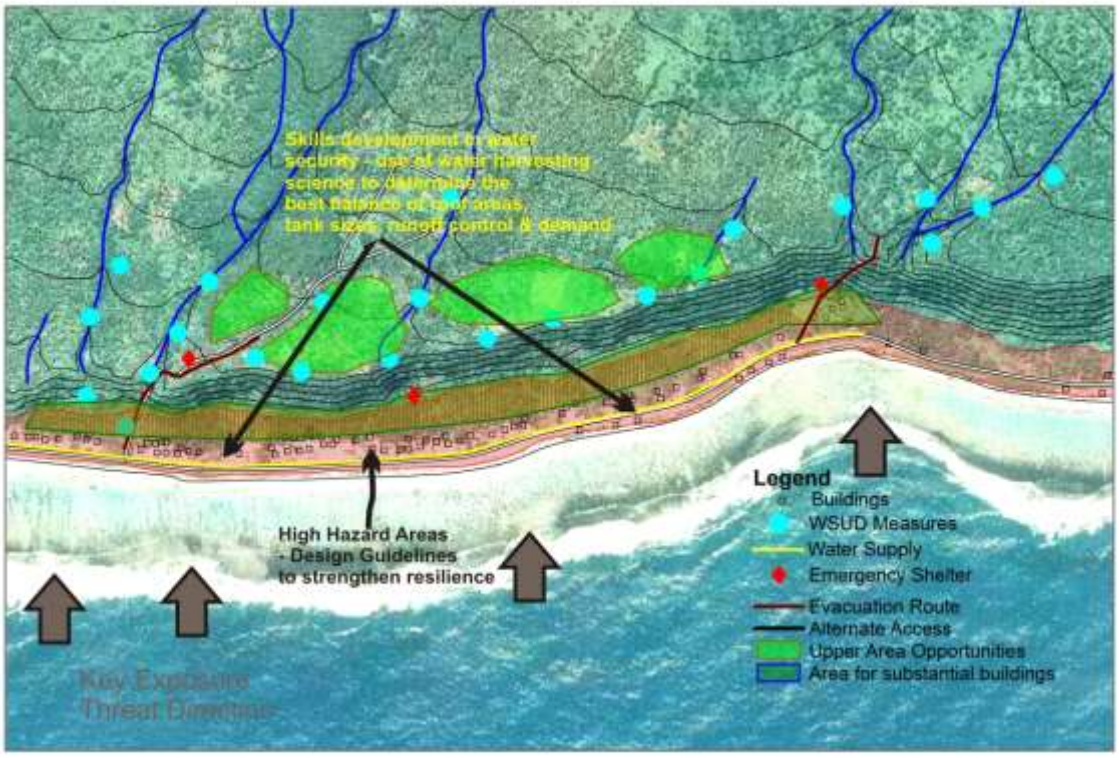

Figure 3 Overview of Structural Management Plan Options for Saleapaga

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ACRONYMS

CEHZ	Coastal Erosion Hazard Zone
CFHZ	Coastal Flooding Hazard Zone
CIM	Coastal Infrastructure Management
DMO	Disaster Management Office
GDP	Gross Domestic Product
GEF	Global Environment Facility
LDCF	Least Developing Countries Fund
MNRE	Ministry of Natural Resources and Environment
M&E	Monitoring and Evaluation
P3D	Participatory 3 Dimensional
STA	Samoa Tourism Authority
TDA1	Tourism Development Area 1 South East Upolu
TDA	Tourism Development Area
UNDP	United Nations Development Program

1. INTRODUCTION

This document is a Management Plan prepared for Tourism Development Area 1 South East Upolu (TDA1).This Management Plan should be read in conjunction with the Enhancing the Resilience of Tourism Reliant Communities to Climate Change Risks TDA Management Plan Report ("the Report"), which describes the overall background and methodology for the preparation of Management Plans for six nominated Tourism Development Areas in Samoa. The Management Plans are also supported by the Samoan Tourism Authority's Technical Guidelines for Tourism Operators.

The preparation of this Management Plan is one aspect of the *Enhancing the Resilience of Tourism-Reliant Communities to Climate Change Risks Project ("the Project").* The objective of the overall Project is to enhance the resilience of tourism-reliant communities to climate change risks by integrating climate change into development policy and instruments and investing in adaptation actions supporting tourism reliant communities. The Project recognises that Samoa's tourism sector, which is a mainstay of Samoa's economy and a core contributor to Gross Domestic Product (GDP), is highly vulnerable to the slow onset impacts of climate change.

The Project is being implemented by the Government of Samoa with financial assistance from the Global Environment Facility ("GEF")/Least Developing Countries Fund ("LDCF") through United Nations Development Program (UNDP). The national executing partners are the Samoa Tourism Authority ("the Authority") and the Ministry of Natural Resources and Environment ("MNRE").

This Management Plan identifies and prioritises adaptive measures for tourism management planning for South East Upolu, building on the community's vision and integrating climate change adaptation and disaster risk management measures. The Plan focuses on small to medium tourism operators and the communities in which they operate. Some of these measures can be implemented with funding connected to this component of the Project. Other strategies fall outside the scope of this funding. However information and Technical Guidelines have been developed and made available to tourism operators, prospective operators and communities so that they can plan for the implementation of adaptive measures. In some cases tourism operators or groups of tourism operators may use this information to seek funding through other mechanisms including the Tourism Climate Change Small Grants Program.

2. DESCRIPTION OF TDA 1:SOUTH EAST UPOLU

2.1 Overview

TDA 1 includes the villages of Lalomanu and Saleapaga which are located in the coastal area of the south-eastern part of the island of Upolu (see Figure 2.1).

Tourism operators and villages in this area were devastated by the 2009 tsunami. Since 2009 tourism operators have rebuilt their beach fales and bungalows and tourism has been re-established. However, the legacy and pain of the losses from the tsunami continue to be evident.

Figure 2.1 TDA 1 South East Upolu Overview (the TDA in the context of Upolu)

2.2 Community Vision

A community visioning exercise for TDA1 was undertakenwith active participation by tourism operators and community representatives during a four day workshop in March 2015. The workshop utilised a combined approach in which community visioning was conducted by the Samoa Tourism Authority team and Participatory 3 Dimensional(P3D) modelling wasfacilitated by the P3D team from Ministry of Natural Resources and Environment – ForestryDivision. Participants were asked to consider the 'past, present and future' of their Tourism Development Area (TDA) in order to identify common goals and a realistic practical path forward within the constraints of changing climatic conditions. The P3D process enabled participants to contextualise adaptation options according to geographic and physical variables.3 shows the workshop attendees with the model they developed during the workshop.

The community and tourism operators came together with a consensual 'Vision' for the management of climate change variables in TDA 1: South East Upolu. The community's vision is in Figure 2.2.

Community Vision for Lalomanu and Saleapaga

A sustainable tourism development area based on a partnership approach between the communities, the tourism operators and the government to protect and promote the natural assets of the area to tourists and accordingly enhance the quality of life of the Lalomanu and Saleapaga communities.

We can achieve this through:

1. *Ensuring security of tourists and tourism assets:*
    - *investigating relocation of accommodation fales where appropriate away from beach with day fales maintained on the beachside;*
    - *building/completing an escape route to the mountain;*
    - *building a disaster fale for the community; and*
    - *improving access to water supply.*
2. *Improving protection of the coastline to safeguard the coastal environment and people:*
    - *improving waste disposal services and no littering and waste disposal in the beach areas;*
    - *planting more native plants and flowers on the beach area;*
    - *re-establishing coral gardening and other marine protected area activities; and*
    - *improving enforcement of environmental protection legislation and agreements.*
3. *Improving employment opportunities associated with the tourism industry integrating the supply and value chain.*

Figure 2.2 Community Vision

Figure 2.3 Workshop attendees with P3D model

2.3 Geographic location & characteristics

The villages of Lalomanu and Saleapaga are situated on a narrow coastal platform of low lying land largely occupied by houses, churches and other buildings. Lalomanu is more raised than the other villages in the district as it is situated on a low headland.

Coastal erosion and flooding both from storm wave surges and surface runoff during periods of heavy rain and cyclones pose a risk to this area. Coastal erosion is not obvious along most of the east coast except adjacent to Lalomanu, because of the coastal protection measures put in place to protect the Main East Coast Road. Erosion is more evident along the south coast where up to 20 meters of land have been lost since 1954(AECOM 2012).

East of the area is a large lagoon, with a reef between 200 and 1000 meters offshore, and two offshore islands, the closest only a half kilometre beyond the reef. The health of the lagoon and reef can be affected by the flow of polluted floodwaters and poor effluent disposal. The post 2009 tsunami outbreak of the 'crown of thorns' in the lagoon has been partially attributed to polluted flood waters.

Both the Main East Coast and Main South Coast Roads are at high risk of damage during storm events. The Main South Coast Road is the only means of access between Lalomanu and villages further west, including Saleapanga. The road runs along a narrow coastal strip bordered on the landward side by 100-200 metre high cliffs and although it is slightly elevated in Lalomanu it lies within the Coastal Erosion Hazard Zone (CEHZ) and the Coastal Flooding Hazard Zone (CFHZ). The road is also vulnerable to landslip from coastal cliffs. Further west from Saleapaga the coastal strip becomes more elevated. However serious local flooding after heavy rain can block all access in and out of the District.

The main high voltage electricity lines generally follow the main roads and are within both the CFHZ and CEHZ hazard areas. Local power lines also lie within the CFHZ and CEHZ. Both are at high risk and vulnerable to wind effects, flooding and erosion.

Figure 2.4 and Figure 2.5 illustrate the CEHZ and CFHZ and the positions of the Main South Coast in relation to the Lalomanu and Saleapaga communities.

Figure 2.4 Geographic features of South East Upolu - Lalomanu

Figure 2.5 Geographic features of South East Upolu - Saleapaga

2.4 Visitor Trends

According to the SamoaInternational Visitors Survey 2013, 48% of tourists visit Lalomanu and Saleapaga Beaches, drawn by the beautiful sandy beachfront and the views. The popularity of these beaches is confirmed by the Aleipata Tourism Alliance.

The study team was unable to access more specific data about visitor trends. However, during consultations for the development of this plan there were a number of tourists at some of the resorts. Tourismoperators suggested that numberswere down due to the low season.

2.5 TourismOperators' profiles

Within the South East Upolu TDA, small to medium tourism operators within the scope of this Management Plan include 9Beach Fale accommodation operators and 10Day Fale operators. Table 2.1lists Tourism Operators targeted in this project based on information provided by Samoa Tourism Authority (STA).

Table 2.1 TDA 1 Tourism Operators targeted in this Management Plan

Accommodation Providers		
Ocean View Beach Fales  Source: www.budgetaccommodationsamoa.com	***Location:***	Saleapaga
	Number and Type of Fales:	6 beach fales providing 12 beds
	Facilities and Services:	dining fale shared facilities Water tanks
	Tourist Experience Offered	beach snorkelling
Manusina Beach Fales  Source: www.samoatravel.com	***Location:***	Saleapaga
	Number and Type of Fales:	8 beach fales providing 16 beds
	Facilities and Services:	dining area shared facilities (Inland side of road) water tanks
	Tourist Experience Offered	beach snorkelling cultural activities
Tagiilima Beach Fales	***Location:***	Saleapaga
	Number and Type of Fales:	4 beach fales providing 8 beds
	Facilities and Services:	unknown
	Tourist Experience Offered	beach snorkelling

Accommodation Providers

A & J Moana's Beach Fales

Source: www.budgetaccommodationsamoa.com

Location:	Saleapaga
Number and Type of Fales:	4 beach fales providing 8 beds
Facilities and Services:	Shared facilities (on inland side of road
Tourist Experience Offered	beach snorkelling

Faofao Beach Fales

Source: www.tripadvisor.com

Source: www.hostelbookers.com

Source: www.hostelbookers.com

Location:	Saleapaga
Number and Type of Fales/Rooms:	12 standard air conditioned rooms in a 2 storey building across the road from the beach and 17 beach fales providing 60 beds in total
Facilities and Services:	shared facilities (inland side of road) dining facility with bar, (inland side of road)
Tourist Experience Offered	beach snorkelling

Accommodation Providers

Litia Sini Beach

Source:www.foodlovers.co.nz

Location:	Lalomanu
Number and Type of Fales:	16 enclosed beach bungalows with bitumen tiled roofs, providing 50 beds Bungalows constructed on poles on raised land approximately 3 metres above the beach
Facilities and Services:	Bar, dining and shared facilities
Tourist Experience Offered	Beach snorkelling

Taufua Beach Fales

Source: www.samoa.travel

Location:	Lalomanu
Number and Type of Fales:	26 beach fales and units. The beach fales are wooden with thatched roofs. Some of the fales are enclosed. Enclosed accommodation units are on the cliff top above the coastline. Entry steps to each fale have been constructed on the non-ocean side Enclosed cliff top units provide safer accommodation during extreme weather
Facilities and Services:	beachfront restaurant shared facilities on inland side of road
Tourist Experience Offered	beach cultural activities snorkelling

Anita Beach Bungalows

Source: www.samoa.travel

Location:	Lalomanu
Number and Type of Fales:	4 beach fales (3 open and 1 closed) providing 11 beds
Facilities and Services:	dining fale, bar and shared facilities (on inland side of road)
Tourist Experience Offered	beach snorkelling

Accommodation Providers	
Romeo Beach Fales  Source: www.budgetaccommodationsamoa.com	***Location:*** Lalomanu ***Number and Type of Fales:*** 13 beach fales (some open and some enclosed) providing 26 beds ***Facilities and Services:*** shared facilities ***Tourist Experience Offered*** beach, snorkelling
Day Use Fales	
Oneva Beach Fales  Source:www.budgetaccommodationsamoa.com	***Location:*** Saleapaga ***Number and Type of Fales:*** 7 day use beach fales ***Facilities and Services:*** shared facilities (inland side of road) ***Tourist Experience Offered*** beach, snorkelling
Niusilaini Beach Fales  Source: P4SD	***Location:*** Saleapaga ***Number and Type of Fales:*** 5 day use beach fales ***Facilities and Services:*** shared facilities (inland side of road) ***Tourist Experience Offered*** beach, snorkelling
Lotuse Beach Fales  Source: P4SD	***Location:*** Saleapaga ***Number and Type of Fales:*** 4 day use beach fales ***Facilities and Services:*** shared facilities (inland side of road) ***Tourist Experience Offered*** beach, snorkelling

Accommodation Providers

Prince Beach Fales  Source:P4SD	***Location:***	Saleapaga
	Number and Type of Fales:	4 day use beach fales
	Facilities and Services:	shared facilities (inland side of road)
	Tourist Experience Offered	beach snorkelling
Ropini Beach Fales  Source:P4SD	***Location:***	Saleapaga
	Number and Type of Fales:	4 day use beach fales
	Facilities and Services:	fales used as overflow by FaoFao Beach Fales
	Tourist Experience Offered	beach snorkelling
Le Petesa Fou (Banana) Beach Fales  Source: P4SD	***Location:***	Saleapaga
	Number and Type of Fales:	4 day use beach fales
	Facilities and Services:	shared facilities (on inland side of road)
	Tourist Experience Offered	beach snorkelling
Vaotea Beach Fales  Source: P4SD	***Location:***	Saleapaga
	Number and Type of Fales:	10 day use beach fales
	Facilities and Services:	shared facilities (on inland side of road) dining area
	Tourist Experience Offered	beach snorkelling

Accommodation Providers	
Gogosiva Beach Fales  Source: P4SD	***Location:*** Saleapaga ***Number and Type of Fales:*** 6 day use beach fales ***Facilities and Services:*** shared facilities (on inland side of road) ***Tourist Experience Offered*** beach, snorkelling
Sieni Ropeti Beach Fales  Source: www.budgetaccommodationsamoa.com	***Location:*** Lalomanu ***Number and Type of Fales:*** 6 day use beach fales with wooden frames and thatched roofs ***Facilities and Services:*** shared facilities on inland side of road ***Tourist Experience Offered*** beach, snorkelling
Valengina's Beach Fales  Source: www.budgetaccommodationsamoa.com	***Location:*** Lalomanu ***Number and Type of Fales:*** 6 day use beach fales with wooden frames and thatched roofs ***Facilities and Services:*** shared facilities (on inland side of road) ***Tourist Experience Offered*** beach, snorkelling

2.6 Potential for Diversification of Tourism Offerings

Tourism within TDA 1 inevitably focuses on providing beach experiences for tourists, with Lalomanu Beach often voted in the topfive beaches in the South Pacific (Aleipata Tourism Alliance).However there is potential for diversification of the tourist products on offer within TDA 1 to include Aleipata Marine Conservation Area, cultural attractions, provision of food (both raw and cooked) and traditional activities such as explaining and or demonstrating traditional massage, handicrafts and tattoo.

3. CLIMATE CHANGE VULNERABILITY AND ADAPTATION MEASURES

3.1 Overview

This Management Plan builds on work previously undertaken as part of the *Enhancing the Resilience of Tourism-Reliant Communities to Climate Change Risks Project* (the Project)which described hazards, risks and vulnerabilities for existing tourism assets within TDA1 and identified existing climate adaptation mechanisms as well as further adaptation options (IPA 2015a and IPA 2015b). The Project's Implementation Plan describes the key focus for South East Upolu as **beach rebuilding processes, bioshields and erosion and sediment controls.**

Key climate change related concerns in this TDA include:

- storm wave surge leading to coastal erosion and flooding;
- surface run-off during periods of heavy rain and cyclones leading to coastal erosion and flooding;
- sand accretion increasing sand build up around fales and other structures;
- buildings, structures and key infrastructure including the high voltage electricity line, local power lines, the main water pipe network and the Main East Coast and Main South Coast Roads are within the CEHZ and CFHZ and are highly vulnerable to complete destruction during cyclones and storm surge;
- overhead lines are close to homes and pose a threat to people and property if damaged;
- polluted flood waters and run-off impacting on the reef affecting the first line of defence against extreme events;
- poor on-site drainage and effluent disposal leading to pollution of the lagoons.

The recommended adaptive measures in this Management Plan take into account initiatives which impact on climate change resilience in South East Upoluidentified through a range of international, national and local projects. Information provided during the recent community visioning exercise has been reviewed in conjunction with previous initiatives and analysis of this information is grouped into categories in line with the following intervention areas:

- shoreline protection (including enhanced design and siting of tourism facilities and surrounding landscape);
- water resources management;
- Ecosystem responses (including development of climate conscious tourism products, alternative tourism sites and recreational activities); and
- disaster preparedness and emergency facilities in case of disaster events.

3.2 Shoreline protection

3.2.1 Shoreline protection

During the visioning process the community identified improved protection to the coastline to safeguard the coastal environment and people as a strategy to achieve the community's vision of sustainable tourism. Participants in the community visioning process explained that they are concerned about the movement of sand on the beaches. The community identified planting of native plants and flowers on the beach area as a mechanism to improve protection of the coastline.

Participants in the consultation process noted some areas are planted with binding plants such as the embankment at Litia Sini[1], but indicated that there needs to be more planting along the beach.

The community vision also identified coral gardening, re-establishing marine protected areas and improved enforcement of environmental protection legislation and agreements as key mechanisms to achieve protection of the coastline. Participants explained that the coral reef has not returned to the condition it was in prior to the tsunami and each storm impacts the struggling regrowth of the coral.

The Menu of Adaptation Options (IPA 2015b) previously developed for The Project assesses and prioritises the following adaptation options out of a possible score of 25:

- Government and village to ban/control sand mining operations affecting coastal areas - 22/25;
- upgrade existing culverts to help reduce impact on the coastline from inland flooding – 22/25
- encourage riparian planting along rivers and streams – 22/25;
- improve coral reef system protection by educating villages; coral gardening and coordination between Fisheries and the village community - 20/25;
- initiate appropriate village replanting programmes for coastal areas to form bio-shields and improve stability – 19/25;
- Sandwatch programme training for tourism operators and communities - 19/25;
- awareness raising program on what causes Crown of Thorns outbreaks – 19/25;
- preliminary investigation for coastal protection measures - 18/25;
- comply with the Marine Protected Areas rules as indicated in the Aleipata Marine Protection Area Management Plan – 17/25;
- manage clearing of inland catchment areas close to rivers and streams to reduce sedimentations of the estuaries and the lagoon – 15/25.

CIM Implementation Guidelines(MNRE IAMP-1 & MNRE SIAM-2) recommended a range of measures including:

- upgrade of extension of seawalls at selected locations and repair to existing seawall where deterioration is evident;
- continued planting of vegetation along the coast line by families and villages using suitable species;
- MNRE and villages improve protection of the coral reef system by education in relation to coral gardening;
- Government and villages manage reclamation processes affecting inland wetlands and the coast by requiring villages to obtain appropriate permits and consent.

Adaptive measures that have been implemented include:

- Operators planted trees lost in previous events and Litia Sini used binding plants on the retaining walls. However these strategies could be enhanced with the use of suitable species and with advice about effective bio-shield design;
- The Aleipata Marine Protected Areas Plan has controls in relation to sand mining for domestic use. However there is scope for improved implementation of these controls (CIM Status Review Report 2014 (William & Faasau 2014));
- Arrangements are now in place for rubbish collection;

[1]The plantings observed at Liti Sinia are Singapore Daisy, considered to be an invasive species.

- Seawall repairs, upgrades and extension have taken place in selected locations, although segments of the seawall require inspection and maintenance and potential further upgrade (CIM Status Review Report 2014 (William & Faasau 2014)).

3.2.2 Enhanced design and siting of tourism facilities and surrounding landscape

One of the strategies identified by the community to achieve sustainable tourism is ensuring security of tourists and tourism assets through investigating the relocation of accommodation fales away from the beach while maintaining day fales on the beach. Participants in the visioning process also expressed concern about a petrol station recently constructed on reclaimed land at Vailoa and the potential for pollution if it was damaged during a cyclone or other event.

The Menu of Adaptation Options (IPA 2015b) previously developed for The Project assessed the priority of a range of adaptation options and assigned a total possible score of 25 to each option (ie the higher the score the greater the priority).

The Menu identifies the following options in TDA 1:

- review of existing *Minimum Accommodation Standards for Beach Fales*to incorporate appropriate beach fale floor level taking into consideration beach accretion and erosion – 21/25;
- relocation of buildings or other structures outside or set back from coastal hazard zones when they require replacement – 21/25.

CIM Implementation Guidelines (MNRE IAMP-1 & MNRE SIAM-2) recommended that the design of buildings that require replacement but which are not going to be relocated or set back from the CEHZ and the CFHZ take into account the potential for damage from coastal erosion and flooding. The Guidelines recommended that costly investment be discouraged in view of the high erosion and flooding hazards.

Adaptive measures that have been implemented include:

- The *Minimum Accommodation Standards for Beach Fales* were strengthened as part of the *Tourism Tsunami Rebuilding Program* which adopted a build back better approach. The revised Standards also specify the minimum distance from the high water mark for septic tanks.
- Using the revised standards, some operators have built fales further back from the beach front, where possible relocated toilets across the coastal road, used more resilient local material for construction and raised floor levels above the sand.
- Litia Sini has used architectural and engineering support to strengthen building and retaining walls and used more resilient materials.

3.3 Water resource management

During the visioning process the community identified improved access to water supply as a mechanism to ensure the security of tourists and tourism assets required to achieve the community's vision of a sustainable tourism industry. Participants in the community consultation explained that the piped water supply is at risk of damage during cyclones and storm surges. They suggested that more water tanks would address this issue.

Mindful of its vision of a tourism industry that protectsand promotes the natural assets of the area, the community also identified the need to improve waste disposal services and to prevent littering and waste disposal in beach areas.

CIM Implementation Guidelines (MNRE IAMP-1 & MNRE SIAM-2) recommended the upgrade of existing village water supply schemes, increasing the size of storage reservoir in Aleipata and provision of 24 hour electrical supply to improve water availability.

3.4 EcoSystem Based Responses including Development of climate conscious tourism products, alternative tourism sites and recreational activities

During the visioning process the community identified improved employment opportunities by integrating the supply and value chain for the tourism industry as a strategy to achieve the community's vision of a sustainable tourism industry.

3.5 Disaster preparedness and emergency facilities in case of disaster events

During the visioning process the community identified the need to build and/or complete escape routes to the mountain as a mechanism to ensure the security of tourists and tourism assets. During the consultations, participants explained that an escape route behind Lalomanu Beach was a priority as the current road is easily affected by cyclones and high tide flooding. However, an escape route was commenced but construction stalled when it ran into a difficult section of rock. There have also been discussions about constructing steps up the cliff at Saleapaga.

The community vision also identified a need to build a "disaster fale" in the community. Participants explained that there was a need for more cyclone proof accommodation behind Lalomanu.

CIM Implementation Guidelines (MNRE IAMP-1 & MNRE SIAM-2) recommended a range of measures including identifying existing buildings (such as churches and schools) that are outside the CEHZ and CFHZ to use as safe havens, developing procedures for maintenance and the opening of safe havens, widening the cliff foot track behind the village at Saleapaga and preparation of disaster signs in Samoan and English.

Adaptive measures that have been implemented include:

- Installation of evacuation signs by Disaster Management Office (DMO);
- Most tourism operators provide an orientation to visitors which includes the process to move to a safe house in times of extreme events;
- Some staff from tourist operations have participated in first aid training, conducted by STA's Surf Life Saving Program and disaster management training conducted by DMO;
- DMO installed sirens at Lalomanu and Saleapaga (although community members have identified the need for an additional siren).

4. RECOMMENDED ADAPTATION MEASURES FOR IMPLEMENTATION

4.1 General

Based on the previous investigations, the community visioning process, further investigations undertaken as part of this project and the timeframes and budget associated with this project a prioritised series of projects has been developed for TDA 1. The recommended adaptation measures have been presented according to the following intervention categories:

- Enhanced design and siting of tourism facilities and surrounding landscape;
- Water resource management;
- Shoreline protection;
- Development of climate conscious tourism products, alternative tourism sites and recreational activities; and
- Disaster preparedness and emergency facilities in case of disaster events.

4.2 Discussion

The recommendations in this section take into account the current focus of tourism products inTDA 1. Beach and offering beachfront accommodation and shelter have underpinned the development of tourism in this TDA. However, the TDA's resilience to climate change could be enhanced through diversification of tourism products. As such this Management Plan contains recommendations relevant to diversifying tourism products and supporting business development for tourism operators, potential operators and those who carry out business within the supply and value chain.

Previous work identified the focus for this TDA as beach rebuilding processes, bioshields and erosion and sediment controls.In addition to addressing concerns about the erosion of the shoreline, these recommendations seek to improve water quality in the waterways and the lagoon, and to minimise damage to the reef. Design and siting of tourism resources has also been highlighted by the community and by previous reviews of climate change risks in this TDA.

4.3 Recommendations

Figure 4.1 and Figure 4.3 present an overview of the structural options recommended for inclusion in the Management Plan for TDA1.

Table 4.1 provides a summary list of the actions that have been prioritised for implementation as part of this project and also those that may be suitable for the Tourism Climate Change Small Grants Program.

Table 4.2 presents a proposed timeline for implementation of the prioritised actions.

Table 4.3provides a summary list of adaptive actions that emerged from the preparation of the Management Plans. It is recommended that where possible, STA support tourism operators to make approaches to the relevant project or government organisation to facilitate inclusion of those actions in other projects or programs.

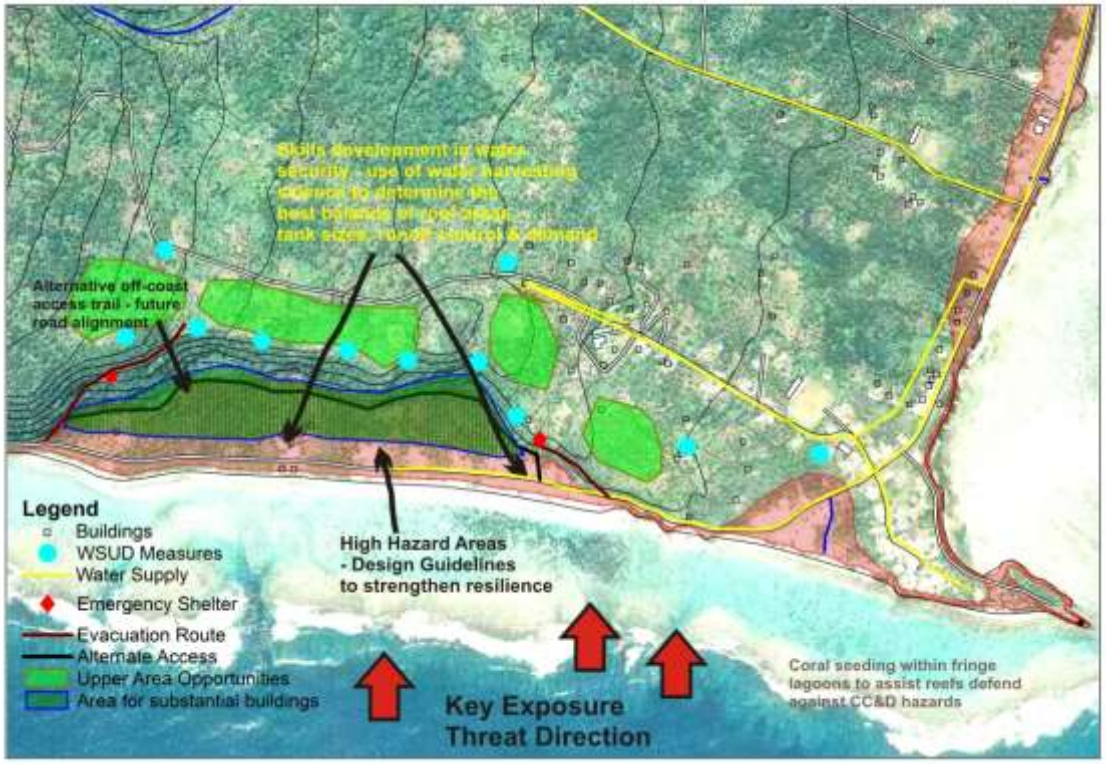

Figure 4.1 Overview of Structural Management Plan Options for Lalomanu

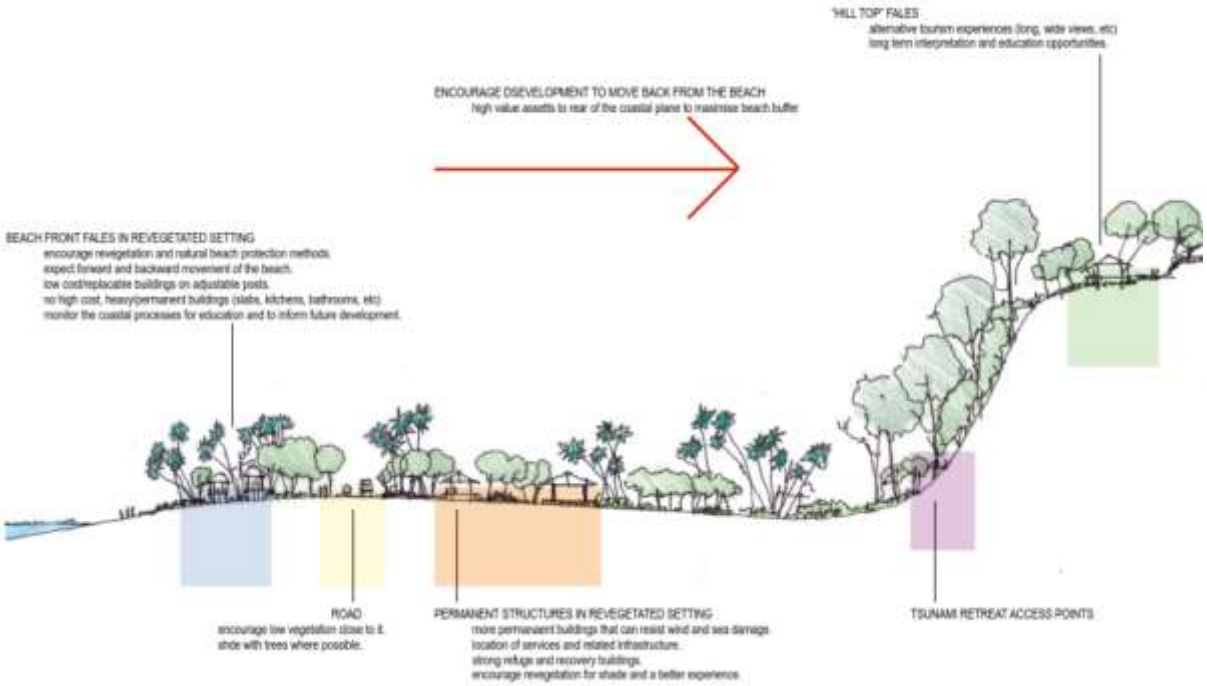

Figure 4.2 Typical Section of Structural Management Plan Options for Lalomanu

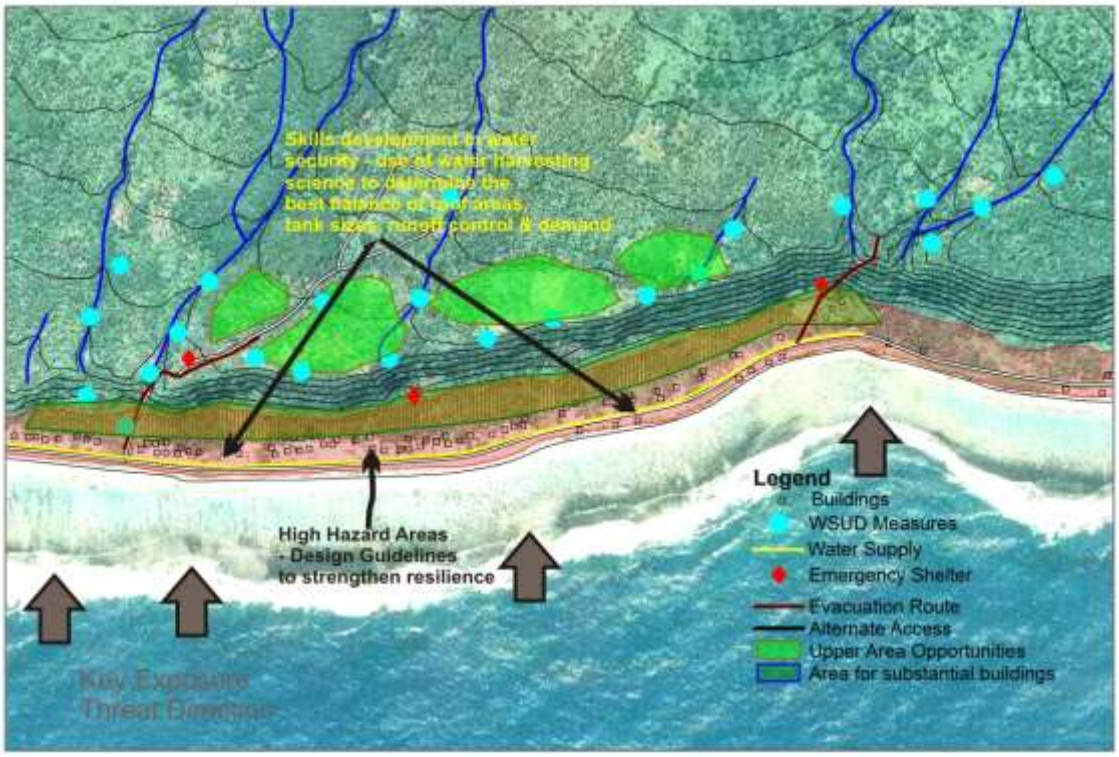

Figure 4.3 Overview of Structural Management Plan Options for Saleapaga

Table 4.1 Priority Activities to take place under the Enhancing the Resilience of Tourism Reliant Communities to Climate Change Risk Project

Activity	Outputs	Targeted (Operator/Prospective Operator/Community)	Priority	Commence	Duration	Budget Allocation (USD)	Relevant Technical Guideline
Shoreline Protection							
Knowledge sharing and transfer for tourism operators and community members in strategies and techniques to **protect the shoreline** and improve coastal defences including sea-wall construction and wave protection measures to reduce vulnerability.	Workshops developed and delivered to tourism operators and tourism reliant communities to share knowledge about shoreline protection.	Tourism operators and communities	Medium	January 2016	12 months	$10,000	5
Utilising *Revegetation and Landscaping Technical Guidelines for Tourism Operators*, establish demonstration sites for landscaping initiatives along the foreshore including planting of vegetation and bio-shields to assist with increasing the resilience of the foreshore.	Revegetated foreshore demonstration site established in conjunction with each tourism operator	Tourist operators	Medium	January 2016	18 months	$46,830	5
Utilising *Monitoring the Beach Technical Guidelines for Tourism Operators,* implementation of a Sandwatch (or equivalent) program for ongoing **beach monitoring** and knowledge transfer about beach conditions	Ongoing monitoring program, including use of education tools, established in each village	Community	High	September 2015	18 months	$10,000	7

Activity	Outputs	Targeted (Operator/Prospective Operator/Community)	Priority	Commence	Duration	Budget Allocation (USD)	Relevant Technical Guideline
Enhanced Design and Siting of Tourism Facilities and Surrounding Landscape							
Improved climate resilience of tourism related buildings, such as beach fales, sanitation facilities and associated structures by implementation of prioritised elements of **Climate Conscious Sustainability Plans** by individual tourism operators or groups of tourism operators.	1. Training developed and deliveredfor tourism operators about climate smart design, siting and standards and the application of the *Climate Smart Technical Guidelines*. 2. Tourism operators assisted to develop long term **Climate Conscious Sustainability Plans** utilising *Planned Retreat Technical Guidelines for Tourism Operators*. 3. Prioritised elements of Climate Conscious Sustainability Plans implemented.	Tourist operators	High	September 2015	2-3 years	$20,000	3
Water Resources Management							
Improved Water Security development of an **Integrated Rainwater Use and Capture Plan** for each tourism facility.	1. Training developed and deliveredfor tourism operators in integrated water resource management techniques including the application of the *Water Resources Security Technical Guidelines*. 2. Tourism operators assisted to develop **Integrated Rainwater Use and Capture Plan**utilising *Water Resources Security Technical*	Tourist operators	High	September 2015	6 months		4

Activity	Outputs	Targeted (Operator/Prospective Operator/Community)	Priority	Commence	Duration	Budget Allocation (USD)	Relevant Technical Guideline
	Guidelinesfor Tourism Operators.						
Implementation of **Integrated Rainwater Use and Capture Plans** through installation of water tanks, guttering, pumps, filters etc by individual accommodation providers or groups of accommodation providers.	Individual tourism operators or groups of tourism operators make application through the Tourism Climate Change Small Grants Scheme.	Tourist operators	High	September 2015	12 months	Tourism Climate Change Small Grants Scheme	4
Utilising *Revegetation and Landscaping Technical Guidelines for Tourism Operators,* establish demonstration sites for **landscaping initiatives to enhance forest assets** through including planting of vegetation and bio-shields to assist with decreased soil erosion and improved water quality.	Revegetated foreshore demonstration sites established in conjunction with each village	Community	Medium	January 2015	18 months		4
EcoSystem Based Responses including Development of Climate Conscious Tourism Products, alternative Tourism Sites and Recreational Activities							
Develop and deliver **climate change resilience training** for tourism operators and prospective tourism operators	Training in climate change resilience developed and delivered to tourism operators and prospective tourism operators.	Tourism operators and prospective tourism operators	High	September 2015	12 months		6

Activity	Outputs	Targeted (Operator/Prospective Operator/Community)	Priority	Commence	Duration	Budget Allocation (USD)	Relevant Technical Guideline
Building on the outcomes of the Participatory 3D Mapping and previous work by STA and with ongoing consultation with the community, develop implementation plan for tourism opportunities based on **cultural, archaeological and natural attraction identification development study**	1. Cultural, archaeological and natural attraction development study undertaken in consultation with the community 2. Implementation plan developed	Community	Medium	January 2016	18 months		6
Assist tourism operators, prospective tourism operators and villages to increase climate change resilience of local tourism by diversifying tourism offerings through: • **development of climate conscious tourism products** based on cultural, archaeological and natural resources identification. • identifying and planning for **infrastructure requirements to support diversified tourism activities** • identifying pathways for funding	Useful resources and support available to tourism operators and prospective tourism operators who are considering diversifying tourism offerings or developing services within the tourism supply and value chain	Tourism operators, prospective tourism operators and community	Medium	January 2016	2 -3 years		6

Activity	Outputs	Targeted (Operator/Prospective Operator/Community)	Priority	Commence	Duration	Budget Allocation (USD)	Relevant Technical Guideline

the design and construction of those requirements.
• building sustainability of diversified tourism offerings through facilitating access to "**Business Incubator**" support for businesses or prospective businesses within the tourism supply and value chain, addressing
  ○ Business management and marketing
  ○ Mentoring/support
• Regulatory framework							

Disaster Preparedness and Emergency Facilities in Case of Disaster Events							
Improve **warning/escape route signage** in tourist accommodation.	Adequate written information about escape routes and procedures displayed for guests in tourist accommodation	Tourist operators	High	September 2015	6 months		-

Table 4.2 Timeline for Implementation of prioritised activities

Item	Description	2015						2016												2017											
		7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
1	Integrated Rainwater Use and Capture Plan																														
2	Training Program - Water Resource Management																														
3	Training Program - Climate Resilience																														
4	Training Program - Climate Smart Design																														
5	Ongoing Monitoring (Sandwatch) Program																														
6	Water Security Planning Tool																														
7	Foreshore Revegetation Site																														
8	Business Incubator																														
9	Climate Conscious Sustainability Plans																														
10	Cultural and Natural Asset Identification																														
11	Climate Conscious Tourism Products																														
12	Marketting Plan																														

Table 4.3 Activities identified during the Enhancing the Resilience of Tourism Reliant Communities to Climate Change Risk Project to be referred to other Projects or Organisations

Activity	Action Targeted (Operator/Prospective Operator/Community)	Priority	Commence
Shoreline Protection			
Review existing coastal defences and access structures and plan for development and implementation of appropriate new access structures and coastal defences	Refer to responsible body under CIM Plan	Medium	2-5 years
Coral seeding and crown of thorn removal to improve the resilience and barrier role of reefs	Support an approach to MNRE Forestry Division	Low	1-3 years
Improved enforcement of environmental protection legislation and agreements eg sand mining, land clearing, wetland management and protection, marine conservation areas	Recommend consideration as part of the Village Sustainability Plans	High	1-3 years
Re-establish Marine Protection Areas	Support an approach to MNRE	Low	1-3 years
Water Resources Management			
Improved waste disposal services with placement of rubbish bins along coastal area	Support an approach to MNRE	Low	1-3 years
Establish **emergency water supplies** within villages through development of agreed processes and installation of the necessary infrastructure (tanks, guttering) to capture run off from identified large roof area (eg school, church)	Recommend consideration as part of Village Sustainability Plan and support approaches to: • Red Cross • Civil Society Support Program	High	18 months
EcoSystem Based Responses including Development of Climate Conscious Tourism Products, alternative Tourism Sites and Recreational Activities			
Plan for relocation of walkway/infrastructure assets away from vulnerable areas within the CEHZ and CFHZ.	Refer to responsible body under CIM Plan	Medium	3-5 years

Identify and develop **market niche** for the TDA reflecting diversified tourism offerings and developing **marketing plan for TDA** within broader Samoan tourism brand.	Recommend consideration by STA	Medium	1-3 years
Develop and implement plans for **centralised services** within the tourism supply and value chain, such as laundry facilities.	Recommend consideration as part of the Village Sustainability Plans	Low	3-5 years
Disaster Preparedness and Emergency Facilities in Case of Disaster Events			
Build/complete/maintain **escape routes**	Recommend consideration as part of the Village Sustainability Plans and support an approach to DMO	High	6 months
Improve **warning/escape route signage** within villages and along access and escape routes.	Recommend consideration as part of the Village Sustainability Plans and support an approach to DMO	High	6 months
Appropriate **siren** and location of siren in each village	Support an approach to DMO	High	6 months
Appoint and train 1 to 2 community **disaster wardens** per village	Recommend consideration as part of the Village Sustainability Plans and support an approach to DMO	Medium	12 months
Construct **disaster/safe houses** for each village including first aid centre.	Recommend consideration as part of the Village Sustainability Plans and support an approach to DMO	Low	1-3 years

5. MONITORING AND EVALUATION

Specific Monitoring and Evaluation (M&E) recommendations do not form part of this current project. However, it is understood that M&E will be undertaken consistent with the overall M&E measures as detailed withinTable 4 of IPA 2015b.

6. REFERENCES

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