

**SPREP-USAID Choiseul Ecosystem based Adaptation to Climate Change**

**ECOSYSTEM BASED ADAPTATION MANAGEMENT PLAN FOR  
CHOISEUL BAY (draft)**

11 September 2015

## 1.0 INTRODUCTION

This document outlines a climate change adaptation plan that uses an ecosystem based adaptation (EbA) framework developed in conjunction with the communities of Choiseul Bay and Taro Island, which is located on the north western tip of Choiseul Province in the Solomon Islands. It should be read as supporting material to, and in conjunction with, the *Integrated Climate Change Risk and Adaptation Assessment to Inform Settlement Planning in Choiseul Bay, Solomon Islands* report prepared for the Solomon Islands Government as part of the Pacific Australia Climate Change Science and Adaptation Planning Program (PACCSAP).

### Background – Choiseul Bay and Taro Island

Taro is a low lying coral atoll inside the fringing coastal lagoon of Choiseul Bay and lies approximately 1.5 km across the lagoon from Choiseul Island. At the 2009 census the population of Taro Township was relatively small, somewhere between 800 to 900 people. However, as the provincial capital Taro is an important administrative, transport and commercial hub housing most of the provincial government offices, the largest regional airport and the largest hospital in the province. Due to these important regional facilities the number of people visiting the township on any one day can significantly increase the number of people on the island.

The majority of Taro Island is between 0.5 and 2 m above sea level and has a high level of exposure to, and risk from, existing coastal hazards such as storm surge and tsunamis. Both of which are likely to be significantly exacerbated by climate change. In response to the existing risk and potential for increasing impacts resulting from climate change there is a proposal from the Choiseul Provincial Government to relocate the existing capital to new settlement sites on land surrounding the mouth of the Sui River on Choiseul Island. The site on Choiseul Island incorporates Lot 9 on a rocky headland with a land surface approximately 15m above sea level and a larger Lot 277 which is mostly low lying ground and mangrove wetlands along the river shoreline. The proposed new township is not entirely undeveloped and already contains some existing urban facilities including a jetty, a few residential properties, some light industry and a school.



**Aerial photo of Taro Island, fringing lagoon and reef (2015)**

### Management plan structure

This management plan identifies a number of priority issues associated with expected climate change impacts and proposes EbA management options ('EbA activities') that could be incorporated into an integrated approach to climate change adaptation for the Choiseul Bay area. An outline of the main sections is below:

- Section 1 provides background to the Choiseul Bay and Taro Island area and the expected impacts of climate change on the local environment and communities. Priority issues associated with climate change are identified.
- Section 2 summarises each priority issue, the associated ecosystem services that could be impacted, and the proposed EbA activities<sup>1</sup>.
- Section 3 outlines an implementation plan for the proposed activities over the coming 2 years including the likely organisations involved and an indication of the resources required.

The proposed EbA activities use two main strategies. Firstly, improving the health of existing ecosystems that provide key ecosystem services, such as protection from storm surge. This is primarily done via the management or removal of activities that degrade those ecosystems. The second approach is to restore biodiversity into key areas to support ecosystem services that are not currently provided.

### Climate change impacts in Solomon Islands

Over the last 100 years the global climate has warmed by approximately 0.74°C and is expected to rise a further 1.3 to 1.8°C by the end of the century. This projected rise is primarily in response to anthropogenic greenhouse warming. In Solomon Islands, the average temperature is expected to rise by 0.8°C by 2030 relative to a 1980 to 1999 baseline. Corresponding with the rise in global and regional temperatures are a raft of changes in other climate and physical processes including more extreme rainfall days during the wet season and potential intensification of cyclones. In addition the region can expect altered ocean currents and a rise in sea level of between 4 and 15cm by 2030.

Reduction in long term climate change requires meaningful reductions in global greenhouse gas emissions. This however is beyond the means of small developing nations such as the Solomon Islands acting alone and regardless of how fast the world moves toward a sustainable, low-carbon economy, greenhouse gas concentrations are expected to rise for many years, the biosphere will continue to warm, and ecosystems and the services they provide will inevitably change.

### Understanding ecosystem-based adaptation to climate change

Many Pacific Islands Countries, such as Solomon Islands, are highly vulnerable to the impacts of these physical and biological changes. In these vulnerable countries and communities the impacts of climate change, through the potential devastating effects of extreme events and sea level rise as well as more subtle changes in rainfall patterns and reliability, pose a direct threat to people's livelihood and survival. In response to the increasing risks from climate change many governments and communities are devising strategies for adapting to the negative impacts of climate change that are now seen as unavoidable.

Climate change adaptation strategies should be designed to help communities to plan and implement actions that can assist them to minimise negative impacts, and hopefully allow them to prosper in the future. Adaptation to climate change happens at many levels and can happen at a government level through broad activities such as, altering policies and legislation, providing education about impacts and developing early warning systems. At the community and local level these can include more concrete actions such as, changing land use practices and the redesign and construction of new engineering infrastructure such as sea walls.

---

<sup>1</sup> This report does not describe in detail the ecosystems of Choiseul Bay and Taro Island. Such additional descriptions of the ecosystems in the area and the services they provide are included in a companion report for this project.

Another important part of adaptation involves using nature to help adapt to climate change. This is referred to as Ecosystem-based Adaptation, or EbA. *EbA involves the use of biodiversity and ecosystems (or the natural assets of an area) as part of an overall adaptation strategy to help communities adapt to the impacts of climate change.* This means approaching problems with solutions based on nature such as maintaining healthy mangrove forests to minimize the impact of storm surge.

Healthy ecosystems deliver critical goods and services for Taro and Choiseul Bay, such as providing food and fuel, or preventing inundation and coastal erosion. People depend on these goods and services for their wellbeing and livelihoods. Ecosystems, and the biodiversity and services they support, are intrinsically dependent on climate and any modifications to climate parameters will result in changes and impacts on biological systems. Indeed, there is already evidence that climate change over the last 100 years has had significant impact on global ecosystems. These impacts and changes are expected to increase as the amount (and potentially the rate) of change increases. However, because of climate change and other human impacts, many ecosystems have become degraded, with negative impacts on people's lives. Conversely, by maintaining healthy ecosystems many of the impacts of climate change on the communities of Choiseul Bay can be minimized.

### Important ecosystems for Choiseul Bay and Taro Island

The main ecosystems in the Choiseul Bay and Taro Island area that have been considered in developing this management plan include:

- Coastal vegetation;
- Forests;
- Coral reefs;
- Mangroves;
- Seagrass beds; and
- Urban trees and vegetation.

### Priority climate change issues for Choiseul Bay

Based on an assessment of the climate change projections<sup>2</sup> for Choiseul Province and in discussion with stakeholders from the local community the following issues were identified as the major climate change concerns for Taro and Choiseul Bay that will require EbA interventions.

- Coastal erosion and shoreline stability (Taro Island);
- Taro urban environment (rubbish disposal and street trees);
- Water security for Taro;
- Marine ecosystem management (coral reefs and seagrass areas);
- Water catchment management (Choiseul Bay); and
- **Mangroves** and Wetland protection (Choiseul Bay).

These issues, the associated threats to ecosystems services, and proposed EbA activities are described in Section 2.

---

<sup>2</sup> A detailed overview of climate change projections for Choiseul Bay and Taro Island is provided in *Integrated Climate Change Risk and Adaptation Assessment to Inform Settlement Planning in Choiseul Bay, Solomon Islands (PACCSAP 2014)*

## 2.0 PRIORITY ISSUES AND EBA MANAGEMENT OPTIONS

### PRIORITY ISSUE 1: Coastal erosion and shoreline stability

Major ecosystems and ecosystem services provided

#### Coastal Vegetation

*Ecosystem Services:* Shoreline protection, reduction of coastal erosion, visual amenity, habitat values and food resources (including coconuts and food garden areas).



Vegetation adjacent to Taro airstrip, showing mix of garden (food source) and native coastal species (habitat).



Erosion and undercutting of vegetation between Taro wharf and fisheries centre, threatening houses and infrastructure.



Erosion occurring behind installed rock wall at northern end of Taro airstrip.



Undercutting adjacent to spaces in the rock wall at northern end of airstrip.



## Mangrove Areas

*Ecosystem Services:* Shoreline protection, habitat values, attenuation of wave energy, visual amenity and fish habitat.



**Intact mangrove area near southern end of Taro airstrip.**



**Existing natural mangrove regeneration near Taro airstrip.**

### Threats to ecosystem services

Currently there are three major threats to the ecosystem services provided by coastal vegetation and mangrove areas:

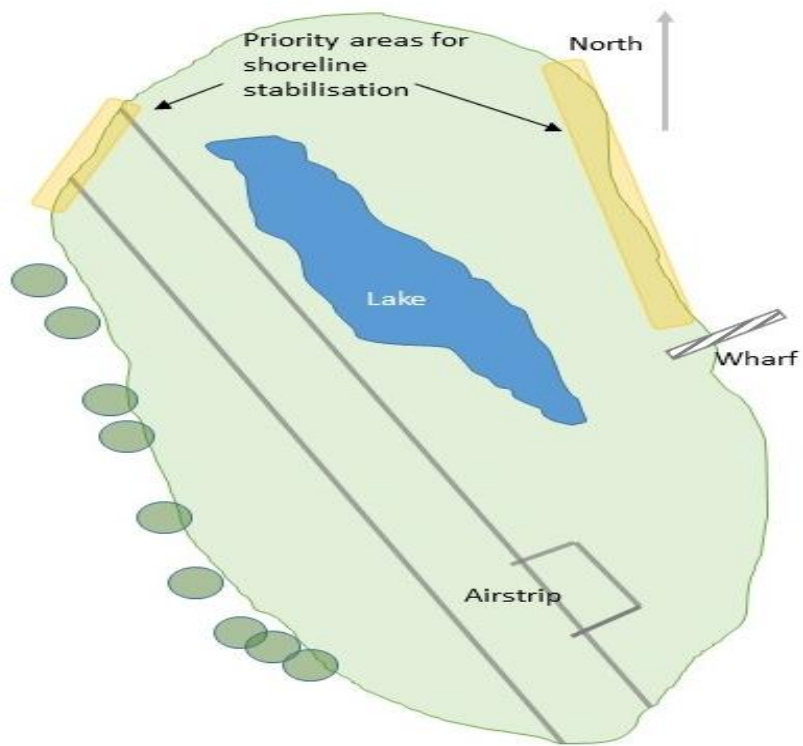
- Cutting down of coastal vegetation for gardens, timber and firewood;
- Clearing of mangroves for boat access to the lagoon; and
- Rubbish particularly plastics affecting fish habitat and regeneration of mangroves.

### EbA management options

The following initiatives and key activities are proposed to address these threats to ecosystems services:

- Coastal vegetation protection:
  - A Provincial Ordinance for vegetation protection.
  - Provincial Environment Officer to support enforcement of environmental Ordinances.
  - Signage to increase awareness of vegetation management and discourage tree cutting.
  - Community education on tree protection and vegetation management.
- Shoreline stabilisation:
  - Assessment and design of engineering options to stabilise priority areas of Taro shoreline (likely to include areas between the wharf and fisheries centre).
  - Trial of soft engineering options to stabilise shoreline at the north end of the Taro airstrip.

Diagram of Taro Island showing priority areas for shoreline stabilisation activities (orange shading)



## PRIORITY ISSUE 2: Taro urban environment

### Major ecosystems and ecosystem services provided

#### Taro Lake

*Ecosystem Services:* Fish habitat, water security and treatment of septic waste.

#### Urban Street Trees

*Ecosystem Services:* Visual amenity, provision of shade reducing heat stress, habitat values and minor food security value security if food trees are incorporated.



**Rubbish dumping adjacent to Taro Lake**



**Indicative location for street tree planting in Taro**

### Threats to ecosystem services

Currently there are four major threats to the ecosystem services provided by Taro Lake and urban street trees:

- Waste disposal in the lake;
- Nutrient pollution from the township particularly septic waste;
- Inappropriate development on the lake shoreline for intensive agriculture; and
- Cutting down of street trees for development and timber.

### EbA management options

The following initiatives and key activities are proposed to address these threats to ecosystems services:

- Waste management:
  - Develop a waste management plan for Choiseul Bay.
  - Community education on waste management and reduction.
  - Install stands for rubbish bins in Taro.
  - Remove rubbish from areas of coastal vegetation.
- Urban tree planting:
  - Undertake street tree plantings on main thoroughfares of Taro to reduce climate stress (location of tree planting to be determined in conjunction with Taro community).



## PRIORITY ISSUE 3: Water security for Taro

Major ecosystems and ecosystem services provided

### Taro Lake and groundwater resources

*Ecosystem Services:* Fish habitat, water security and treatment of septic waste.



**Taro Lake, full after a period of heavy rain (2015)**



**Eutrophication in Taro Lake as a result of high nutrient inputs, after a dry period (2015)**

### Threats to ecosystem services

Currently there are three major threats to the ecosystem services provided by Taro Lake and associated groundwater resources:

- Waste disposal in the lake;
- Nutrient pollution from the township particularly septic waste; and
- Inappropriate development on the lake shoreline for intensive agriculture.

### EbA management options

The following initiatives and key activities are proposed to address these threats to ecosystems services:

- Water quality monitoring
  - Undertake water quality monitoring of the wells in Taro.
- Composting toilet trial
  - Investigate possibility of composting toilet trial on Taro Island.
- Groundwater study for Taro.
  - Conduct study on groundwater quality and quantity in Taro.

## PRIORITY ISSUE 4: Marine ecosystem management (coral reefs and seagrass areas)

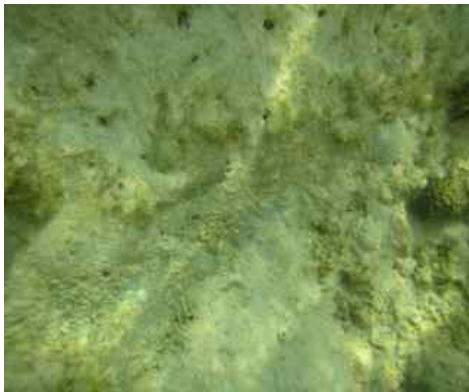
### Major ecosystems and ecosystem services provided

#### **Coral Reefs**

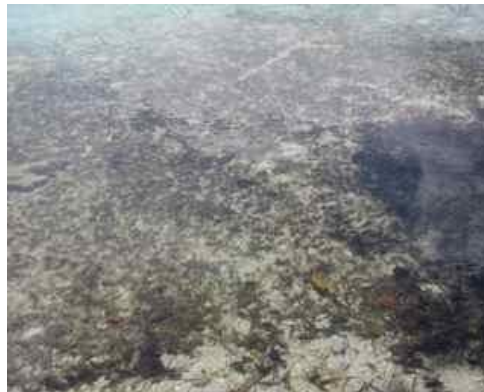
*Ecosystem Services:* Coastal protection, wave and storm surge and partial tsunami protection, fish habitat, visual amenity, food security.

#### **Sea Grass beds**

*Ecosystem Services:* Coastal protection, fish habitat, visual amenity, food security, minor wave attenuation habitat for threatened species and tourism.



**Degraded Seagrass beds on the Western side of Taro Island.**



**Sea grass beds between Taro and Sipozae Islands.**

### Threats to ecosystem services

Currently there are a number of threats to the services provided by coral reefs and seagrass beds:

- Pollution from waste disposal in Taro Lake;
- Nutrient pollution from urban run-off and septic disposal;
- Pollution from poorly managed fuel depots; and
- Pressure from high levels of fishing removing key grazing fish species.

### EbA management options

The following initiatives and key activities are proposed to address these threats to ecosystems services:

- Marine conservation:
  - Establish a marine protected area for Taro reef.
- Coral replanting:
  - Conduct demonstration coral replanting trial on Taro reef.

## PRIORITY ISSUE 5: Water catchment management (Choiseul Bay)

Major ecosystems and ecosystem services provided

### Natural Forests within water catchment

*Ecosystem Services:* Catchment protection – water security consistency of supply and quality, visual amenity, food security, habitat values.



**Mangrove forest areas in Choiseul Bay water catchment.**



**The catchment area provides habitat for many wildlife species.**

### Threats to ecosystem services

The major long term threat to this ecosystem is unsustainable logging in the catchment.

### EbA management options

The following initiatives and key activities are proposed to address these threats to ecosystems services:

- Protection of the Choiseul Bay water catchment:
  - Conduct consultations to establish a protected area in the Choiseul Bay water catchment, consider payment for ecosystem services approach

**Map of Choiseul Bay showing approximate location for catchment management initiatives (white shading)**

Source: PACCSAP 2014





## PRIORITY ISSUE 6: Wetland protection (Choiseul Bay)

Major ecosystems and ecosystem services provided

### Wetland areas near Choiseul Bay Township

*Ecosystem Services:* Shoreline protection, habitat values, attenuation of wave energy, Visual amenity and Fish habitat.



**Mangroves act as a filter for sediment and runoff**

### Threats to ecosystem services

There are two longer terms threats to the services provided by the wetland areas:

- Clearing of mangroves for access to River; and
- Pollution from the newly developed urban centre.

### EbA management options

The following initiatives and key activities are proposed to address these threats to ecosystems services:

- Wetland management for Choiseul Bay:
  - Protection and management of the mangrove areas to minimise the impact of new township development.
  - Stormwater management systems to protect wetland system in urban design.

**Map of Choiseul Bay showing approximate location of mangrove management initiatives (orange shading)**

Source: PACCSAP  
2014



### 3.0 EbA implementation plan

EbA management options to address the above priority issues have been developed in conjunction with the communities of Choiseul Bay and Taro Island (Table 1) and are presented here for consideration by SPREP and its stakeholders. The activities draw on the climate change projections and recommendations of the PACCSAP 2014 report and the experience and input of local stakeholders including: Provincial Government, community members, donor programs, national government agencies, and others.

In addition to the activities themselves, stakeholders also identified some overarching considerations that could support or guide the effective implementation of the proposed activities, these were:

- *Ensuring engagement with appropriate provincial government and national agencies.* It was stressed that each of the relative agencies need further consultation and ideally written agreement to ensure smooth implementation of specific components of the EbA plan.
- *Possible denomination-based zoning of Taro Island as a framework for implementation.* This proposal considers using the existing community presence of the five Church denominations on Taro Island to streamline and improve community involvement in the activities.
- *Engaging provincial environmental ordinance officer/s.* Stakeholders suggested that the Provincial Government consider resourcing an environmental officer to carry out regulation and planning tasks in support of the activities outlined here as well as other land management initiatives.
- *Engagement of the land owners.* Protection of coral reefs and mangrove protection will require the cooperation of land owners. SPREP has already initiated engagement with key landowner representatives, this should be continued and expanded at an appropriate time.



**Table 1:** EbA management options for the SPREP Choiseul EbA project in Choiseul Bay

Initiative	Key activities	Component tasks	Who involved	Resources required	Timing (Start time and duration)	Possible monitoring indicators
<b>PRIORITY ISSUE 1: Coastal erosion and shoreline stability on Taro island</b>						
Coastal vegetation protection	Provincial Ordinance for vegetation protection.	<ul style="list-style-type: none"> <li>Draft ordinance.</li> <li>Coordinate with CPG to adopt and implement the Ordinance.</li> </ul>	SPREP, CPG, Legal Specialist	<ul style="list-style-type: none"> <li>Technical input from legal specialist to draft the ordinance.</li> </ul>	Late 2015 4 months	Ordinance developed and implemented.
	Provincial Environment Officer to support enforcement of environmental Ordinances.	<ul style="list-style-type: none"> <li>Collaborate with CPG to develop a terms of reference and recruit an Environment Officer.</li> </ul>	SPREP, CPG	<ul style="list-style-type: none"> <li>Technical support from SPREP for CPG and the appointed Officer.</li> </ul>	Late 2015 Ongoing	Environment Officer recruited and operating.
	Signage to increase awareness of vegetation management and discourage tree cutting.	<ul style="list-style-type: none"> <li>Collaborate with CPG to design and install signage (3-4 signs to be erected around Taro, particularly near the airstrip).</li> </ul>	SPREP, CPG	<ul style="list-style-type: none"> <li>Technical input from SPREP to develop the sign content.</li> <li>3-4 signs and associated materials.</li> <li>Labour costs to erect the signs.</li> </ul>	Early 2016  (following development of Environmental Ordinance)	Signage in place.
	Community education on tree protection and vegetation management.	<ul style="list-style-type: none"> <li>Conduct educational field days to increase community awareness of vegetation management measures, including facilitation of existing mangrove regeneration. Focus areas to include: <ul style="list-style-type: none"> <li>Control of tree cutting in coastal vegetation areas;</li> <li>Facilitation/protection of existing mangrove regeneration; and</li> <li>Possible mangrove or tree planting</li> </ul> </li> </ul>	SPREP, CPG, Taro community	<ul style="list-style-type: none"> <li>Technical input from SPREP to conduct field days and develop education materials on values of coastal vegetation.</li> <li>Seedlings and associated tools to conduct tree planting activities.</li> </ul>	Mid 2016  (coinciding with erection of signage)	Field days conducted.

		as a demonstration activity.				
Shoreline stabilisation	Assessment and design of engineering options to stabilise priority areas of Taro shoreline.	<ul style="list-style-type: none"> <li>• SPREP to engage Consultant (a coastal geomorphologist / engineer) to work with CPG to conduct assessment and design of locally appropriate management options for priority areas of Taro shoreline, in particular, the area between the wharf and the Fisheries centre. Consideration to be given to the potential for nature based sand trapping mechanisms and other 'soft engineering' approaches and hard engineering coastal protection structures.</li> </ul>	SPREP, CPG, Consultant	<ul style="list-style-type: none"> <li>• Technical input from Consultant to conduct the study in coordination with SPREP and CPG.</li> </ul>	2016 3 months	Study report completed and recommendations considered by SPREP and CPG.
	Trial of soft engineering options to stabilise shoreline at the north end of the Taro airstrip.	<ul style="list-style-type: none"> <li>• SPREP to engage local community or contractors as appropriate to undertake work. Design to be based on the shoreline protection used at Gizo airport.</li> <li>• Use copra (hessian) bags filled with coral and/or rocks to create a tapered shoreline, encourage vegetation growth over the bags. Also fill spaces in the existing rock wall with rocks or bags to reduce undercutting of the wall.</li> </ul>	SPREP, CPG, Contractors	<ul style="list-style-type: none"> <li>• Copra bags or similar (around 300), could be sourced 2<sup>nd</sup> hand.</li> <li>• Source of rock, sand or gravel.</li> <li>• Expenses for fuel used in transport of gravel to the site.</li> <li>• Labour costs for contractors.</li> </ul>	Late 2015 3 months	Works completed satisfactorily. Effectiveness monitored at 3 and 6 months after completion.
<b>PRIORITY ISSUE 2: Taro Urban environment</b>						
Waste management	Support the formulation of a waste management plan for Choiseul Bay.	<ul style="list-style-type: none"> <li>• Coordinate the process of developing a medium-term waste management plan for Taro and Choiseul Bay, including assessment of landfill site options and relocation of existing Taro dump.</li> <li>• Collaborate with CPG and MECDM in designing the scope and objectives of the plan.</li> </ul>	SPREP, CPG, Consultants, MECDM	<ul style="list-style-type: none"> <li>• Technical input from Consultants and support from SPREP and MECDM.</li> </ul>	2016 3 months	Waste management plan completed and recommendations considered by SPREP and CPG.

	Community education on waste management and reduction.	<ul style="list-style-type: none"> <li>Collaborate with MECDM to conduct community education sessions on waste management, including recycling, composting and related measures.</li> </ul>	SPREP, CPG, MECDM	<ul style="list-style-type: none"> <li>Education materials and technical input from MECDM on waste minimisation.</li> <li>1-2 community workshops</li> </ul>	2016 2 months (coinciding with waste management plan activity)	Community workshops conducted and awareness materials distributed.
	Install stands for rubbish bins in Taro.		SPREP, CPG, MECDM	<ul style="list-style-type: none"> <li>Procure stands for the public waste bins in Taro, around 50 required.</li> <li>Labour costs for installation.</li> </ul>	2015 1 month	Stands installed for all existing waste bins in Taro.
	Remove rubbish from areas of coastal vegetation.	<ul style="list-style-type: none"> <li>Collaborate with UNDP SIWSAP program to support measures to remove waste from vegetation areas.</li> </ul>	SPREP, UNDP, CPG	<ul style="list-style-type: none"> <li>Engage with SIWSAP program to confirm specific requirements.</li> </ul>	2016 6 months	Work completed to remove rubbish from vegetation areas.  Monitor after 3 and 6 months.
Urban tree planting	Undertake street tree plantings on main thoroughfares of Taro to reduce climate stress.	<ul style="list-style-type: none"> <li>Conduct community consultation to ensure awareness of the benefits of trees in urban areas.</li> <li>Conduct planting with support of school or community groups.</li> </ul>	SPREP, CPG, Youth at Work, other community groups	<ul style="list-style-type: none"> <li>30 – 40 large seedlings (1-2m high), ideally fruit and nut species. Could be sourced through the nursery at Choiseul Bay.</li> <li>Timber stakes, shade cloth, nails and related materials to construct tree protectors.</li> <li>Shovels and picks to conduct tree planting.</li> <li>Possible signage to discourage cutting of the planted trees.</li> </ul>	Early 2016  (coordinate with the coastal vegetation protection initiative)	Number of trees planted.  Number of trees surviving 1 <sup>st</sup> year after planting.
<b>PRIORITY ISSUE 3: Water security for Taro</b>						
Water quality monitoring	Undertake water quality monitoring of the wells in Taro.	<ul style="list-style-type: none"> <li>Procure water quality testing kits and confirm access to testing laboratories.</li> <li>Initiative monitoring program with a</li> </ul>	SPREP, UNDP, CPG	<ul style="list-style-type: none"> <li>Technical input to develop monitoring program and conduct training.</li> </ul>	Commence testing by end of 2015.	Water quality sampling kits purchased.  Training conducted.

		<p>focus on Nitrates and Human Coliforms</p> <ul style="list-style-type: none"> <li>Conduct training on testing methodologies for local operators.</li> </ul>		<ul style="list-style-type: none"> <li>Water quality sampling kits.</li> <li>Fees for laboratory testing of water samples.</li> </ul>	3 months	Samples analysed.
Composting toilet trial	Investigate the possibility of a composting toilet trial on Taro Island.	<ul style="list-style-type: none"> <li>Conduct education program on impact of septic waste on lagoon and the possible use of waterless toilets.</li> <li>Consider initiating the setup of 1-2 composting toilets as a demonstration program.</li> </ul>	SPREP, UNDP, CPG, Ministry of Health	<ul style="list-style-type: none"> <li>Technical input for education program</li> <li>Composting toilet and toilet buildings.</li> </ul>	<p>Longer term, start 2017.</p> <p>Implemented over 5 years.</p>	Education program implemented. Composting toilets installed.
Groundwater study for Taro.	Conduct study on groundwater quality and quantity in Taro.	<ul style="list-style-type: none"> <li>Support UNDP SIWSAP program to conduct study on groundwater resources in Taro, including consideration of linkages to adjacent marine systems.</li> </ul>	SPREP, UNDP, CPG	<ul style="list-style-type: none"> <li>Engage with SIWSAP program to confirm likely requirements.</li> </ul>	<p>2017</p> <p>4 months</p>	Study completed and recommendations considered by CPG.
<b>PRIORITY ISSUE 4: Marine ecosystem management (coral reefs and seagrass areas)</b>						
Marine conservation	Establish a marine protected area for Taro reef.	<ul style="list-style-type: none"> <li>Facilitate consultation meetings and support the development of a draft protected area management plan for consideration by stakeholders.</li> <li>Support the establishment and early operation of a local protected area management committee (or similar body).</li> </ul>	SPREP, landowners, Ministry of Fisheries and Marine Resources, TNC, LLCTC	<ul style="list-style-type: none"> <li>Consultation meetings</li> <li>Technical support to draft a protected area management plan.</li> <li>Financial and operational support for protected area management committee.</li> </ul>	<p>Consultation meetings conducted in early 2016.</p> <p>Protected reef management plan developed by late 2016.</p> <p>MPA implementation on going</p>	<p>Meetings held.</p> <p>Plan completed.</p> <p>Finance secured.</p>
Coral replanting	Conduct demonstration coral replanting trial on Taro reef.	<ul style="list-style-type: none"> <li>Evaluate Taro reef for areas most suitable for coral replanting. Use recommendations from the coastal geomorphology study and advice from Ministry of Fisheries to highlight key restoration sites.</li> <li>Conduct replanting trails in conjunction with community and Ministry of</li> </ul>	SPREP, landowners, Fisheries TNC, LLCTC	<ul style="list-style-type: none"> <li>Materials for coral replanting e.g. substrate (wire or framing) and related materials.</li> </ul>	<p>Trial should commence by mid 2016.</p>	<p>Key restoration sites identified.</p> <p>Trail initiated.</p>

		Fisheries.				
<b>PRIORITY ISSUE 5: Water catchment management for Choiseul Bay</b>						
Protection of the Choiseul Bay water catchment	Establish a protected area in the Choiseul Bay water catchment, consider payment for ecosystem services approach.	<ul style="list-style-type: none"> <li>Facilitate consultation meetings and support the development of a draft protected area management plan for consideration by stakeholders.</li> <li>Support the establishment and early operation of a local protected area management committee (or similar body).</li> </ul>	SPREP, landowners, CPG	<ul style="list-style-type: none"> <li>Consultation meetings.</li> <li>Technical support to draft a protected area management plan.</li> <li>Legal/Technical expertise for the drafting of protected area agreement.</li> <li>Financial and operational support for protected area management committee.</li> <li>Technical expertise for calculation of ecosystem services payment.</li> </ul>	<p>Consultation meeting by end 2016</p> <p>Finalisation of protected area agreement by 2017</p> <p>Payment for ecosystem services longer term</p>	Protected area established.
<b>PRIORITY ISSUE 6: Wetland management for Choiseul Bay</b>						
Wetland management for Choiseul Bay	Protection and management of the mangrove areas to minimise the impact of new township development.	<ul style="list-style-type: none"> <li>With CPG and community, undertake GPS delineation of vegetation areas and associated mapping</li> <li>Facilitate community consultations on establishment of management zones, including identification of potential areas for replanting.</li> <li>Implement management activities as appropriate.</li> </ul>	SPREP, landowners, CPG	<ul style="list-style-type: none"> <li>Technical inputs for GPS delineation and mapping.</li> <li>2-3 community consultation meetings required.</li> <li>Signage to communicate finalised management zones.</li> </ul>	2017	Mangrove management measures in place.
	Stormwater management systems to protect wetland systems in urban design.	<ul style="list-style-type: none"> <li>Identify locally appropriate stormwater management and wetland protection methods for Choiseul Bay township.</li> <li>Construct and install small artificial wetland filters, including ground</li> </ul>	SPREP, landowners, CPG	<ul style="list-style-type: none"> <li>Technical input to identify locally appropriate stormwater management systems.</li> <li>Costs of labour and equipment for minor earthworks.</li> </ul>	2017	Stormwater management systems identified and installed.



		contours, planting of wetland species, installation of ponds and similar measures.		<ul style="list-style-type: none"> <li>• Provision of wetland plants (e.g. grasses and mangroves).</li> </ul>		
--	--	--	--	---	--	--

Acronyms: (CPG) Choiseul Provincial Government, (MECDM) Ministry of Environment Climate Change, Disaster Management and Meteorology, (UNDP SIWSAP) United Nations Development Program – Solomon Islands Water Sector Adaptation Program, (TNC) The Nature Conservancy, (LLCTC) Luru Land Conference of Tribal Communities