



Reimaanlok

An Approach for Community-
Based Management

Appendices

A Facilitator's Guide to
Implementing the Reimaanlok
Conservation Planning Process

November 2012

The appendices provide a tool for facilitators to assist communities in developing their resource management plans for community-based conservation areas. There are templates, exercises, and instructions that will help guide the eight step process described in *Reimaanlok* and its Facilitator's Guide. These are not the only tools to available, but are ones that have been used and found to be useful in the Reimaanlok process thus far in the Marshall Islands. These can be accessed at <http://seagrant.soest.hawaii.edu/publications/>.

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**STEP 1 - INITIATION OF THE PROCESS TO ESTABLISH
COMMUNITY-BASED MANAGEMENT PLANS**

A1 Pre-survey Questionnaire

Pre-survey Questionnaire: to assess the overall awareness of key issues necessary for the success of *Reimaanlok* in a community

(Need translation into Marshallese)

1. Do you know which governmental agencies and non-governmental agencies are involved in resource management and conservation in the Marshall Islands? (local groups can be included if mentioned) List Down.
2. Can you tell me of any general resource management and conservation issue or problem that you are aware of in _____ Atoll? All of Marshall Islands? For each issue, why are they considered problems?
3. Are you aware of any traditional conservation methods that still in play? Please list.
4. How do you get information pertaining to the resources and conservation locally?
5. Have you heard of CMAC and Reimaanlok?
6. Have you heard of the Micronesia Challenge?

NOTE: These questions must be incorporated into the pre-survey questionnaire that will be delivered by the National Planning Team visited during visit one, after collection of all literature and information about the targeted atoll has been compiled. The questionnaire must include issues/recommendations from the compiled information.

STEP 2 - PROJECT SCOPING AND SETUP

A2 Trip Cost Calculator

This spreadsheet calculates the cost of each trip to an outer island for community work.

Refer to the worksheets for per diem rates and air ticket rates for the appropriate rate for each atoll.
Ensure air ticket prices are current.

<u>Name of Atoll:</u>					
<u>Plane Ticket:</u>					
<i>Team No.:</i>			x	<i>Round Trip cost:</i>	
<u>Departure Tax:</u>					
			ports		
<i>Team No.:</i>		x		x <i>Tax rate:</i>	
<u>Per Diem</u>					
			days		
<i>Team No.:</i>		x		x <i>Per Diem rate:</i>	
<u>Miscellaneous fund</u>					
					Total for Visit

****Please refer to RATES sheets for actual cost of per diem and tickets.

Atoll	Airport	Per Diem	Air Fare (date??)		Distance	Boat Fare Estimation **	
			1-way	RT		Rate	O/N fare
Ailinginae		50					
Ailinglaplap *	Airok	50	107	214	146	7300	add \$50/day
	Jeh		104	208	141	7050	add \$50/day
	Woja		117	234	164	8200	add \$50/day
Ailuk	Ailuk	50	139	278	203	10150	add \$50/day
Arno	Tinak	25	47	94	39	1950	add \$50/day
Aur	Tobal	50	61	122	65	3250	add \$50/day
Bikar		50					
Bikini			266	532	431	21550	add \$50/day
Bokak		50					
Ebon		50	143	286	211	10550	add \$50/day
Enewetak			354	708	588	29400	add \$50/day
Erikub		50					***
Jabot		50	105	210	142	7100	add \$50/day
Jaluit *		75	92	184	120	6000	add \$50/day
Jemo		50					
Kili		50	111	222	154	7700	add \$50/day
Kwajalein *		125	155	310	233	11650	add \$50/day
Lae		50	204	408	319	15950	add \$50/day
Lib		50					
Likiep *		75	138	276	202	10100	add \$50/day
Majuro		-----	0	0	0	0	0
Maloelap	Maloelap	50	80	160	99	4950	add \$50/day
	Kaben		89	178	114	5700	add \$50/day
Mejit ***		50	134	268	194	9700	add \$50/day
Mejatto	Elenak		192	384	262	13100	add \$50/day
Mili	Mili	50	61	122	65	3250	add \$50/day
	Enejet		68	136	75	3750	add \$50/day
Nadrikdrik		50					
Namdrik *		50	141	282	207	10350	add \$50/day
Namu	Majkin	50	134	268	195	9750	add \$50/day
Rongelap			225	450	358	17900	add \$50/day
Rongerik		50					
Taka		50					
Ujae		50	219	438	346	17300	add \$50/day
Ujelang		50					
Utrik		50	172	344	263	13150	add \$50/day
Wake (Enenkio)							
Wotho		50	228	456	363	18150	add \$50/day
Wotje *		75	112	224	156	7800	add \$50/day

* fishbase

** boat charter rates, based on MMRA rates of \$25/mile x2

A3 Project Plan Template – Namdrik Example

Reimaanlok: Process for Community-Based Fisheries and Resource Management Planning

Purpose of this document:

This Project Plan template is designed to make it easy for Project Teams to develop a clear Workplan. The Workplan is to facilitate resource management planning for outer-atolls in the Marshall Islands. The template is based on the *Reimaanlok: Process for Community-Based Fisheries and Resource Management Planning* and is part of the *Toolkit for Community-Based Management Planning*.

How to use this Project Plan template:

1. As a team, discuss the current status of resource management on the atoll and fill in the section on background.
2. Determine which steps are appropriate for that atoll or community and delete or add tasks as required.
3. Ensure you are familiar with the following documents and refer to these documents frequently when planning and carrying out the tasks:
 - “*Reimaanlok: Process for Community-Based Planning and Management*” (Part 4 of Reimaanlok: National Conservation Area Plan for the Marshall Islands)
 - Reimaanlok Toolkit/Cookbook
 - “*Reimaanlok: Guidelines for Collection of Local and Traditional Knowledge on Biodiversity Resources and Mo*” (AIV of Reimaanlok: National Conservation Area Plan for the Marshall Islands)
4. Use the Project Plan template for reporting progress and keeping other notes by brief comments in the far right-hand column. Keep this up to date after each set of activities. This will make it very easy to report externally on progress and will ensure the Project Team understands where the work is up to and what remains to be done.
5. Hold meetings with the Project Team **every two weeks** to report on progress, allocate tasks and plan for atoll visits. This is essential for maintaining the level of activity required to successfully complete these projects. Meetings should be short and efficient.
6. Update the plan as required if timing or circumstances change.

Reimaanlok: Process for Community-Based Fisheries and Resource Management

Project Plan for Namdrik Atoll 2008-2010

(Output of Step 2: Project Scoping and Setup)

Atoll/ Community:	Namdrik
Lead Agency:	MIMRA
Project Manager:	Albon Ishoda (MIMRA)
Core Project Team:	Candice Guavis (MIMRA), Joy Kawakami (MICS)
Additional Support Team:	
Key Community Contacts:	

Background:	“Namdrik Atoll first approached MIMRA...” include here information about how the project was initiated, the presence of a fish base or other economic operations (e.g. clams, oysters, sea-cucumber farms etc.). Describe previous work done in management planning, MPAs, number of individual communities on the atoll, number of people on the atoll, distance from Majuro, transport from Majuro by boat/ plane etc.
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Action Plan – Tasks and Timelines

Process Step	Activity	Scheduled Date	Output/s	Notes/ Report of Progress and Results
Step 1: Initiation of the Process	Before visit compile existing information on atoll	Sept 2008		<i>Project team to re-read “Reimaanlok: Process for Community-Based Fisheries and Resource Management Planning”</i>
	Atoll Visit 1	Oct 2008		
	Hold initial community consultations			
	Boat tour and walk about			
	Conduct a preliminary survey to establish level of commitment and awareness			<i>Cookbook Step 1: A1</i>
	Link community to the environmental radio network			
Step 2: Project Scoping and Setup	Planning meeting between project team	Sept 5, 2008	Complete project plan, timeline, budget and resource plan (this document)	<i>Cookbook Step 2: A2, 3 and A31 worksheet 2</i>
Step 3: Building Commitment	Atoll Visit 1	Oct 2008		
	<i>Bwebwenato</i> with community			
	Deliver education and awareness		Presentations to schools and community groups. Leave posters, books, brochures with community.	<i>Cookbook Step 3</i>
	Stakeholder analysis (PIMPAC Session2)		Completed stakeholder analysis and begin Climate Change Vulnerability Assessment Matrix	<i>Cookbook Step 3: A4 & A31:3, 5</i>
	Establish Local Resources Committee		Terms of reference and membership list of Local Resources Committee	<i>Cookbook Step 3: A5</i>

Process Step	Activity	Scheduled Date	Output/s	Notes/ Report of Progress and Results
	Survey questionnaire to establish level of commitment and awareness			<i>Cookbook Step 3: A6</i>
	Initial assessment of climate impacts		List of key issues and concerns	<i>Cookbook Step 3: A7</i>
Step 4: Collecting and Managing Information	Prepare for Atoll Visit 2	Nov	Planning meeting held. Team clear on roles and activities for visit. Materials prepared.	<i>Team needs to revise procedures for collecting and mapping local knowledge and to prepare materials – maps etc – to take to the community.</i>
	Atoll Visit 2	Dec 2008		
	Community mapping of resources and use.		Activities: Community Mapping, Historical Timeline, Seasonal Calendar, Local Climate Story	<i>Cookbook Step 4: A8 & A31: worksheets 6,10, 11, 12, 14</i>
	Socio-economic survey			<i>Cookbook Step 3: 5 A12</i>
	Baseline survey of natural resources – quick method			<i>Cookbook Step 3: A7 Step 4: A9, 10, 11</i>
	Problem Solution Tree		Begin with community Meetings and verify with LRC	<i>Ailuk Management Plan</i>
	Input data collected into Conservation GIS		Data entered into GIS	
	Field Survey to determine island height and determine flooding risks		Profiles and map	<i>Step 4: A13,14, 15</i>
Step 5: Developing the Management Plan	Prepare for Atoll Visit 3		Planning meeting held. Team clear on roles and activities for visit. Materials prepared.	<i>Team needs to study Reimaanlok cookbook and other tools and if necessary, to practice them in a mock workshop.</i>
	Atoll Visit 3	Feb 2009		
	Identify and prioritize Natural Resource Targets		Community meetings.	<i>Cookbook Step 5: A16</i>
	Community mapping of		Documented information as per	<i>Cookbook Step 4: A8 & A31: worksheets</i>

Process Step	Activity	Scheduled Date	Output/s	Notes/ Report of Progress and Results
	resource management targets		<i>"Guidelines for Collection of Local and Traditional Knowledge and mo in the Marshall Islands"</i>	6,10, 11, 12, 14
	Identify and prioritize threats		Completed worksheet.	<i>Cookbook Step 5: A17 & A31 Worksheets 7, 8, 9</i>
	Climate vulnerability		Completed worksheet	<i>Cookbook Step 5: A18</i>
	Community Visioning-determine development aspirations		Completed worksheet.	<i>Cookbook Step 5: A19</i>
	Identifying SWOT		Completed worksheet.	<i>Cookbook Step 5: A20</i>
	Develop objectives for management		Completed worksheet.	<i>Cookbook Step 5: A21</i>
	Identify management actions to achieve objectives		Completed worksheet.	<i>Cookbook Step 5: A22</i>
	Develop indicators		Completed worksheet.	<i>Cookbook Step 5: A23</i>
	Prioritize management actions		Completed worksheet.	<i>Cookbook Step 5: A24</i>
	Select and design conservation areas		Map of proposed conservation areas/ management zones. Draft management rules for each zone.	<i>Refer to Reimaanlok Design Principles. Cookbook Step 5: A26</i>
	Prepare for Atoll Visit 4		Planning meeting held. Team clear on roles and activities for visit. Materials prepared.	
	Atoll Visit 4	May 2009		
	Determine authority and responsibility			<i>Cookbook Step 5: A27 ex. MoU between CMAC & Local Govt.</i>
	Develop an Action Plan with tasks, timelines and responsibilities		Short Action Plan for 1-3 years.	<i>Can use examples from this project plan or other Action Plans and develop a simple template. Formulate using</i>

Process Step	Activity	Scheduled Date	Output/s	Notes/ Report of Progress and Results
				<i>Cookbook Step 5: A25 or A31 worksheet 19</i>
	Develop a budget for implementation of the plan and how to finance it		Simple budget completed.	<i>Need to develop a simple budget template. Cookbook Step 5: A28</i>
	Determine capacity-building plan		Capacity-building plan completed.	<i>Identify the training needs and how they might be met. Cookbook Step 5: A29</i>
	Establish a sign-off procedure and dispute resolution process			<i>Cookbook Step 5: A30</i>
	Draft ordinances		Draft ordinances completed.	<i>Use ordinance template Cookbook Step 5: A27</i>
	Compile the worksheets and outputs completed above into a draft management plan.		Draft management plan.	<i>All the worksheets and documents completed above should be compiled to form the Management Plan.</i>
	Atoll Visit 5	Sept 2009		
	Present the draft management plan			<i>Ailuk Management Plan example</i>
	Present the draft ordinances			
Step 5: Sign-off	Establish "sign-off" on the management plan and ordinances according to the wishes of the community and leaders		Sign-off sheet prepared, signed and attached to the management plan.	<i>Sign-off may by the Local Resources Committee, the traditional leaders, National Agencies, and others (that are optional depending on involvement) should be represented by a signature sheet in the management plan.</i>
Planning for Steps 7: Monitoring, Evaluation and	Prepare a plan for monitoring and evaluation and for follow-up support for the atoll.		Plan for ongoing support and monitoring and evaluation.	<i>Can use a similar format to this plan.</i>

Process Step	Activity	Scheduled Date	Output/s	Notes/ Report of Progress and Results
Adaptive Management and 8: Maintaining Commitment				

Process Step	Activity	Scheduled Date	2008				2009								
			Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep
Step 2: Project Scoping and Setup	Planning meeting between project team	Sept 5, 2008													
Step 3: Building Commitment	Atoll Visit 1	Oct 2008													
	<i>Bwebwenato</i> with community														
	Deliver education and awareness														
	Stakeholder analysis (PIMPAC Session2)														
	Establish local planning committee														
	Survey questionnaire to establish level of commitment and awareness														
Step 4: Collecting and Managing Information	Prepare for Atoll Visit 2	Nov													
	Atoll Visit 2	Dec 2008													
	Community mapping of resources and use.														
	Socio-economic survey														
	Baseline survey of natural resources – quick method														
	Input data collected into Conservation GIS														
Step 5: Developing the Management Plan	Prepare for Atoll Visit 3														
	Atoll Visit 3	Feb 2009													
	Identify and prioritize Natural Resource Targets														
	Community mapping of resource management targets														
	Identify and prioritize threats														
	Community Visioning- determine development aspirations														
	Develop objectives for management														
	Identify management actions to														

STEP 3 - BUILDING COMMITMENT

A4 Involving Stakeholders Community Awareness Checklist¹

A. Session Purpose

Stakeholder involvement is an absolutely critical aspect of management plan development. The approach to stakeholder involvement will vary greatly depending on the site, the number of stakeholders, their involvement or “stake” in the area, the ownership and management authority of the area, the complexity of the situation, and many other factors. At some sites, you must engage a broad range of stakeholders in the entire planning process or they may undermine your decisions. At other sites, the authority of the community or the agency is so strong that stakeholders need only be informed about the decisions that are being made for the area. It is very important to talk with a wide variety of stakeholders to get a sense of their concerns and ideas before you start the management planning process. Once you have that stakeholder input, it is generally more effective for the management planning process to be carried out by a team of designated individuals. If stakeholders have been afforded an opportunity to provide input, they are typically quite happy for a planning team to develop the plan. After the draft plan is complete, however, it is very important to loop back in with all the stakeholders so they can review the plan. A wide range of options for stakeholder engagement exists, including the following:

1. Detailed involvement of all major stakeholder groups in the planning process. This approach has been used in some managed areas. However, it can often degrade into a very unproductive process due to the difficulty of developing a plan with a large group.
2. Input sought from stakeholders through focus groups with a smaller planning team developing the Plan. After a draft is complete, the stakeholders will have a chance to review it. You may or may not have stakeholder representatives on the planning team.
3. The community or agency has a high degree of authority, so they choose not to consult outside stakeholder groups. In this case, the planning team may chose only to inform various groups about the decisions in the plan.

Typically the second approach is the most likely to lead to success. However, the devil is in the details. You have to think very carefully about how many focus group meetings you should have, how often you should inform stakeholders about your progress, and how many opportunities outsiders should have to provide feedback on the plan. In most MMAs, the more effort you spend involving and reacting to stakeholder concerns, the better your chance of getting true buy-in and compliance with the plan’s regulations.

B. Facilitation Suggestions

The stakeholder discussion is best held with the entire planning team present. The discussion should happen one of the very first steps in the planning process.

¹ Taken from PIMPAC Information/Worksheet Two. This is also in LEAP, Worksheet #3

WORKSHEET: INVOLVING STAKEHOLDERS

(1) Fill out the following worksheet to clarify the stakeholders for your MMA and how you will involve them in the management planning process.

EXAMPLE:

What are the main groups of people involved in the area?	Describe their interest in the area	Describe the validity of their interest or “stake”?	How important is this group to the planning process?	How would you like to involve them in the planning process?
Local Community Members	Clan ownership of many of the resources. Recognized resource use rights	Highly valid. They have had a role in the area for generations	Very important.	Community visioning process, regular community meetings, feedback opportunities during the development of the plan.
Fishermen from other villages on the island	Historically they would fish in the area only by asking permission. Now they often fish without asking permission	Low. Historically we would not deny them access as long as the stock was healthy. Now they come in without asking.	Medium. They may choose to not follow the rules unless they are involved. But they have little valid stake in the area.	Ask them for their input on the actions and the rules. Inform them of our decisions, pointing out how we have involved their concerns
Illegal fishermen from the Philippines	Sharking fining, tuna fishing, catching turtles, etc.	None. They are fishing completely illegally in the area.	Not important.	Inform them of the rules once established. Enforce when necessary.
Commercial SCUBA operators	Taking tourists into the MMA to dive	Some of them have permits to operate. Others have no legitimate stake but have invested funds	Important as they have a strong lobby with the government.	
Enforcement agency	They are mandated to enforce the rules of the area	High. Once rules are law, they must enforce them.	Very important. We need to know what is practical in terms of enforcement.	Ask for their input early on and invite them to key meetings.

INVOLVING STAKEHOLDERS

What are the main groups of people involved in the area?	Describe their interest in the area	Describe the validity of their interest or "stake"?	How important is this group to the planning process?	How would you like to involve them in the planning process?

A5 Terms of Reference Template for Local Resources Committee Template

Terms of Reference for _____ Atoll Local Resources Committee Template

Representatives of the Committee

The _____ community has established a Local Resources Committee that comprises of:

- 2 representatives from women
- 1 representatives from men
- 2 representative from Local Government Council
- Mayor or designee
- Fisheries Officer/Conservation Officer (ex-officio)
- 1 Youth
- 1 *Iroij*
- 1 *Alab*
- *Subject to change considering makeup of community

8.2 Responsibilities of the committee

The committee will be responsible for the overall administration and operation of _____ Fisheries/Resources Management Plan. Its specific tasks include-

- i. Election of a Chairman, Vice Chairman and Secretary of the Local Resources Committee. A term will consist of two years.
- ii. Develop an annual work-plan to guide the yearly implementation of the plan activities and to the achievement of its objectives.
- iii. Make sure that the responsibilities of the community under the plan are properly carried out and be completed in a timely manner.
- iv. Work closely with MIMRA and follow up MIMRA's obligations under its responsibilities so that they are carried out in a timely manner.
- v. Report the progress on the development of the Fisheries/Resources Management Plan to the community and _____ Government Council from time to time or when required.
- vi. Arrange and organize community workshops and gatherings as required under the responsibilities of both the community and MIMRA/CMAC.
- vii. Represent the interest of _____ community in national and regional gatherings in matters concerning marine environment and fishery resources.
- viii. With assistance from MIMRA/CMAC, initiate and establish processes that lead to the formulation and approval of Fisheries Management Ordinances as required under the Fisheries Management Plan and Section 50 of the Marine Resource Act 1997.
- ix. With Assistance from MIMRA, determine conditions and licensing fees for consideration and approval of the Local Government Council.

A6 *Reimaanlok* Socio-Economic Survey

Name of Surveyor:

Survey Number _____

Date:

Site:

Location:

Start time:

End time:

Demographics:

Please choose one:

Male

Female

1. How many people live in your household?

a. How many fishers?

Answer #17 - 18

b. How many farmers?

Answer # 25-26

c. How many handicraft makers?

Answer # 27-28

d. How many children?

2. What is your religion?

• Assembly of God

• BNJ

• 7th Day Adventist

• Atheist

• Mormon

• Full Gospel

• Baptist

• Protestant

3. May I ask how old you are?

4. Are you currently employed?

5. What is your occupation?

6. What is your main source of income?

Salary

Fishing/Seafood Collection

Agriculture (crops and livestock)

Others (handicraft, etc.) _____

7. What is your highest level of formal education completed?

- Elementary (1-6)
- Junior High (7-8)
- High School (9-12)
- Some college
- College degree (undergrad)
- Graduate school
- No formal education

Marine:

If there's fisher...

8. What are your main fishing methods? List down 5

- a.
- b.
- c.
- d.
- e.

What fishing gears do you use? List down 5

- a.
- b.
- c.
- d.
- e.

9. What are your targeted species? List top 5 reef fish, and top 3 pelagic fish

Reef fish

Pelagic fish

- a.
- b.
- c.

- a.
- b.
- c.

d.

e.

10. What type of boat(s) do you own? (Skip if none)

Canoe

RFP Boat w/o engine

RFP Boat with engine

11. How often do you go fishing? _____ per week/month/year
Daytime/Nighttime/both

12. How much fish do you catch per trip? _____ lbs

13. Catch breakdown: _____ % sale and _____ % self-consumption

14. From fishing, how much do you earn per week/month/year? \$ _____

15. How often do you sell your catch? _____ per week/month/year

16. Where is your market?

Majuro Within Community

Ebeye Other

17. Where is your main fishing area?

Lagoonside

Oceanside

Channels

*END OF QUESTIONS FOR FISHERS

18. What activities do you participate in _____?

Fishing

Gleaning

Diving

BBQ/Picnic

Swimming/Snorkeling

Walking/Running

Camping

26. Kwoj lale ejjiban ke kilen am mour? Aet: _____ Jab: _____

*Questions for handicraft makers

27. Ilo am bok men in jeramon ko jen amimono kwoj itta kake?

- a.
- b.
- c.
- d.
- e.
- f.

28. Wojke rot ne ekka am amimono kake? Types of trees used for handicraft

- a.
- b.
- c.
- d.
- e.
- f.

Status:

29. Are you aware of any resource management measures that are in place?

Notes:

	Yes	No	Not Sure
MO/MPA			
limits on catch			
collection season for fish			
collection season for invertebrates			
replanting native trees			
shoreline replanting			
species protection			
livelihood programs			
zones			

30. Where do you get information about the environment?
- Newspaper
 - Radio
 - TV
 - Brochure
 - Informational Signs
 - Community members
 - Community meetings
 - Work
 - Other
31. Have the following been experienced?
- Coastal Erosion
 - Run-offs
 - coral Bleaching
 - Sea temperature rising
 - Less fish
 - More seaweed
 - Sea Level rise
 - Increased frequency/intensity of extreme weather
 - King tides
 - Decreasing rainfall
 - Terrestrial Invasive Species
 - Marine Invasive Species
32. What kind of access to freshwater do you have? Check all appropriate
- Water catchment tank
 - water well
 - water bins
33. Kwoj lale elon ke men raan kein rej oktak jen kar mokta ilo site?
(Do you think there are changes now than before?)
34. Ilo manit kein ad, ewor ke bunten ko nan kojberbal im kejbarok menin jeramon ko ilo lojet kab ion ene? (To your understanding, do we practice conservation in our culture?)
- AET
 - IAB
- Aet, bunten ko:
35. Ne ear wor juon am mo, kwon kar likut ia bwe armej ren jab ennod ie im ewi toon?
(If you had MPA, how long would it be for?)

A7 Draft Outline of Climate Change Indicators to Use in Reimaanlok Plans and Priority Baseline Needs

Note: Since Reimaanlok is a community-based plan, it is important to let the community understand the value of the indicators and decide if they want to collect and use the information produced. Sites may share core indicators but vary with others.

Climate Characteristics	Indicator of Climate	Tool Used to Collect	Indicator of Impacts	Tool Used to Collect*
Sea Level Rise	National SLR Gauge	National Data Source	Saltwater intrusion to wells and crops	Mapping, Timeline, Visual Survey
	Historical Landmarks	Field Survey; Focus		
Precipitation	National Rain Gauge	National Data Source	Drinking Water Quality	Focus, Mapping, Visual Survey
	Historical Storms Locally	Focus	Drinking Water Quantity	Focus, Mapping, Visual Survey
	Historical drought or typhoon	National Data Source	Water Storage Methods	Focus
			Drought Tolerant Crop Variety	Focus
			Fisheries Target Species	Focus, Mapping, Visual Survey, Timeline
			Catch per Unit Effort	Focus
Temperature	NWS Sea Temperature	National Data Source	Spatial Extent of Habitat	Mapping
	NWS Air Temperature	National Data Source	Health of People	Focus
			Heat Tolerant Crops	Focus, Mapping
Storm Intensity	NWS Historical Storms	National Data Source	Erosion	Focus, Visual Survey
	Local Storm Record (date severity and impacts)	Focus, Timeline, Mapping	Flooding	Focus, Timeline
Acidification			Coral Bleaching	Underwater Survey

* Tools used for collecting data include Focus Groups (i.e. resource mapping, historical timelines, seasonal calendar, problem solution tree); one-on-one interviews (i.e. key informant interviews, catch per unit effort, socio-economic survey, perceptions) and field study (i.e. underwater visual census, field surveys, measurements).

A7: PRIORITY INFORMATION BASELINE/INDICATOR NEEDS

Process for identifying information and indicators

1. Identify the key management questions. For instance, do you need to understand a problem or effectiveness of action?
2. Identify key indicators that the community trusts or information they want to know
3. Develop realistic monitoring methodology (Community-based and Professional judgment)
4. Train locals to collect and analyze data

The lists below provide examples of key information that may be useful for management related to different themes or areas.

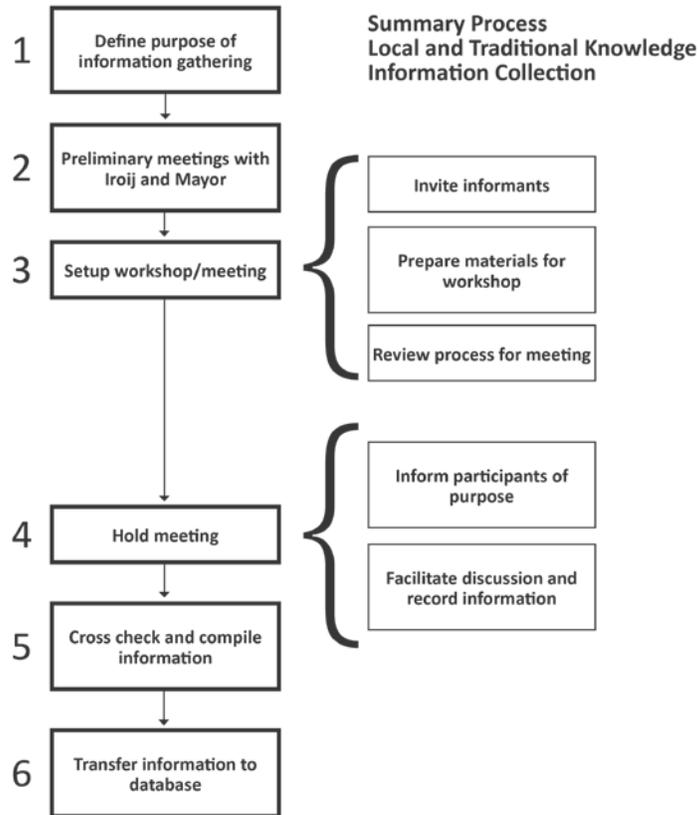
Marine Resources	Coastal Resources	Terrestrial Resources	Climate Trends
<ul style="list-style-type: none"> • Seagrass • Coral % Cover & bleaching • Important ecosystems or fisheries • Clams • Target Fishery • Fin fish • Invertebrates • Catch per unit effort • Seamounts • fishing areas • spawning areas • recreational areas/human uses • any other marine uses • MPAs: Fish inside vs. out; Habitat health in vs. out 	<ul style="list-style-type: none"> • High tide • Low tide • King high tide • Erosion areas (rate) • Accretion areas (rate) • jetty/ports/harbors • type of coast • beach • mangrove • vegetated areas • seawalls (horizontal/vertical) • tide pools • flood inundation (where, when) 	<ul style="list-style-type: none"> • Freshwater lens boundary • mangroves • land use • crops • housing • schools • cultural sites • drinking water quality (salinity, parasites) and quantity 	<ul style="list-style-type: none"> • Sea level (using a tide gauge) • Rain patterns • Date and intensity of historic storms and extreme weather events (storms, droughts, heavy rainfall) • Sea temperature • Air temperature • Acidity of water • Drought tolerance • water usage rates • El Nino patterns

STEP 4 - COLLECTING AND MANAGING INFORMATION

A8 Guidelines for Collection of Local and Traditional Knowledge and *mo* in the Marshall Islands

Purpose of these guidelines

This document outlines key steps and guidelines for the collection of local and traditional knowledge on natural resources in the Marshall Islands. It was developed by local facilitators of natural resource management planning through a workshop in December 2006, and then was tested and refined through the process of collecting local and traditional knowledge to build the Marshall Islands Conservation GIS from January to May 2007. This document forms part of a larger toolkit for community-based conservation and resource-management planning in the Marshall Islands and should be adapted and added to on an ongoing basis.



Process Steps

1. Define Purpose of Local and Traditional Knowledge Collection

There are various reasons for the collection of local and traditional knowledge on natural resources in the RMI including:

- a. Identification of places and species that should be targets for conservation and management;
- b. Empowering communities and encouraging their participation in developing resource management plans for their atolls, including conservation plans and fisheries management plans, by acknowledging the existence and value of their knowledge; and
- c. Documenting and guarding against the loss of traditional knowledge and resource management practices as part of Marshall Islands heritage.

Prior to a process for collecting information, it is important to be clear about the purpose and uses of the information. This will influence the following process. Consider the questions:

- What will be done with the information? How will it be used?
- Where and how will the information be stored?
- Who will have access to the information?

2. Preliminary Meetings with *Iroij* and Mayor

The appropriate way to access the community is through traditional and elected leaders. In addition, these leaders may themselves have good knowledge of the resources on their atolls. In particular, the *Iroij* is a key source for information about *mo*.

Preliminary meetings with the *Iroij* and Mayors should be held with the objectives:

- To fully inform them of the purpose of the information gathering,
- To gather preliminary information on resources and *mo*, and
- To gain access to knowledgeable people from their communities.

More than one meeting will probably be required in order to meet all these objectives. Meetings may also include advisors and representatives of the *Iroij* or Mayor.

3. Setup Workshop/ Meeting

a. Invite informants

Make sure informants know the date, time and location. Make reminder phone calls. Direction from the Mayor or *Iroij* to the informant will be helpful to ensure the informant has the authority to give information.

b. Prepare materials for workshop

Arrange for maps or charts of the atoll for the workshop.

Small format maps may be generated from the Marshall Islands Conservation GIS. Large format maps may be printed by RMIEPA or nautical charts may be used.

Prepare forms for recording of the information.

Simple data sheets are included in the toolkit or more detailed data sheets can be developed on an as-needs basis.

Suggested materials:

- Map
- Markers/ pencils
- Handouts of purpose of information gathering in Marshallese language
- Refreshments

c. Review the process for the meeting

Who is the facilitation team? Is it one person? A pair? Determine who will be facilitating the discussion and who will be recording.

It is often useful to have two people recording the information as different people will hear different things gives you more complete information at the end when you compare. Can the facilitator also record the information? Should you debrief and review information directly after the meeting and capture anything that was not written during the meeting?

Who are your informants? How are they likely to interact? Do you need to separate groups (men/ women, traditional leaders/ dri-jerbal)?

Make sure you have agreed roles and know the process for the workshop/ meeting.

4. Hold Meeting

a. Inform participants of purpose

It is very important that informants/ participants understand the following:

- The larger context of the information gathering- what is it being used for? What is it a part of?
- How will the information be used? What happens to the information?
- Who will have access to the information?

This needs to be explained very clearly up front in order for the informants to have trust in the process, and also for them to decide what information to reveal and what to keep to themselves.

In this case, the context of the information is that we are working with communities and leadership to collect information for use in conservation/ resource-management planning. This is to assist the RMI to manage the resources sustainably. It DOES NOT mean that the national government will be declaring any protected areas or restrictions. This will always be done through the local community and local leadership. The information the informants give us will help identify species and places of importance in terms of biodiversity. The information will be put into a document and a database and will be accessible to government agencies and those people interested in conservation and resource management in the Marshall Islands.

Sensitive Information As the information collected is difficult to keep confidential; we do not wish to know the precise locations of special fishing areas or fish aggregation sites, or other very

sensitive information. The informants may be willing to indicate a range or vicinity in which fishing and fish aggregation sites occur. When information collection is done in more depth at the atoll level, while developing management plans, this sensitive information may be discussed more openly. The use and dissemination of this information may be restricted only to the community of that atoll in line with their wishes, or it may be added to the Conservation GIS and made more widely available.

b. Facilitation

Good facilitation is critical to the process of information gathering to ensure good quality of information and also to effectively engage the community and informants in the management of their resources. Some key elements of effective facilitation include:

- **Appropriate dress**
- Create an environment of **openness and trust**
- **Encourage participation** and engagement- watch your participants and make sure no-one is “dropping out”
- **Body language**- open, relaxed
- **Questioning**
 - *Open questions* to invite detailed responses
 - *Closed questions* to confirm
 - Be careful to not ask *leading questions*
- **Paraphrasing**- repeat back to the person what they said, using different words and then ask for confirmation “is that what you mean? Is there something you would like to add to that?”
- **Use the map** as a focus for discussion- and ensure you draw out all the relevant information through discussion.

Opportunities for the development of facilitation skills and training should be pursued.

c. Record Information

In general, spatial information will be recorded on a map, and a detailed data table will accompany the spatial location.

d. Cross-check and compile information

After each meeting, cross-check information with your co-facilitator and agree on the information collected.

If several meetings are held around the same atolls and resources, cross-check the information between meetings and different informants.

e. Transfer Information to Conservation GIS

A procedure for entering information into the Conservation GIS is to be developed.

Information to be targeted for collection:

Marshallese Names

Check names of islands, reefs and other atoll features- spelling etc.

Background Socio-Economic Information

What are your main sources of food? (local harvest, imported, marine, agricultural)

What are your main sources of income? (fishing, copra, handicrafts, medicine, store, remittances, etc.)

Biodiversity

In general, local knowledge of locations, species, seasons and relative abundance will be extremely valuable in identifying areas for conservation focus. Information gathering on biodiversity will target:

- a. **Threatened species** (of global conservation importance);
- b. **Species of local economic importance** (i.e. commercial and subsistence fisheries, food, handicrafts, medicine, sport fishing and diving attractions where applicable)
- c. **Species of cultural significance** (i.e. those with stories “*bwebwenato*” attached, medicinal plants).
 - What species are important? (note: prompt for known species of cultural/ economic importance)
 - What species of fish spawn in the atoll?
 - Where are they located?
 - When is the season?
 - How many/ abundance? Has abundance of species changed? How?

Include consideration of:

- Turtles- Where are nesting beaches, feeding areas? What species? What time of year do they nest/ feed? How many?
- Reef fish- Where are spawning aggregation areas (not specific locations)? What species? What time(s) of year? Abundance?
- Transient fish- Where are spawning aggregation areas? What species? What time(s) of year?
- Coconut crabs- Where are the areas of high abundance?
- Giant clams- area of high abundance
- Trochus/ shells- area of high abundance
- Sharks
- Bird- species, location, seasons, abundance
- Napoleon Wrasse

Resource Use

Identify all main forms of resource use including:

Fish

Shellfish

Turtle

Birds

Sand, aggregate/ rubble

- What is harvested?
- Where is it harvested?
- Is it for household use/ trade/ sale or for commercial use?
- When is the harvest time? What time of year? Every year? Special occasions? How often?
- How is it caught/ harvested? What fishing gear is used? (e.g. what fishing method? turtles taken in water or on beach?)
- How are medicinal plants, pandanus coconut harvested?
- Who harvests it? (division of labor between men and women? youth?)
- Traditionally, who is allowed to harvest?
- Why is it harvested? What is the purpose of the harvest?
- How do you use it?
- Where do you NOT go fishing (because it is too far)?
- Where is there ciguatera?
- Where do you catch the most fish? Where are the main fishing areas? (Where are the best fishing spots?)
- Are there commercial fishing activities?
- Where are the recreational sites?

Environmental Issues/ Threats

- What? (e.g. dredging, erosion, waste, illegal/ over fishing, forest/ wood collection)
- Where does it occur?
- Who is carrying out the activity?
- Why is the activity occurring?
- What species are declining? Describe the decline.

Special/ sacred places, mo (taboo)

- Where are the special places?
- What elements comprise mo? What rules are there?
- What are the stories of the special place?
- Who controls the place? Who are the Iroij and Alap? (How long and why?) Who makes decisions about mo?
- How do you take care of this special place mo?
- Does mo ever get relocated?

- What is the status (i.e. do people know the rules and respect them?) Do people know the rules of the *mo*? Do people observe the rules of the *mo*? Are the rules enforced? By who? (Can you rate/describe the extent of your traditional management efforts?)
- When visitors come, do you tell them about special places?
- Where are you not allowed to go?
- What species are abundant at the *mo*? What types of resources are in the *mo*?
- What traditional *bwebwenato* are there with regards to water and land? Where is the *bwebwenato*?

Current Conservation Practices

- Are there any conservation practices in place?
- Are there any local ordinances or community rules relating to fisheries or conservation?
- Are there any traditional conservation/ management practices being used? What, where, how?

It will take a long time to cover all these questions and discussions with informants and groups within the community. Consider breaking this discussion into parts and exploring them on different days during a community visit. Use this list as a checklist to guide your discussions.

A9 Rapid Ecological Assessment, Participatory Aquatic Resource Transect²

Objectives:

Provides similar information to the resource map. So this is optional. The matrix shown below could also be used to guide questions while conducting the resource map.

- a. To characterize the habitat types and important (“keystone”) resource species found within the coastal waters/island of the area being locally-managed; and
- b. To identify common marine resource uses, issues and opportunities within the local area.

Description

A descriptive assessment of the makeup, uses and status of the local marine habitat types and resources, based on the visual observation of a group of people walking along a straight line across a specified cross-section of nearshore environment.

Process

1. Make a map of the area beforehand and prepare a list or matrix of priority topics for the transect (for example, flora & fauna, bottom type, village use, cash use, keystone resources, traditional management, resource issues, opportunities and solutions – see **Table** below).
2. Explain to participants the purpose and steps of the activity. Ask them where they harvest resources and have them suggest one or more sites to do the transect, covering as many ecological zones and use areas as possible.
3. Once agreed, proceed along the transect, taking time within each zone to discuss and answer the questions. If you meet other community members along the walk, use open questions to find out more about their use of the resources in the area.
4. At the end of walk, work as a team to compile the information onto flip charts for presentation at a larger community meeting.
5. When recording the information, it is important to keep a copy of the transect data matrix produced, and main points discussed on these topics.

Pointers

This exercise can take much longer than most others – up to a day – and is prone to bad weather or other logistical problems, so plan accordingly.

Samples – See the PCRA Handbook for an example.

² adapted from LMMA, WWF Climate Witness, and Participatory Coastal Resources Assessment (PCRA)

Resources:

Local Marine Managed Areas (LMMA). www.lmmanetwork.org/files/lmماغuide.pdf

Participatory Coastal Resources Assessment.

http://oneocean.org/download/db_files/pcra_training_guide.pdf

www.sprep.org/att/IRC/eCOPIES/Pacific_Region/229.pdf

WWF Climate Witness. www.panda.org/climatewitness/

Sample Participatory Aquatic Resource Transect (PART) data matrix

	Mangroves	Mudflat/ Seagrass	Patch Reef	Fringing/ Fore Reef	Lagoon	Barrier Reef
Flora & Fauna						
Village Use						
Cash Use						
Keystone Resources						
Traditional Management						
Resource Issues						
Resource Opportunities						

Table 3: Participatory Aquatic Resource Transect data matrix. Example of a PART data matrix used by FLMMMA to organize data collecting during PART.

A10 Baseline Rapid Assessment of the Natural Resources Methodology³

Objective:

- To know what's there and how healthy is it
- To know what's there and then later be able to compare
- To have a baseline to measure the effectiveness of future resource management
- Education and awareness for the community (i.e. special biodiversity areas of national or international significance)

Method:

- 50 m transects
- Depths (10 -15m and 2-5m)

Recording:

- Benthic cover (every .5m = 100 points per transect) or Line intercept
 - Macro algae
 - blue
 - Sponge
 - Soft corals
 - Hard corals (live or dead and rubble)
- Fish (5m either side)
 - Size
 - Numbers
 - family
- Invert (5m either side)
 - Lobster
 - Triton
 - COT
 - Cukes (email KIM/Manu on target species between 5-15m)
 - Clams (species)

Regarding species list for fish and invert, **ask the community what has been declining or what they usually target (specific study for one atoll) or whatever to establish a *spp.* list. Otherwise, I'll just grab it from the NRAS list and take out the not so useful ones. Of course we'll be keeping the Indicators (butterfly family, angels family and SHARKS species, size and out of the transect). Specific species that are considered endangered/declining.

³ Adapted from Socio-Economic Fisheries Surveys in Pacific Islands: A Manual for Collection of a Minimum Dataset Survey Methods. http://www2008.spc.int/DigitalLibrary/Doc/FAME/Manuals/Kronen_07_SocioFishSurveys.pdf

Campaign _____ Site _____ Diver L R Transect _____

D _____/_____/20____ Lat. _____°____'____'' Long. _____°____'____''

Time: _____:____:____ Moon phase: Tide:

	current	exposure to dominant wind	oceanic influence	terrigenous influence
none				
medium				
strong				

Visibility: _____

Draw profile & include slope in degree

Flat Floor
Gentle slope Steep slope

<input type="checkbox"/> hard bottom	<input type="checkbox"/> detrital bottom
<input type="checkbox"/> coral field	<input type="checkbox"/> seagrass bed
<input type="checkbox"/> coral patch	<input type="checkbox"/> seaweed bed
<input type="checkbox"/> other	

Depth :
Crest side : Floor=transect depth
Slope side : Crest=transect depth
Topography (regardless of surface orientation):
1 : no relief, 2 : low (h<1m), 3 : medium (1<h<2m)
4 : strong (2<h<3m), 5 : exceptional (h>3m)
Complexity (quantity and diversity of holes and cavities): 1 : none, 2 : low, 3 : medium, 4 : strong, 5 : exceptional
Hard coral (dead & live) : Coral attached to substrate with an identifiable shape (otherwise it's abiotic)
Rubble : any piece or whole coral colony of any size that is not attached to substrate.

		0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50
	Depth of transect line (m)										
	Slope only: Depth of floor (m)										
	Line of sight visibility (m)										
	Topography (1-5)										
	Complexity (1-5)										
Biotic origin	Coral rock (Slab)										
	Boulders (> 30 cm)										
	Rubble (< 30 cm)										
	Sand										
	Live coral ⁽¹⁾										
	Bleached coral ⁽¹⁾										
	Dead coral covered in algae ⁽¹⁾										
	Silt covering corals										
	Soft invertebrates ⁽²⁾										
(1) Hard coral shape	Encrusting										
	Massive										
	Sub-massive										
	Digitate										
	Branch										
	Foliose										
	Tabulate										
(2)	Sponge										
	Soft coral										
algae	Macro-algae (soft to touch)										
	Seagrass										
	Cyanophyceae										

Complexity

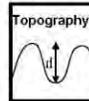
1 : none

2 : low

3 : medium

4 : strong

5 : Exceptional



A11 Woja Reserve Example

Objective:

- To know what's there and how healthy is it
- To know what's there and then later be able to compare
- To have a baseline to measure changes from no-fishing

Method:

- LAGOON: 2x4x50 m transects: 4 **snorkeling**, 4 **scuba-diving** transects
 - Depths (**snorkel**: 1 -2m and **scuba diving**: 2-10m), perpendicular to coast
 - 2 **scuba-dives** per day and 2 **snorkel** per day
 - Keep dive and snorkel the furthest possible, for ex.: 1-3, 3-1, 2-4, 4-3
 - Record the species name, abundance, body length of all fish visible along 50 m transect; the transect consists of a 50 m line, represented on the seafloor by an underwater tape. Two divers are required to conduct a survey, each diver counting fish on a different side of the transect.
 - Fish are recognized by the local name if not possible in English
 - Trained divers from MIMRA will assess the substrate at the beginning, and then every 6 months ⁽¹⁾
 - RULES:
 - Choose always full moon and new moon (twice a month)
 - Do the transect at the same tide (highest tide, 2 hours slack period)
 - Use as much as possible the same divers, 2 per transect
 - Records fish as local names
- OCEAN: 4 **sampling fishing spots** on the reef crest (lines) and on the reef flat (throw net):
 - Use same bait
 - Fish always at the same moon phase (full moon and new moon) and time of day (half an hour before the sun sets)
 - Every spot should be fished for ½ hour exactly, independently to the success of catch, and then the fisherman should move to the next spot and fish for the same length of time and so on for the 4 spots of each fishing method
 - Line and net should always be the same: same thickness and hooks and baits for line fishing and same mesh net for throw net
 - Fish caught should be
 - Numbered by fish name
 - Weighed by fish name
 - Measured by individual (fork length, FL)
 - Sex should be determined
 - Stage of maturity of gonads should be taken: this is a very important observation that gives information on the reproductive period of each fish type. It will help in a second phase of the management when fishing is permitted but forbidden during reproductive seasons for specific fish. The 7 maturity stages are described in Table 1.

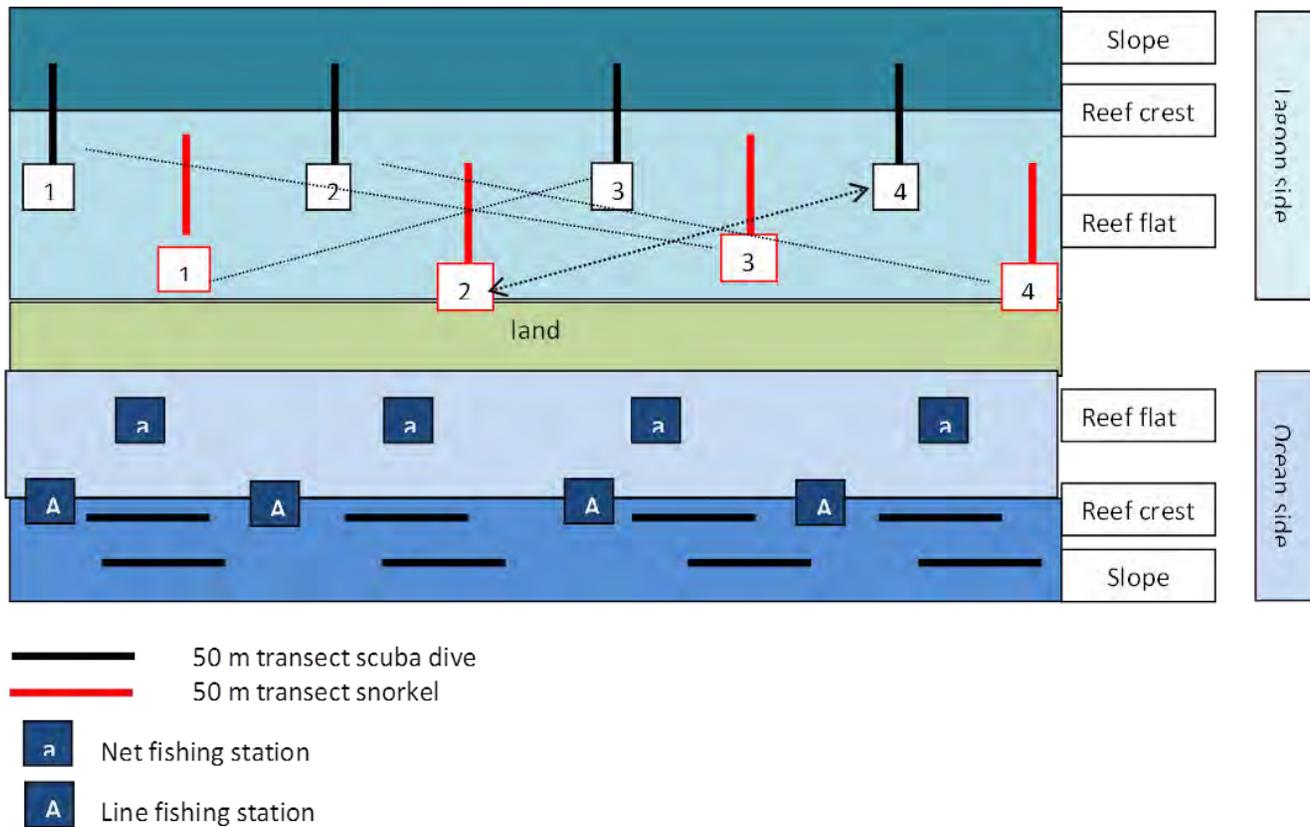


Table 1: Classification of different stage of gonad maturity

stage	males	Females
0	undetermined	undetermined
1	Slightly flowing when belly is open	Granulated aspect
2	Flowing when belly cut	Eggs start to detach
3	Flowing when pressing belly	Eggs come out when pressing belly

⁽¹⁾ Substrate:

- Benthic cover (every .5m = 100 points per transect = Line intercept is quick and easier for community work, but better to do % cover on 5x 5 m squares on each side of tap: easy for trained people but not for community work). Record:
 - Macro algae (all green, brown and red algae, coralline and not)
 - Blue-green (cyanophyceae)
 - Sponge
 - Soft corals
 - Hard corals (live or dead, bleached if present)
 - Sand
 - Rock
 - rubble

- Fish (5m either side; for community, BUT for trained people do distance sampling, therefore record distance of fish as well as number and size)
 - Size
 - Numbers
 - Family (or local names)

- Invert (5m either side)
 - Lobster
 - Triton
 - COT
 - Cukes (email KIM/Manu on target species between 5-15m)
 - Clams (species)

A12 Socio-Economic Baseline Assessment and Monitoring Plan Worksheet⁴

Purpose: A socioeconomic assessment generates baseline information on the demographic, socioeconomic conditions of the community and their relationship with the natural resources.

This information helps your team better understand different aspects of the community and identify priorities that should be considered for adaptation and management planning. It can also highlight areas and extent of community vulnerability to climate events and impacts, and their ability and potential to adapt. As socioeconomic assessments are repeated over time, the baseline becomes crucial for monitoring changes in the community as a result of coastal and natural resource management intervention or climate change adaptation activities. Understanding these changes allow for evaluating and improving of existing resource management or climate adaptation strategies and activities. In climate adaptation, socioeconomic monitoring should become a part of an integrated monitoring framework, in which data on climate, physical and biological conditions and impacts, are all taken into consideration.

There are different indicators and variables that can be included in a socioeconomic assessment. To make sure that you select the indicators most useful and relevant to your site, it is important that you first develop a set of assessment objectives. Ask yourself what information do you need to better understand your community when you do your management planning or develop climate adaptation strategies. The assessment objectives help you to stay focused and will serve as your guide for the rest of your assessment.

This section does not provide detail description of socio-economic assessment methodologies as there are several guidance documents that are tailored to provide this specific information

Participants: Planning team and key community members who are interested in supporting monitoring activities

Materials Needed: Computer or pen/paper, any biological information previously collected, assessment and monitoring methodology resources,

Time Requirement: 2-3 hours

⁴ Coral Triangle Initiative (CTI) Climate Change Adaptation Toolkit; Tool 6: Quick Reference Guide on Methods to Monitor Climate Impacts and Effectiveness of Adaptation Actions

SOCIO-ECONOMIC BASELINE ASSESSMENT AND MONITORING PLAN⁵

Instructions

An entire plan for conducting the socio-economic assessment should be developed and agreed to with community leaders before the assessment is initiated. Detailed guidance on how to develop and conduct a socio-economic assessment is available through several guides⁶.

Steps involved in socioeconomic assessment generally include:

1. Identify target community to be assessed and/or monitored
2. Define assessment objectives. Ensure that the data you collect will turn into information that is useful for your management and adaptation planning
3. Identify indicators related to the assessment objectives
4. Prepare for the assessment (form an assessment team, develop work plan, budget allocation, reconnaissance visit, audience analysis for assessment results)
5. Select data collecting methods that are appropriate to collect the data on your indicators and are possible with your team capacity. If you plan to do surveys and need to draw a sample from the population, make sure that you use a proper sampling design to allow for data that will statistically represent your population.
6. Analyze and interpret collected data. It is recommended that you present the data back to the community, from who you collected the data, to inform them of and validate your findings. Make sure that you meet the objectives of your assessment.
7. Communicate your results. Develop a communication plan, specifying your target audience, communications purpose, means to reach and communicate with them, schedule, people in charge, and communication product which may include reports, summary sheets, presentation slides, posters, etc.
8. Use key socioeconomic information to plan or adapt your management. Whenever possible, integrate the socioeconomic information with data from other types of assessment/monitoring,

5

SEM-Pasifika (Socioeconomic Monitoring for Coastal Managers in Pacific Island Countries, www.socmon.org/download.ashx?docid=A0000003799_1)

Indicators to assess community-level social vulnerability to climate change: An Addendum to SocMon and SEM-Pasifika regional socioeconomic monitoring guidelines www.socmon.org/download.ashx?docid=64623

Socioeconomic Fisheries Surveys in Pacific Islands: a Manual for the Collection of a Minimum Dataset, www.spc.int/DigitalLibrary/Doc/FAME/Manuals/Kronen_07_SocioFishSurveys.pdf

Socioeconomic Assessment Guidelines for Pacific Adaptation to Climate Change (SEA-PACC) www.sprep.org/climate_change/PACC/reports_detail_country.asp?id=835

A Framework for Social Adaptation to Climate Change: Sustaining Tropical Coastal Communities and Industries, <http://data.iucn.org/dbtw-wpd/edocs/2010-022.pdf>

such as biological data, and draw conclusion that integrates learning and lessons from different types of data sets.

Your assessment objectives are specific statements detailing the desired outcomes of your assessment – what knowledge you hope to gain. These objectives are the *purpose* of doing the socioeconomic assessment and monitoring. They should be:

Relevant to management objectives

Based on interests and needs of the stakeholders (managers and users)

Impact oriented, time limited, specific, practical, measurable

Use the space below to list *your* management objectives, and how the objectives of your socioeconomic assessment link to these management objectives.

Management Objectives



Assessment Objectives

Management Plan Objectives (socially focused)	Socio-Economic Assessment Objectives

Key Question	Answer
Target Community/Area	
Summary of Previous Assessment work	
Gaps in information	
Priority Social Resources	
Assessment Objectives with Indicators	
Assessment Team member with expertise	
Data collection methods	
Capacity needs	
Activity Timeline (develop on separate calendar format)	
Equipment and supplies needed	
Budget and sources of finance (develop on separate budget format)	
Data analysis method	
Communication approach	

A13 Developing Benchmarks Relative to Sea-Level

Benchmarks

For the purposes of assessing the risk of flooding to buildings it is important to be able to relate land levels to the level of the sea. When you conduct multiple surveys through a village it is necessary to relate the levels between each profile to a common level (datum) so that all the levels are comparable. To do this we use benchmarks. Benchmarks are an identifiable feature whose position does not change through time. This means we can go back to the same point in the future and we can be confident it has not changed. Often, this will be some form of concrete or steel structure fixed firmly into the ground (e.g. fence post or edge of concrete slab).

Be careful with making or selecting benchmarks. A coconut tree might seem like a sturdy safe spot to use as a benchmark, but will it be there in 3 months? 6 months? 5 years?

It is also important to record where these benchmarks are located for future reference. To mark a benchmark you can: take a photo, etch a number on the concrete or post, take a GPS location, or write a description and draw a diagram. Ideally you would do all of these things.

Calculating elevation relative to water level

This method of calculating elevation is useful as it allows you to show height of land and buildings relative to **mean sea level** (MSL). If we can do this we can then examine how changes in sea level might affect the frequency of flooding of land and buildings. However, this method is best used for atolls where there are tidal predictions available (most but not all RMI atolls). This method also involves more preparation and analysis, but the effort is worth it, especially if you take the extra steps to calculate MSL and the spring high water elevation (**see additional notes**).

1. Produce a tidal curve based on tidal predictions for the atoll. Tidal predictions are found online at http://tidesandcurrents.noaa.gov/tide_predictions.shtml?gid=352
2. Using Excel produce a graph of the tidal predictions for the period in which you are undertaking your assessment. The tidal levels are relative to Mean Lower-Low Water (MLLW). It is best to work in meters as the survey equipment works in the metric system (Figure 1).
3. When in the field, go to the water and mark the level and record the time (insert a strong stake or piece of rebar to mark this point). It is best to take a 2-3 minute average of water level, over a 2-3 minute period come up with a best estimate for what the **still water level** is. This is best done in the lagoon, the calmer the water the easier it is to establish the still water level.
4. Using the dumpy level establish the elevation of a position on land relative to water level (Figure 2). You will want to establish a benchmark on the land; this is often a stake, a piece of rebar or a bolt inserted into concrete. It often pays to have 2-3 benchmarks in case they are destroyed or get moved.

Using community water level

If there are no tidal predictions available for the area of interest it is possible to establish elevation relative to the last high tide which is usually the freshest washed up line of debris. If community consultations indicate a level of the highest tide (i.e. “the tide came up to this tree”) then it is possible to survey relative to this level.

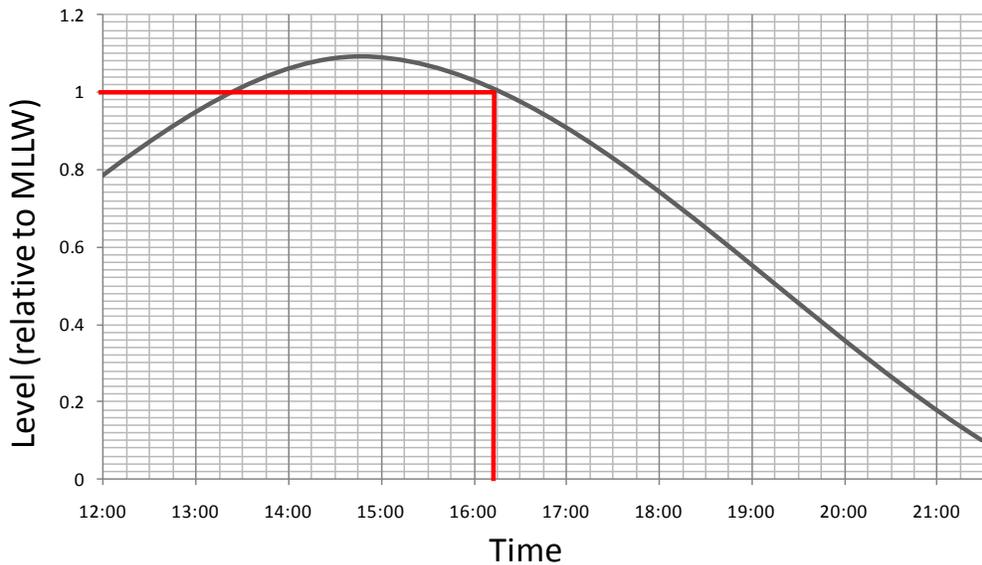


FIGURE 1. Using a tidal curve to establish elevation of land relative to water level. In this example the surveyor has made their measurements at 16:15 at which time water level was 1.0 meters above mean low-lower water. Figure 2 shows how to then establish island elevation relative to this level.

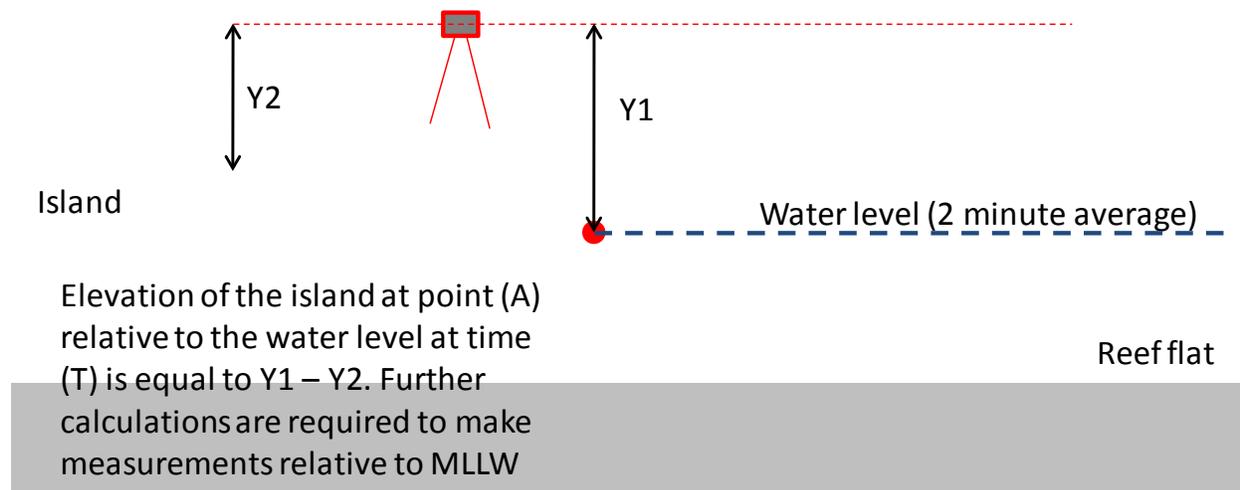


FIGURE 2. Method for calculating the elevation of a point on the island relative to the water level.

Calculating elevation relative to reef flat level

If you don't have any way to reference your elevations to sea level this is the next best option. Reef flat level around the island is used as a common datum level. While reef flat level can vary based on several factors it is more likely to be uniform compared to features like berm crest or top of beach.

1. Set up the dumpy level on the island with a clear view of reef flat and the island.
2. Usually this will have to be done on the ocean side at low tide.
3. Measure and record the elevation of the reef flat in 10 positions.
4. Average these 10 measurements.
5. Insert a stake on the island and calculate the elevation of the ground next to the stake. This elevation will be relative to the reef flat level.
6. You can now survey the elevation of assets on the island, relative to the reef flat level. For example, if your stake is 5 meters above reef flat level and a building is 1.2 meters above the level of the stake, that building is 6.2 meters above reef flat level.

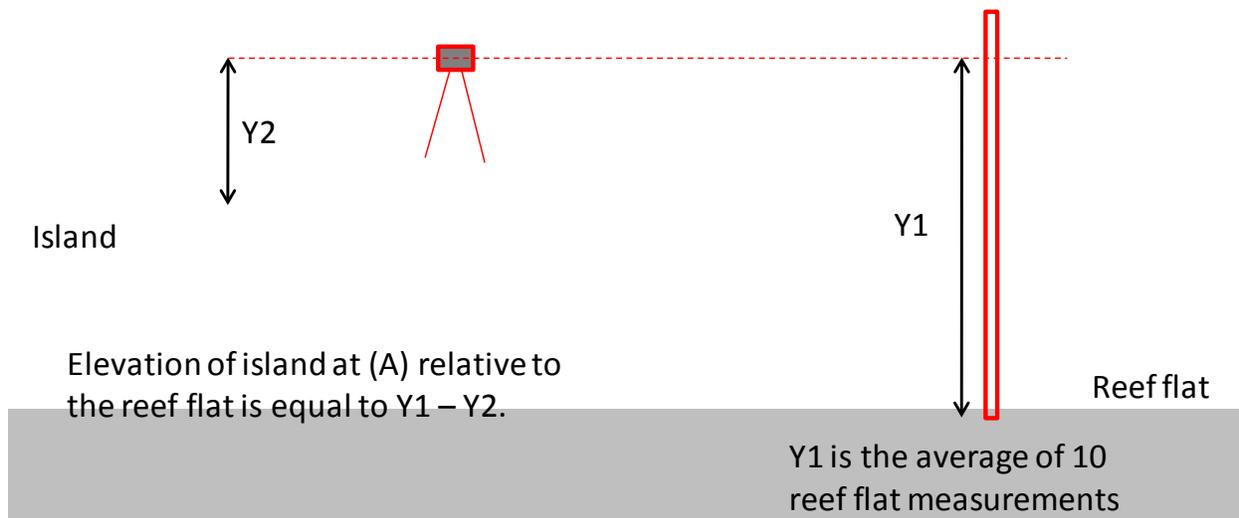


FIGURE 3. Calculating the elevation of land relative to the reef flat. Once a benchmark has been installed on the land you can survey the elevation of assets relative to the benchmark (and therefore reef flat).

Example

In this example we have first established a benchmark (red stake). This benchmark is 3.2m in elevation above our datum (reef flat or a measure of water level MLLW or MSL). Using this benchmark we have set up the dumpy level in a good spot, visible to the two assets we are investigating. Once the dumpy level is correctly set up we have a horizontal line of sight which is 0.5m above the benchmark elevation.

What is the elevation of the line of sight?

Benchmark 3.2m
Line of sight 0.5m
Line of sight relative to datum $3.2 + 0.5 = 3.7\text{m}$

Elevation of road

Line of sight relative to datum 3.7m
Road 1.0m
Road relative to datum $3.7 - 1.0 = 2.7\text{m}$

Elevation of asset

Line of sight relative to datum 3.7m
Asset 0.8m
Asset relative to datum $3.7 - 0.8 = 2.9\text{m}$

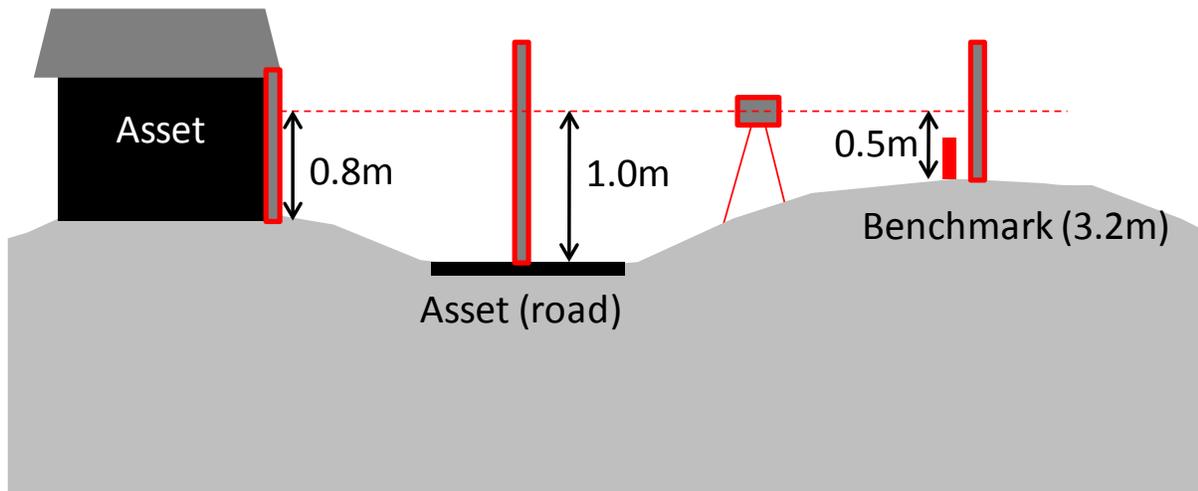


FIGURE 4. Working out the elevation of assets using dumpy level having established a benchmark with an elevation above a chosen datum.

Example

Community consultations have revealed that during storms the water level reaches the base of the coconut tree in front of the school. Residents are concerned about sea-level rise. Using the dumpy level we can establish where the annual storm would reach with a projected amount of sea-level rise. In this example we can see that with 0.4m of sea-level rise the school would be inundated during an annual storm.

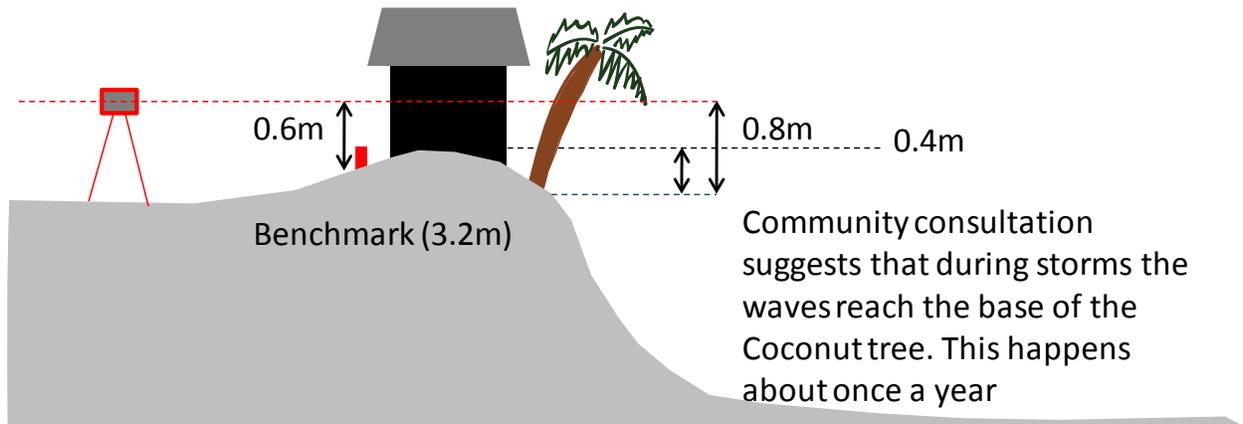


FIGURE 5. Using the dumpy level to assess the impact of sea-level rise on an asset, based on a combination of information derived from community consultation and dumpy level surveying

A14 Surveying Island Height Procedures

One of the most efficient and effective ways of measuring island height (elevation) is through surveying. A simple survey approach is to make 2-dimensional profiles that extend from the reef to island surface. A 2-dimensional profile consists of measuring the elevation and distance (relative to the known point) which when combined gives us the form (topography) of the land.

A 2-dimensional profile (or island profile) is simply a cross-section of the reef and land collected using survey equipment. It is usually plotted as a scatter graph with connected lines. The x-axis is distance, while the y-axis is elevation (see Figure 1). If you survey the same profile line at least twice you can establish whether there has been any change. This change can either be through erosion (loss of land) or accretion (gaining land).

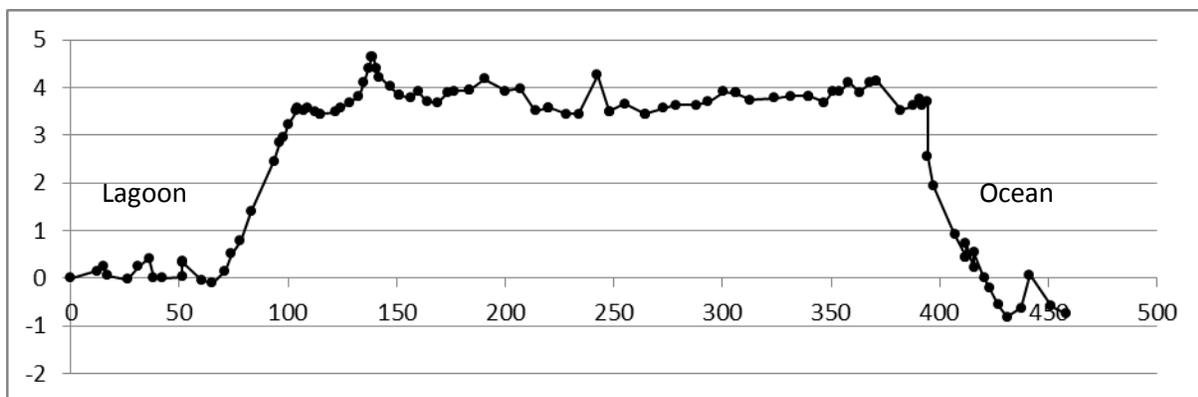


Figure 1. Example of an island cross section showing the difference in elevation between the reef and island surface.

SURVEYING BASICS

There are various ways to measure a beach and island profile, from highly expensive GPS based systems, through to more inexpensive methods, more suitable for outer-island environments. The approach outlined here is simple, accurate and cheap. The equipment we use is called a **dumpy level**. The equipment required to undertake this survey involves:

- Tripod
- Staff/ruler (5m long ruler)
- Instrument (often called the level, basically a telescope with cross-hairs)
- Recording sheets (paper, pencil, notebook etc.)

THE DUMPY LEVEL

The dumpy level is telescope that is set up LEVEL on top of the tripod. There are screws on the side to make sure it is level. There is also a small glass spirit level with a bubble in it. When the bubble is in the red target circle the equipment is level. This takes a bit of practice, best tip is to make sure the tripod is firmly setup with the top surface as close to level/horizontal as is possible. Make sure the tripod setup is

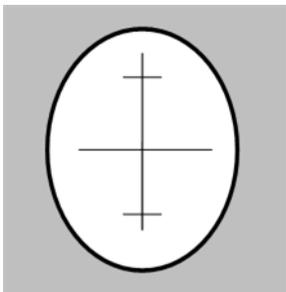
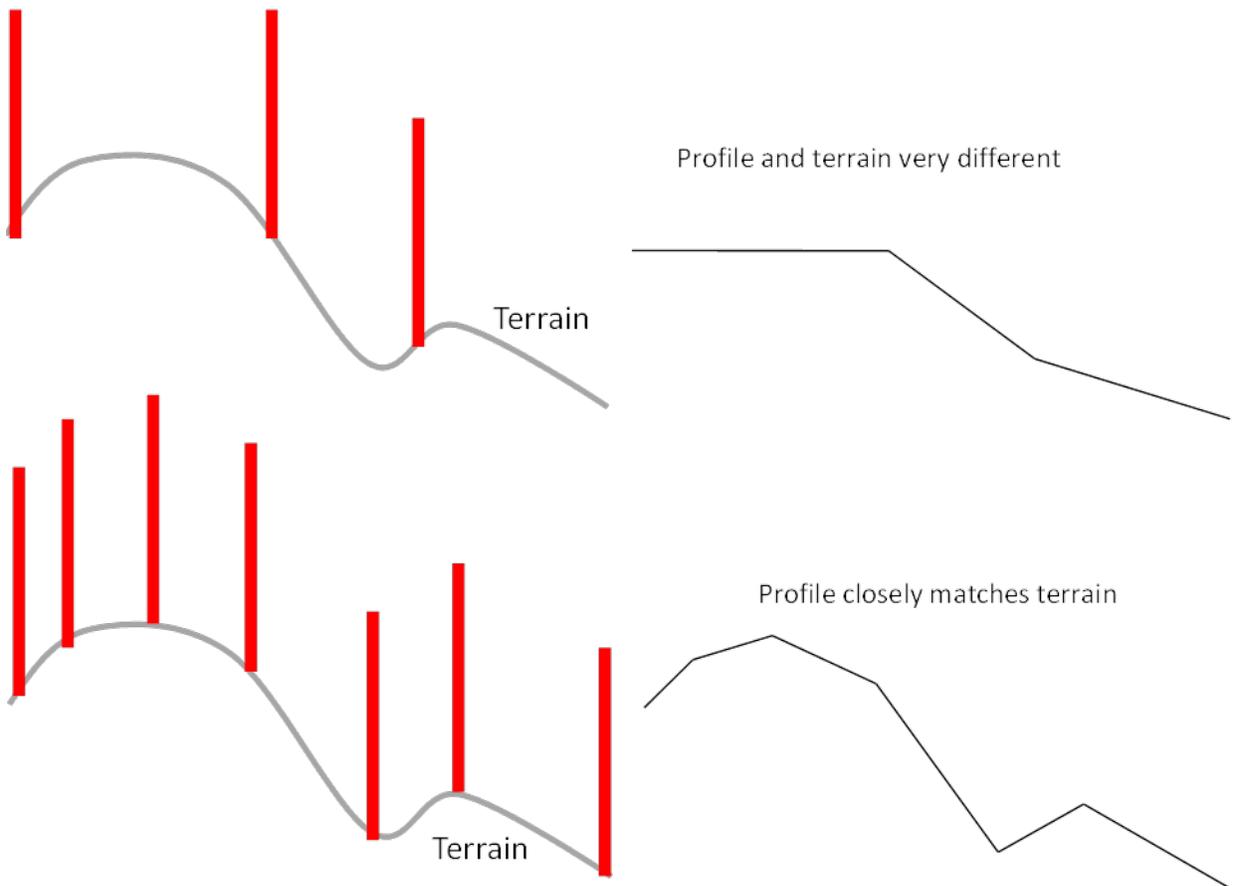
not bumped during the survey or this may throw it off level, which will make all your measurements wrong.



Using the dumpy level is very easy...

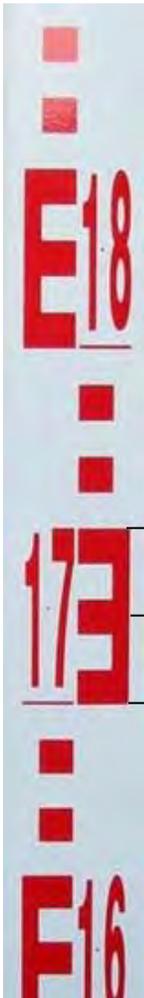
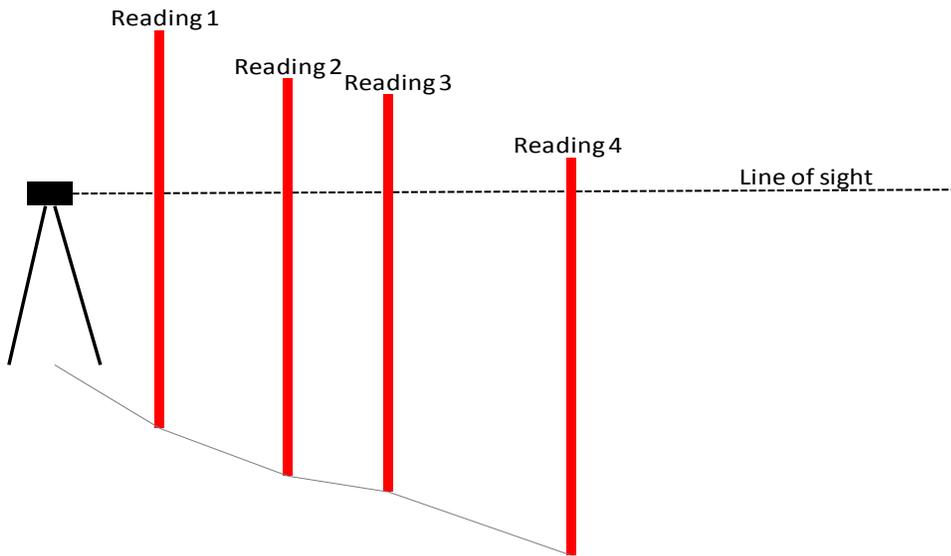
1. Do a visual inspection of area, ask yourself: will trees get in the way? Will I be able to see the staff/ruler over the survey range? Is the site stable for the tripod? Am I set up over the bench mark (if a benchmark is installed)?
2. Setup the tripod, visually checking to see the top of the tripod is roughly level.
3. Attach the instrument; make sure it is screwed on correctly.
4. Level the instrument using the 3 adjustable screw knobs; it is level when the air bubble is in the red circle.
5. Extend the staff/ruler from the bottom (or else you'll have incorrect readings).
6. Measure the height of the instrument from the ground. Measure accurately from the center of the lens to the ground vertically (some instruments have a line to indicate the center point).
7. Start taking recordings...
 - a. Select positions on along the profile to make sure you capture the terrain correctly (see Figure 2)
 - b. Start taking measurements (see figure 3)

Figure 2



The dumpy level instrument has three crosshairs that you can see when you take a reading. **IT IS VERY IMPORTANT** to take all **THREE** readings for each point. These are called the upper, middle and lower readings. Using these 3 readings we can calculate how far away the staff/ruler is.

Figure 3



The staff/ruler has some interesting looking markings on it... Don't be worried, it is simply a 5 meter long ruler with 1cm intervals. The 'E' blocks make it easier to see from a distance. The numbers (i.e. 17, 18) represent the height (i.e. 1.7m, 1.8m). The numbers refer to the line under them, or the start of the red 'E'.

C
B
A

In this example
A = 1.70m (lower)
B = 1.725m (middle)
C = 1.75m (upper)

Calculating distance using the dumpy level

It is possible to calculate the distance the staff is from the dumpy level using some very simple math. When you record your measurements you must record the upper, middle and lower values of the crosshairs. To calculate the distance the staff was at the time of measurement you use the simple equation:

$$\text{Distance} = (\text{Upper} - \text{Lower}) \times 100$$

Recording survey data

The data should be recorded carefully in a notebook. The surveyor should record the data in columns with the following headings UPPER, MIDDLE, LOWER (see below). The surveyor should also record the instrument height, and note any features such as the high tide line, water level (with time), erosional scarp or other noteworthy features. Once a profile line is complete the surveyor should have a table consisting of recordings of the **upper**, **middle** and **lower** reading of the staff at each survey point.

	UPPER	MIDDLE	LOWER	NOTES
1	0.087	0.147	0.022	
2		0.24		Instrument Height
3	0.55	0.428	0.4	Edge of island
4	0.62	0.595	0.573	
5	0.74	0.715	0.695	Water Level (13.20)
6	1.94	1.93	1.925	Start of beach rock

Worksheet 3: Entering and Plotting the Profile Data

Once back in the office the surveyor must process the data in order to plot profiles. This is usually done in Microsoft Excel. Once the data is entered into Excel, calculating the distance and elevation, relative to the benchmark is straightforward.

1. Enter data into spreadsheet.

Notes	Upper	Middle	Lower
INSTRUMENT		1.59	
	1.58	1.56	1.54
	1.645	1.61	1.575
	1.795	1.742	1.69
	2.15	2.075	2
Water level	2.785	2.685	2.585
	3.46	3.33	3.2
	3.77	3.62	3.47
	3.962	3.8	3.629

2. Add two columns for distance relative to benchmark and elevation relative to benchmark.

Notes	Upper	Middle	Lower	Distance (relative to BM)	Elevation (relative to BM)
INSTRUMENT		1.59			
	1.58	1.56	1.54		
	1.645	1.61	1.575		
	1.795	1.742	1.69		
	2.15	2.075	2		
Water level	2.785	2.685	2.585		
	3.46	3.33	3.2		
	3.77	3.62	3.47		
	3.962	3.8	3.629		

3. The distance relative to the benchmark (in meters) is equal to the UPPER – LOWER multiplied by 100. If you have recorded in centimeters, then you don't need to multiply by 100 to get the distance in meters, be careful and consistent.

Notes	Upper	Middle	Lower	Distance (relative to BM)	Elevation (relative to BM)
INSTRUMENT		1.59		0	
	1.58	1.56	1.54	$(1.58-1.54)*100$	
	1.645	1.61	1.575	$(1.645-1.575)*100$	
	1.795	1.742	1.69		
	2.15	2.075	2		
Water level	2.785	2.685	2.585		
	3.46	3.33	3.2		
	3.77	3.62	3.47		
	3.962	3.8	3.629		

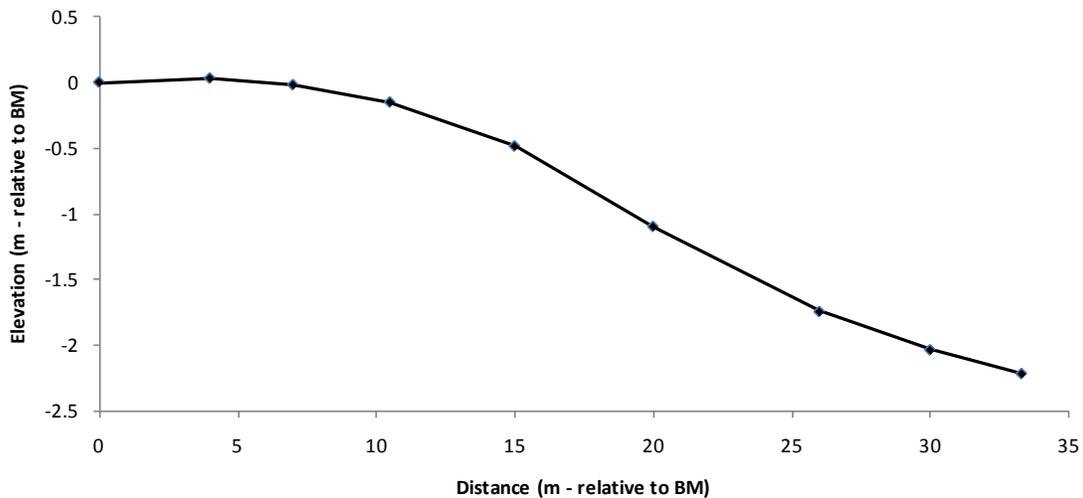
4. To calculate the elevation relative to the benchmark (in meters), subtract the elevation of the instrument from the middle.

Notes	Upper	Middle	Lower	Distance (relative to BM)	Elevation (relative to BM)
INSTRUMENT		1.59			1.59-1.59
	1.58	1.56	1.54	4	1.59-1.56
	1.645	1.61	1.575	7	1.59-1.61
	1.795	1.742	1.69	10.5	
	2.15	2.075	2	15	
Water level	2.785	2.685	2.585	20	
	3.46	3.33	3.2	26	
	3.77	3.62	3.47	30	
	3.962	3.8	3.629	33.3	

5. The final product should be a table with both distance and elevation (relative to the benchmark calculated). At this stage elevation cannot be reference to mean sea level. However, if you knew the benchmark elevation (relative to MSL) you can simply add this value to the elevation.

Notes	Upper	Middle	Lower	Distance (relative to BM)	Elevation (relative to BM)
INSTRUMENT		1.59		0	0
	1.58	1.56	1.54	4	0.03
	1.645	1.61	1.575	7	-0.02
	1.795	1.742	1.69	10.5	-0.152
	2.15	2.075	2	15	-0.485
Water level	2.785	2.685	2.585	20	-1.095
	3.46	3.33	3.2	26	-1.74
	3.77	3.62	3.47	30	-2.03
	3.962	3.8	3.629	33.3	-2.21

6. To plot a graph which allows you to present the morphology, simple highlight the distance and elevation columns and insert an X,Y scatter graph.



A15 Evaluating Flooding from Sea Level Rise – Case Study of Jabót



Project Team:

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- Mr. Juda Langrine, Environmental Protection Authority, RMI
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ISLAND DESCRIPTION

Physical characteristics

Jabót is an individual reef platform island (857513.707 N, 276941.622 E) located 10 nautical miles north of Ailinglaplap atoll in the Ralik chain situated 160 nautical miles west of Majuro. The island is approximately 1.2 km in length and varies in width from 300 m in the south to 500 m in the north. The island is composed of gravel and sand-size sediments derived from the surrounding reef platform. Located on a small reef platform the island has no lagoon and is exposed on all sides to oceanic swell. Windward and leeward sides are dictated by the direction and size of ocean swell and may change between seasons.

Social characteristics

- The village of Jabót is located along the western shoreline. The village is spread over a distance of 400 meters. Most of the houses are located on the landward side of the beach ridge. The population is approximately 120 people.
- The houses are mainly constructed of wood or concrete block with iron roofing. Some houses have thatch roofing. Houses have a separate cookhouse that is located near the main house. Houses are located on elevated coral gravel platforms.
- The water table is more than 3.0 m below the ground surface. The majority of houses have rainwater tanks. Houses also use community wells.
- Banana, coconut, taro, limes and other food crops are grown on the island.
- Copra is the main commercial crop for the village.
- A runway is located in the southeastern section of the island. However, this has not been used in recent years.

RESULTS

Community information about flooding and erosion hazards

Coastal Erosion	<ul style="list-style-type: none"> • Loss of land and beach • Erosion point on southern end of island and concern that sand being swept off reef • Erosion scarps visible around island • Loss of coastal vegetation • Loss of food crops • Loss of traditional plants for medicine
Flooding	<ul style="list-style-type: none"> • Loss of food crops and medicinal plants • Flooding of lower beach ridge – no houses are built here • Well water getting salt contaminated due to water rushing onto land • Trash washed up onto beach • Carcasses washed up onto beach – disease potential
Water	<ul style="list-style-type: none"> • Lack of water catchment per household in times when water gets saline • Water not a problem until water wells are flooded due to rush over of seawater • During dry season no water is not a problem for crops
Crop Damage	<ul style="list-style-type: none"> • High tide salt spray • Nearshore crops getting washed by high tide & drowns plants • Wind damage in strong storms / typhoons

Land elevation data

Eight survey profiles were undertaken on Jabót Island to document land level with respect to sea level. Six of these profiles were surveyed through the village from the western to the eastern sides of Jabót. Five of these profiles (1, 2, 3, 4 and 5) extended across the entire width of the island and onto the eastern reef flat. All profiles were reduced to benchmarks with known elevation relative to Mean Low Lowest Water level (MLLW). Information on the location and elevation of benchmarks is contained in A1. The location of these profiles is shown in Figure 1.

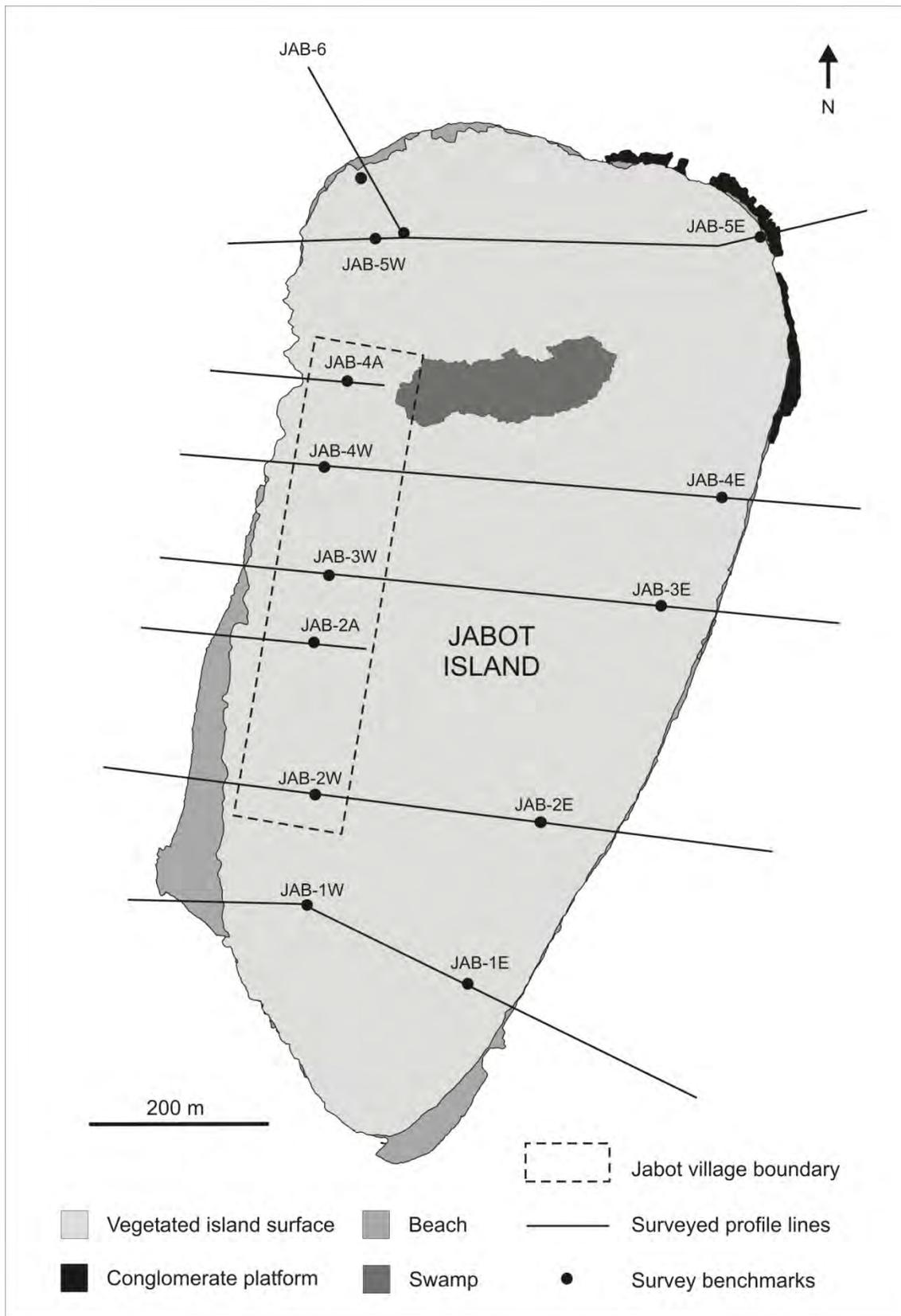


Figure 1. Location map of Jabot Island showing position of survey benchmarks and survey profile lines.

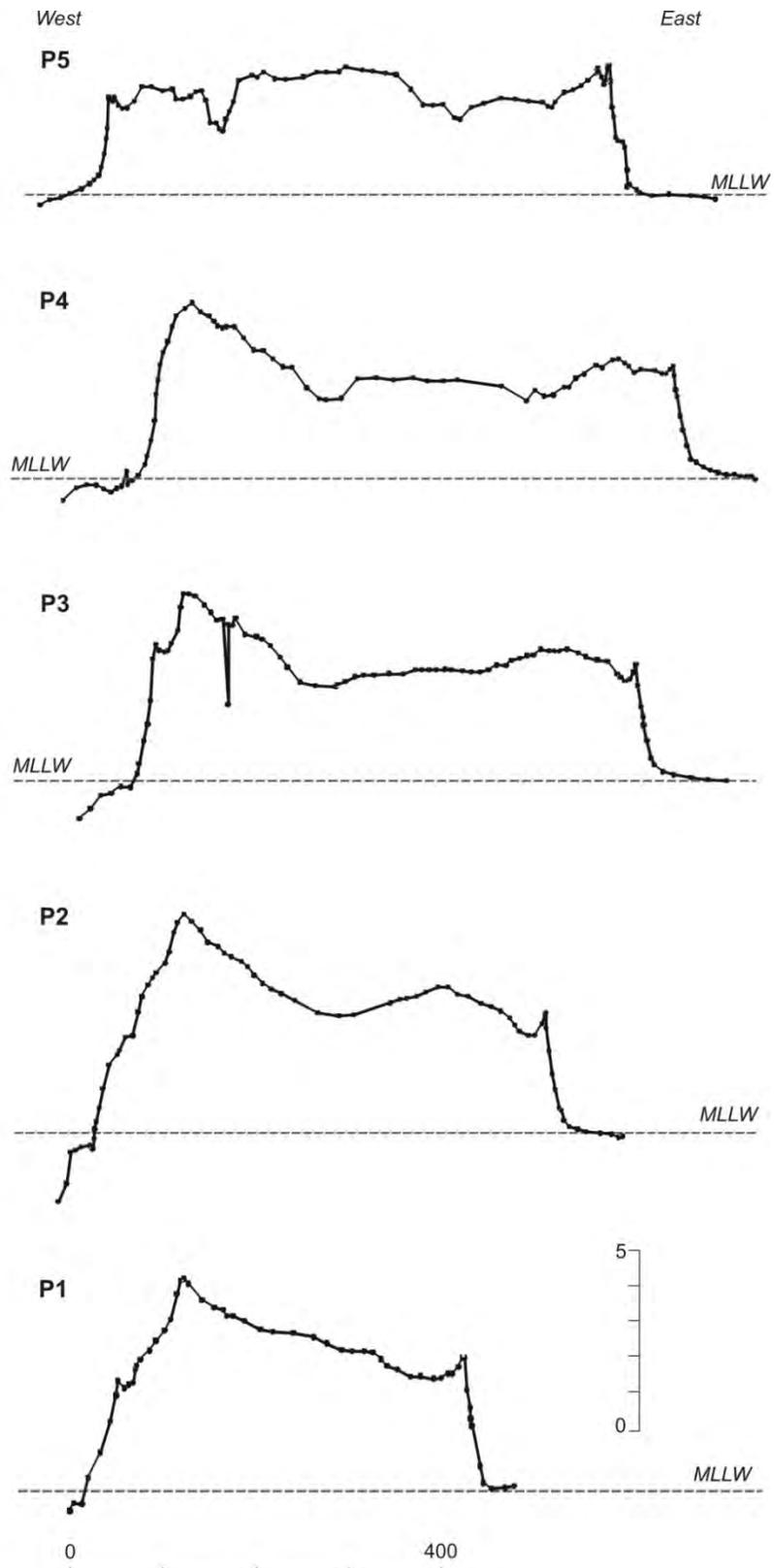
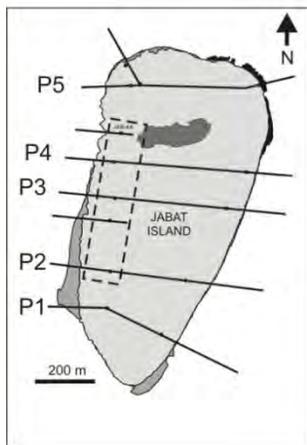


Figure 2. Cross Island surveys Jabot Island. All profiles are reduced to MLLW. Location of profiles shown in Figure 1.

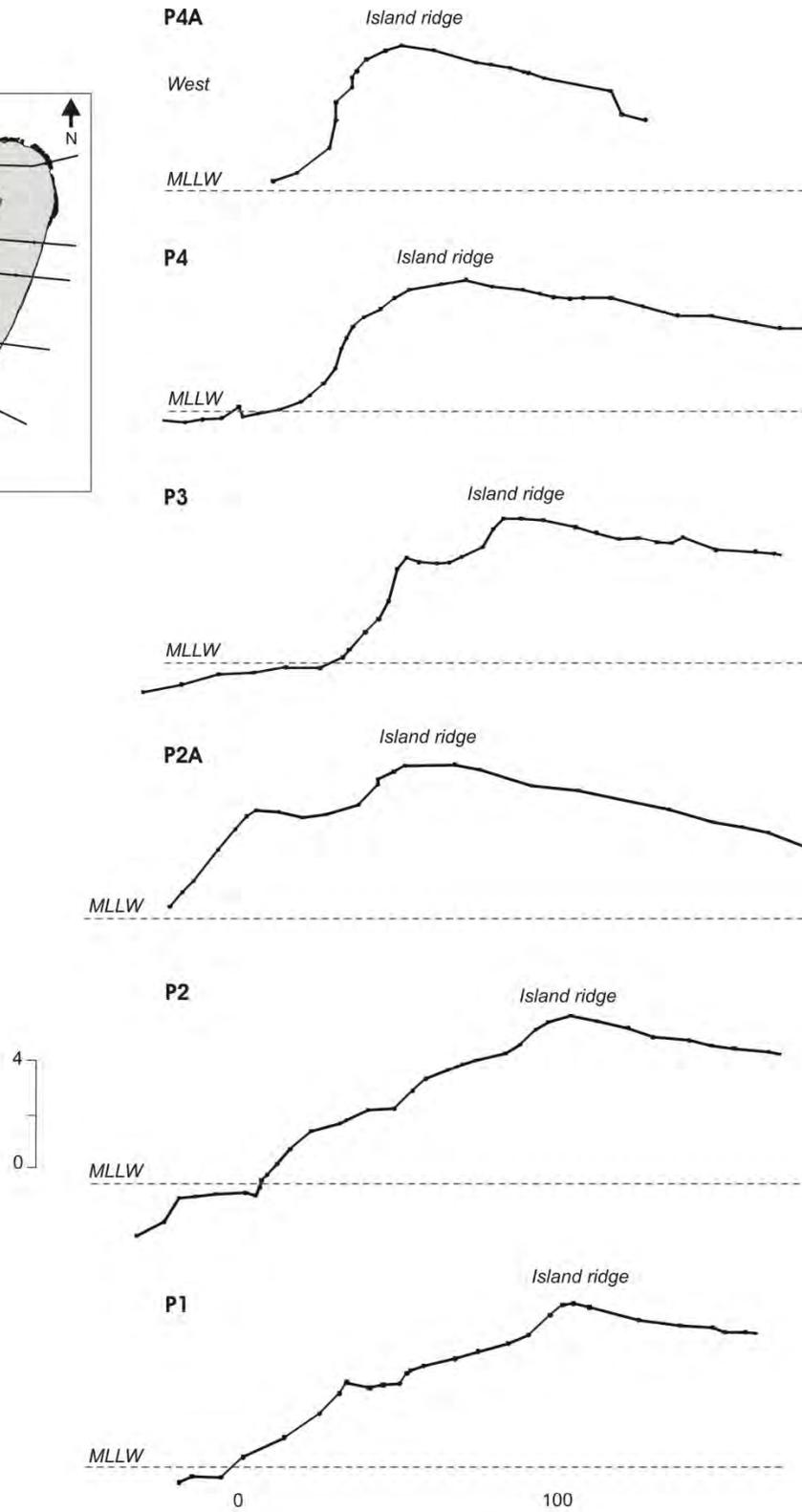
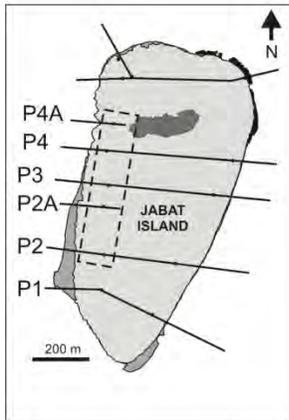


Figure 3. Western shoreline surveys through Jabot village. All profiles are reduced to MLLW. Location of profiles shown in Figure 1.

Table 1. Land elevations with respect to sea level Jabót island (MLLW)

Profile	Maximum western shoreline elevation (m above MLLW)	Maximum eastern elevation (m above MLLW)	Runway elevation taken from the middle of the way (m above MLLW)
1	6.114	3.829	3.23
2	6.3	3.39	2.814
2A	5.64		-
3	5.367	3.325	2.913
4	4.944	3.158	-
4A	4.801		3.079
5	2.755	3.62	-

Summary of Land Levels

- Western island ridge heights range from 2.755 m in the north to 6.3 m relative to MLLW in the south (P2). This equates to 1-4.6 meters above high spring tide level (HST = 1.7 m).
- Eastern shoreline ridge levels range from 3.1-3.8 meters above MLLW (1.4-2.1 m above spring high tide).
- The runway, located on the Eastern shoreline has elevations ranging from 2.8 to 3.2 m above MLLW.
- The data indicate that the western shoreline is significantly higher in elevation than the ocean shoreline. Furthermore, the island ridge on the western side of the island is highest in the south and slopes northward.

Community Infrastructure Data

Table 2. Summary of land levels and house elevations on Jabót Island relative to water level, spring high tide level and future sea-level rise.

House	Elevation relative to Mean Low Lowest Water			Elevation with respect to highest tide (1.7m)			Elevation with respect to highest tide + 0.5 m sea level rise (2.2m)		
	Elevation lagoonside (m)	Elevation landward side (m)	Floor elevation (m)	Elevation lagoonside (m)	Elevation landward side (m)	Floor elevation (m)	Elevation lagoonside (m)	Elevation landward side (m)	Floor elevation (m)
21	6.088	6.018	6.193	4.388	4.318	4.493	3.888	3.818	3.993
19	5.817	5.817	5.892	4.117	4.117	4.192	3.617	3.617	3.692
20	6.477	5.872	6.456	4.777	4.172	4.756	4.277	3.672	4.256
12	5.577		5.707	3.877		4.007	3.377		3.507
13		5.747	6.067		4.047	4.367		3.547	3.867
14	5.087	4.827	5.082	3.387	3.127	3.382	2.887	2.627	2.882
15	5.852		6.017	4.152		4.317	3.652		3.817
16	5.742	5.727	5.997	4.042	4.027	4.297	3.542	3.527	3.797
16a	5.147	5.287		3.447	3.587		2.947	3.087	
17	5.827	5.542	6.002	4.127	3.842	4.302	3.627	3.342	3.802
23	4.892	4.997	5.177	3.192	3.297	3.477	2.692	2.797	2.977
24	4.487		5.172	2.787		3.472	2.287		2.972
26	2.912		3.012	1.212		1.312	0.712		0.812
10	5.172	5.272	5.322	3.472	3.572	3.622	2.972	3.072	3.122
1	4.387	4.362	4.672	2.687	2.662	2.972	2.187	2.162	2.472
2	4.377	4.652	1.652	2.677	2.952	-0.048	2.177	2.452	-0.548
3	4.012	4.172	3.792	2.312	2.472	2.092	1.812	1.972	1.592
4	3.292		2.452	1.592		0.752	1.092		0.252
5	4.582			2.882			2.382		
6	4.502		4.642	2.802		2.942	2.302		2.442
7	5.242		5.442	3.542		3.742	3.042		3.242
8	5.082		5.392	3.382		3.692	2.882		3.192
9	5.352	5.422	5.562	3.652	3.722	3.862	3.152	3.222	3.362
27	4.492		4.702	2.792		3.002	2.292		2.502
28	4.812		5.062	3.112		3.362	2.612		2.862
29	4.312			2.612			2.112		

DISCUSSION

Current Vulnerability

- The village of Jabót is located on the elevated western island ridge. The ridge is 2-3 m above current spring high tide levels and well above current flood levels. Houses are also set well back from the active beach. Consequently, the village is relatively protected from current storm surge inundation.

Future Vulnerability

- Under a scenario of a 0.5 meter sea level rise (as projected by the IPCC to 2100) the village of Jabót is sufficiently elevated that storm surge inundation will not increase significantly. Inundation of lower lying structures and some gardens may be experienced. Areas of contemporary erosion may be exacerbated under this scenario and these points may require ongoing observation. It is important that new structures are not built seaward of existing structures. It appears that mid-range projections of sea-level rise in Jabót village will not result in a significant increase in flood impact on existing structures.

Appendix 1. Survey Information

Table A1. Jabot Island Benchmark Information

Benchmark Name	Northing	Easting	Elevation wrt MLLW
Jab-1-E	856931.8	276851.9	3.281
Jab-1-W	857019.5	276674.5	5.008
Jab-2-E	857103.4	276947.4	3.641
Jab-2-W	-	-	5.127
Jab-2A W	857316.1	276673.7	4.897
Jab-3-E	857349.5	277087.5	3.469
Jab-3-W	-	-	4.512
Jab-4-Pin	857465.8	277175.8	1.892
Jab-4-E	857485.3	277137.1	3.07
Jab-4-W	857507.5	276702.9	4.252
Jab-4a-W	857610.7	276711.7	4.166
Jab-5-Pin	857787.3	277191.6	1.508
JAB-5-E	857783.1	277182.3	3.697
Jab-5-W	-	-	3.005

STEP 5 - DEVELOPING THE MANAGEMENT PLAN

A16 Identifying Natural Resource Targets⁷

A. Session Purpose

The purpose of this session is to identify the natural resources within your managed area that should be addressed within your management plan. Since these natural resources are the main target of our management initiatives (but not exclusively), we will call them “natural resource targets.”

Natural resource targets can include the following:

- A priority ecosystem (a near-shore coral reef ecosystem, an atoll)
- A specific habitat type (seagrass beds, coral reefs)
- A specific population of a species (migratory birds)
- A charismatic and/or endangered species (hawksbill turtle, giant clams)
- A special geological feature (a blue hole)
- A special biological event (grouper spawning aggregation)
- Other assets directly or indirectly affected by climate change (shoreline, infrastructure, fresh water lens)

B. Facilitation Suggestions

1. You may want to facilitate this session by having participants form small groups of three to six and asking them to fill out the worksheet below.
2. After each small group has filled out the worksheet, you can get the group back together and ask them each to present their findings.
3. You can then summarize the findings on a flip chart sheet that is in the same format as the worksheet. Then ask the group to re-prioritize the natural resource targets together.

⁷ Adapted from PIMPAC Session/Worksheet 4.

IDENTIFYING NATURAL RESOURCE TARGETS

(1) Discuss and identify natural resource targets that characterize the marine, freshwater, and/or terrestrial components of your site. List these in the table below under the “natural resource target” column.

(2) From your list of targets, discuss and rank each from top to bottom. Number these targets from 1 to 5 using the “priority” column in the table.

	Natural Resource Target	Priority
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

A17 Prioritizing the Threats⁸

A. Session Purpose

In order for your MMA to succeed, the strategies you apply in your management plan should address the highest priority threats. In many areas around the world, a failure to prioritize has led to a hit-and-miss management approach. This can be both costly and ineffective. If you carefully prioritize the threats that are impacting your managed area, you can more precisely develop and apply the strategies to overcome these threats and thus effectively manage the area.

Threat prioritization is a particularly important part of the Conservation Area Planning process used by The Nature Conservancy to help conservation areas streamline their management approaches. Feedback from numerous participants indicated that this process has helped change their perceptions of the highest priority threats and thus has completely altered the management approach.

Take into consideration that climate change is a threat. It comes in the form of SLR, changes in precipitation, changes in storminess, acidification, etc. Is vulnerability is short term or long term? Does Climate Change exacerbate non-climate stressors? Are some areas more vulnerable (sensitivity/exposure)?

B. Facilitation Suggestions

Unless your group is simply too large (30 people or more), you may find it most useful to carry out this exercise as a large group. The facilitator should prepare a flip chart ahead of time following the instructions on the worksheet below. Ask you group to fill in the chart following the instructions on the worksheet.

⁸ Adapted from PIMPAC Session/Worksheet 9

WORKSHEET: PRIORITIZING THE THREATS

- (1) Create a table with six columns and a row for each identified threat. At the top of the table, name each column from left to right as follows:

Threats	Target	Area	Intensity	Urgency	Total Score
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- (2) Under “threats,” list all of the threats you have identified, one per row. Use short hand if necessary.
- (3) Use four criteria to find out which of these threats are the most important (highest priority) for you to try and address:
- “Target” – the number of natural resource targets affected by this threat.
 - “Area” – the amount of physical space at your site affected by this threat. (Is all of the habitat/resource impacted, or just a portion of it?)
 - “Intensity” – the degree of the threat’s actual impact on the target(s) at your site. (Will the threat completely destroy the habitat/resource or affect it only slightly?)
 - “Urgency” – how immediate the need is to address the threat at your site. (Is the threat active now or will it occurs tomorrow or perhaps not for a few years?)
- (4) As a group, count the number of natural resource targets that are affected by each threat identified. Record the total number of targets affected under the “target” criteria column for each threat.
- (5) Next, for each threat listed, discuss as a group and choose a ranking for the other three criteria. Rank the three criteria using the following scales:

“Area” ranking:

- 1 = only a small amount of area at our site is affected by the threat
- 2 = a moderate amount of area is affected, but not all of the area at our site
- 3 = all of the area at our site is affected by the threat

“Intensity” ranking:

- 1 = low intensity; causes only minor impact or damage
- 2 = medium intensity; somewhat impacts/damages
- 3 = high intensity; high impact or highly destructive

“Urgency” ranking:

- 1 = not very urgent; does not require immediate action
- 2 = somewhat urgent; will require action soon
- 3 = very urgent; requires immediate action

Write the group’s three rankings under the appropriate column for each threat. Continue until all threats have been ranked.

- (6) Across each threat listed, determine the total score of all four criteria by adding up the four numbers listed in that row in the table. Check your math.

(7) When all of the total scores have been listed and checked, identify the threats with the highest total scores in the table. There may be more than one threat with the same highest score. These highest scoring threats are your “highest priority” threats. On a flip chart, list these top priority threats (in order from highest to lowest, or alphabetically in the case of a tie) and corresponding scores in a table with three columns labeled as follows:

(8) For each of the top five priority threats now listed, note in the second from the right-hand column the climate sensitivity (addresses the impact of the climate variable on a valued asset) of the threat if a Low (“L”), Medium (“M”) or High (“H”) sensitivity.

(9) For each of the top five priority threats now listed, note in the far right-hand column if the threat is a direct (“D”) or indirect (“I”) threat. To do this, use the following definitions:

Direct threats – threats that immediately negatively impact the natural resource target(s)

Indirect threats – threats that underlie or lead to direct threats (i.e. root causes).

Example: Threat prioritization results from Namdrik Atoll, Marshall Islands

Threats	Target	Area	Intensity	Urgency	Total Score
1. Increase of solid waste	7	3	1	3	14
2. Erosion	5	2	3	3	13
3. Destruction of food crops	1.5	1	2	3	7.5
4. Decrease of marine resources	2	3	3	3	11
5. Increase in Invasive Sp.	5	1	3	3	12
6. Increase areas/damage done by floods	4	2	3	3	12
7. Changes in “harvesting season”	5	3	2	3	13

Highest priority	Total Score	Climate Sensitivity	Direct/Indirect
Increase in solid waste present on island	14	H	I/D
Erosion/disappearance of land	13	H	D
Changes in the "harvesting seasons"	13	H	D
Increase in Invasive species	12	-	I/D
Increase of flood areas/damages done by flood	12	H	D
Decrease in marine resources	11	H	D
Destruction of food crops	7.5	H	D

A18 Summary Matrix of Vulnerability Analysis – Namdrik Example

Problem /Issue (these are "threats" within the Reimaanlok process)*	Assets	Current Conditions and Threats	Current Sensitivity & Response	CC Impact	Adaptive Capacity (low, medium, high). <i>positive capacities and limitations</i>	Vulnerability (low, medium, high)	Adaptation Options
Erosion	houses; beaches; trees; graves; tidepools off lagoon shoreline; cultural site (swamp in Madmad, rock formations near airport)	In certain areas of Namdrik, erosion has been an on-going occurrence over the past few decades. The lagoon side of "downtown" and the airport area, have been severely affected by erosion. The community feels that this might be associated with the closing off of the Northeastern swamp (fill in the road) in the 1980s. The beaches have also been mined for sand to build concrete structures over the past 2 decades. People take gravel/aggregate from beaches to refresh the areas outside their homes, for funerals and celebrations. In downtown, estimated the beach was 20 feet wider. In the north, it is estimated that 32 ft. (2	Measures taken by the community has been minimal. Three affected households built informal seawalls (rocks, coconut hulls, concrete rubble) to counter the effects of erosion of their land parcel. Recently, sand mining has been discouraged on the lagoon side, and encouraged on the ocean side.	Increased storm intensity and SLR may increase erosion	LOW - MEDIUM: Positive - they recognize that erosion is an issue and are willing to take measures i.e. already 3 households have seawalls in place. The island is wide in many areas, so there are options to have a setback from the lagoon, where most erosion is occurring. In terms of available resources, there is an offshore natural sand bar, formed between downtown and Madmad that might be suitable for construction sand. Natural vegetation on the shoreline provides stability of beach berm (kidren tree, konnat shrub, and beach grape vine/grass). Limitations: Few people are currently taking actions, waiting for guidance. But willing to take on advice. They feel that they need resources and funding to build more seawalls, which they think	MEDIUM: SLR is slow, storms are rare and only parts of the island are eroding. Some houses are situated near the coastline, but many are closer to the road. Satellite reveals that structures are average 75 meters away from lagoon side and over 200 meters inland from the ocean.	Seawalls may be appropriate to protect key structures/parcels, however, this may impact adjacent properties; site new development (zoning) away from the shore; identify other sand mining locations and prohibit beach sand mining; plant beach berm with appropriate plants that will reduce erosion; restore beaches with sand and planting.

Problem /Issue (these are "threats" within the Reimaanlok process)*	Assets	Current Conditions and Threats	Current Sensitivity & Response	CC Impact	Adaptive Capacity (low, medium, high). <i>positive capacities and limitations</i>	Vulnerability (low, medium, high)	Adaptation Options
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lines of coconut trees) of land have eroded since then. Graves have started to fall into the lagoon the northern tip area of Namdrik (Zulu) as a result. The lagoon side of Madmad has been affected by erosion estimating 20ft since the 1980s.

could be the solution to their problem.

Problem /Issue (these are "threats" within the Reimaanlok process)*	Assets	Current Conditions and Threats	Current Sensitivity & Response	CC Impact	Adaptive Capacity (low, medium, high). <i>positive capacities and limitations</i>	Vulnerability (low, medium, high)	Adaptation Options
Shift in Season (Sea)	Fisheries, people, faith and livelihood resources	High temperature/low tide/low to no circulation. Changes in seasons have been observed. Kaikitkit fishing has been traditionally done when the channels “dry up” during the June July months – part of Namdrik’s “ien Mora”. This year, it was noticed that the season started late, beginning in August instead of the relied June/July. The kaikitkit fishing is simply picking up fish stuck between the exposed rocks and corals at low tide. Fish have been known to be found dead and the area reek of decomposing animals.	Fishing when the seasons allow them to, waiting for the right conditions to harvest.	For water resources, Increase in water temperature and ocean acidification may affect marine water resources	LOW Positive: people are aware this is an issue. There are alternatives related to fisheries harvest, since they can catch other species. They also have alternative food options, including chicken, pork as well as fruit, banana, and taro. Limitations: little/no control over shifting seasons and increase water temperature	Medium: this year (El Nino year) the shift in season was observed - potential effects are still unknown at this point, with regard to the change in seasons, water temperature, etc.	Monitor the seasonal changes, so that they can understand when changes may occur. Provide tidal information, especially when their will be extreme high and low tides. Insure that other fisheries are available for harvest in July/Aug timeframe when the Kaikitkit is delayed

Problem /Issue (these are "threats" within the Reimaanlok process)*	Assets	Current Conditions and Threats	Current Sensitivity & Response	CC Impact	Adaptive Capacity (low, medium, high). <i>positive capacities and limitations</i>	Vulnerability (low, medium, high)	Adaptation Options
Water lens management	Domestic water use; agriculture; taro patches	Namdrik has been fortunate in regards to water availability. The last El Nino had the atoll feeling the maximum effects with no rain. But many water wells exist and the community did not suffer the drought like other atolls during that time. Contamination of the water lens is the clear threat, with unstructured waste management (solid waste or sewage) in place, and potential for salt water intrusion in the future with SLR. Namdrik has active cleanup and gardening activities done by the two women's group on the island but does not include solid waste collection. Solid wastes are piled up haphazardly in people's yards.	People have multiple sources for catchment (cisterns are being replaced by plastic, used for domestic use); wells are used for laundry, if needed. Families with multiple tanks and wells often share with neighbors. Consideration is being made to identify certain wells for emergency use.	Precipitation changes; SLR	HIGH: Positive - the atoll gets a lot of rain, and each household harvests rainwater in catchment basins (most have new plastic tanks, but others have concrete cisterns). Limitations - No monitoring of rainfall. There are no studies on the amount of water in the lens, or the depth of fresh water. No waste management.	LOW-MEDIUM. They have a high precipitation rate. However, their quality of life and livelihoods depend on this now that they are used to it.	Study groundwater lens capacity, and current/future demand for fresh water. Insure that each family has sufficient tank capacity for rainwater harvesting. Identify good practices for managing areas around wells to prevent contamination. New taro crops should consider potential for saltwater tolerant plants.

Problem /Issue (these are "threats" within the Reimaanlok process)*	Assets	Current Conditions and Threats	Current Sensitivity & Response	CC Impact	Adaptive Capacity (low, medium, high). <i>positive capacities and limitations</i>	Vulnerability (low, medium, high)	Adaptation Options
Flooding	houses, beaches, trees, churches, graves, agriculture, cultural site, road	Active flood areas, only some have taken corrective measures in building houses on stilts, or even building a seawall. But this is only a few in number. Already active flood areas have been documented	Adaptive measures that have been taken by the community have been minimal. Three households have taken the initiative to build seawalls to counter the effects of erosion and flooding of those parcels of land.	Storm intensity will increase flooding; SLR will increase flooding, especially during king tides and storms	LOW-MEDIUM Positive - they recognize that flooding is an issue and willing to take measures i.e. already 3 HHs have seawalls in place. Some older houses are elevated, and some of the newer foundations are above ground level on the backside of the road. People have "washed" crops with fresh water and some of the trees have recovered Limitations: Few people are currently taking actions, waiting for directions. But willing to take on advice. Will need resources and funding to build more seawalls.	MEDIUM: SLR is slow, storms are rare and only parts of the island are eroding. Flooding is generally limited to the same area of land, during certain months of the year Many houses are situated near the coastline. People feel that seawalls will prevent flooding - this is not the case, since they are not continuous along the shore (like a dike). They will only 'protect' certain parcels from further erosion.	Site new development inland, on the ocean side of the road. Elevate new structures on stilts. There are 20 new houses planned over the next 5-years with USDA assistance. Discuss the opportunity with USDA to provide new design that would minimize flooding impacts. Identify procedure for getting tidal chart for Namdrik, and to give them warning for high tides and high storm surge. Flooding/typhoon warning plan should be developed, where the community could be prepared to relocate to the school (second floor), harvest some crops, and know what to do.

Problem /Issue (these are "threats" within the Reimaanlok process)*	Assets	Current Conditions and Threats	Current Sensitivity & Response	CC Impact	Adaptive Capacity (low, medium, high). <i>positive capacities and limitations</i>	Vulnerability (low, medium, high)	Adaptation Options
Invasive Species	Cultural sites; agricultural sites; medicinal plants; livelihood (women)	New mangrove species has been slowly dominating the landscape of the Madmad islet. Lijabkonira is said to reside in the Madmad pond. The pond is in threat of being overtaken/covered by the <i>eoek</i> mangrove species, making not only access difficult but might change the habitat/ecosystem on Madmad. It is believe that it was early 2000 (Historic Preservation Office Report indicated that this occured in 2001) that the first seedling of the new mangrove species washed up on the shore of Madmad. The new dominating mangrove is seen to slowly take over areas that the two local mangrove species on the islet, the <i>jon</i> and the <i>bulabul</i> . Mixed reviews are in play over the new mangrove species (locally named <i>eoek</i>). In	The positive aspects seen with the <i>eoek</i> is that now the islets animal life has dramatically increased the fauna. The negative aspect seen is that Madmad is a cultural site for a pond that holds special meaning for Namdrik, not only a source of traditional stories, but of specially adapted animals	Unknown. Secretary of R&D (Tommy) may be able to provide information, since he is on a regional committee on invasives.	MEDIUM: Positive - community cleanup done by the women groups; isolation of patches of certain invasives. Limitations - lack of knowledge of the invasive species; remoteness of cultural sites affected by invasives, little to no quarantine/inspection of outside equipment and materials as well as non-native flora & fauna	Low - Medium Climate vulnerability is not well understood. Non climate: Construction will continue to bring in equipment and materials. Import of crops and restocking of fish can also increase vulnerability	Prioritize existing species. However, with climate change, there may be benefit to pilot other species that will be climate tolerant. In this case, insure that any new crops or marine species that are introduced will not be a nuisance and will not displace others.

Problem /Issue (these are "threats" within the Reimaanlok process)*	Assets	Current Conditions and Threats	Current Sensitivity & Response	CC Impact	Adaptive Capacity (low, medium, high). <i>positive capacities and limitations</i>	Vulnerability (low, medium, high)	Adaptation Options
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the 9 or so years that the *eoek* has established itself on the islet and has covered a decent amount of area in the short time since it was identified. It is not known if this is a common progression of mangroves, or not. In terms of terrestrial, there is a yellow flower/weed that appeared in the past few years, believed to originated when the new school was built, brought by the construction equipment.

Problem /Issue (these are "threats" within the Reimaanlok process)*	Assets	Current Conditions and Threats	Current Sensitivity & Response	CC Impact	Adaptive Capacity (low, medium, high). <i>positive capacities and limitations</i>	Vulnerability (low, medium, high)	Adaptation Options
Decline in Marine Resources (Less catch)	Fish, people, other marine resource, livelihood, culture	Fish is harvested from lagoon and the ocean, mostly for local use only (raw or cooked). Some fish is salted and sold locally. Crabs are taken from the mangroves. It has been noted from the focus group consultations that marine resources have been declining not only in numbers but also in size as well. Community members feel that the decline in stock and numbers may be due in part from the closing off of the swamp near the airport; prior to closing off the lagoon back in the day had been teeming with juveniles. Another possibility is the recent observation of an unknown species of seaweed that has been competing with the local corals for space/sun/food. Some, although the team has yet to observe, have already killed off coral in the lagoon, causing fish to migrate to other coral	People are catching smaller fish, they are going to the same places and spending more time fishing, using more effective gear/fishing methods, women say there are fewer shells than before, but there are still lots	Ocean acification, temperature increase, SLR, coral bleaching	MEDIUM Positive: People are using more efficient gear and are able to still catch fish, boats bring in alternative food although it is expensive; chicken and pigs are available. Fish is eaten locally and fished by locals with little pressure from outside to purchase. Limitation: Increased pressure on resource will not improve conditions, popular food source. Spear fishing had been banned a while back by the local government council, however, it is currently not enforced.	Medium-high: this is food security issue and affects people's livelihoods and culture. However, it is uncertain how CC will impact future fish stocks. Namdrik has a pearl oyster pilot project, which may be sensitive to ocean acidification?	Restock with fish, gear/size limitations, managed areas, no-take zone.

Problem /Issue (these are "threats" within the Reimaanlok process)*	Assets	Current Conditions and Threats	Current Sensitivity & Response	CC Impact	Adaptive Capacity (low, medium, high). <i>positive capacities and limitations</i>	Vulnerability (low, medium, high)	Adaptation Options
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patches. POSSIBLY. Jimakol or COT has also been observed in the lagoons in large numbers. Another possible reason for the decline in habitat for food fish, in addition to loss of habitat. Women are harvesting shells indiscriminately, including ones with eggs

Problem /Issue (these are "threats" within the Reimaanlok process)*	Assets	Current Conditions and Threats	Current Sensitivity & Response	CC Impact	Adaptive Capacity (low, medium, high). <i>positive capacities and limitations</i>	Vulnerability (low, medium, high)	Adaptation Options
Agriculture: Crops dying off. Seasonal Changes Observed	Food, people, livelihood, culture, banana, breadfruit, pandanus	<p>The staple food crops of Namdrik are easily grown and readily available – coconuts, bananas, breadfruit and pandanus. Copra is an important part of the local livelihood, but there is concern that many of the trees are "senile" and the coconut groves will need to be replanted.</p> <p>There are at least 4 sites on Namdrik that the jolikwod banana exists. On Eribub Weto, where the species is believed to have originated, the plant does not exist. Replanting is needed to keep the story alive and not just be a myth.</p> <p>Biological pests are starting to attack the banana, breadfruit and pandanus trees. It is very surprising to learn that the food crops of Namdrik are not of native origin. The coconut trees are from Singapore, the breadfruit trees are from the FSM, and the McKenzie</p>	People are trying to cultivate the wild breadfruit with little success. Cultural activities are slowly dying out	drought, erosion, storms, temperature increase, precipitation changes	<p>LOW-MEDIUM</p> <p>Positive: People are very knowledgeable of the crops on island, people compost and tend to their crops on a regular schedule, some species variety</p> <p>Limitations: people lack knowledge/resources about the ailments currently affecting their crops, highly isolated location with a limited crop variety</p>	<p>MEDIUM-HIGH</p> <p>this is food security issue and affects people's livelihoods and culture, unsure what the specific changes in precipitation and seasonality will be, and then how it will impact agriculture growth and pests.</p>	<p>Monitoring of seasons, temperature, and rainfall would be useful. Biological control of pests is being promoted, as is nursery production of trees. Community has requested assistance for Taro seedlings. Technical assistance and agricultural programs should consider potential impacts of changing rainfall and temperature, as well as groundwater levels, when determining strategies for crop disease and new alternatives.</p>

Problem /Issue (these are "threats" within the Reimaanlok process)*	Assets	Current Conditions and Threats	Current Sensitivity & Response	CC Impact	Adaptive Capacity (low, medium, high). <i>positive capacities and limitations</i>	Vulnerability (low, medium, high)	Adaptation Options
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Banana was brought in from Samoa. With Namdrik's fertile grounds, non-native mango trees, mountain apples (Pohnpei), lime from Kosrae. Sour sap was wiped out. In relation to the crops, they noticed that the breadfruit, typically harvested in Oct-Dec, was later this year (Dec - Feb). Also the rainy season is dryer (but this is also an El Nino year).

Problem /Issue (these are "threats" within the Reimaanlok process)*	Assets	Current Conditions and Threats	Current Sensitivity & Response	CC Impact	Adaptive Capacity (low, medium, high). <i>positive capacities and limitations</i>	Vulnerability (low, medium, high)	Adaptation Options
Solid Waste:	Coral, water lens, agriculture marine resources, people, livelihoods	People currently manage their own solid waste and there are no regulations. Solid waste management needs to be formalized and structured. Community partnership and awareness on this issue is needed.	People currently managing their own solid waste, however, some are better at it than others	Flooding – People feel that Climate Change will increase the importing of processed food, since local agriculture will be impacted.	LOW-MEDIUM Positive: People already manage their own solid waste; two local women's groups join together to clean each other's yards; fewer sources of non-biodegradable trash, relatively small population (which is decreasing), some activities related to battery collection Limitations: regulations (lack), land/place to put trash, no program for removing recyclables or hazardous waste from atoll.	LOW-MEDIUM People lack knowledge of best practices when managing solid waste. Concern about changing climate impacting local agriculture, will result in the need to bring in processed food, which will increase the garbage.	Locate landfill/recycling storage in place where it will not be impacted by flooding, or will not impact the groundwater lens. Promote local/fresh product, with less garbage. Promote recycle program.

* As a result of the threat assessment (PIMPAC worksheet 8), the threats were scored and prioritized with regard to targets/area affected, intensity, and urgency: garbage (14), erosion (13), shift in seasons (13), flooding (12), invasive species (12), decline in marine species (11), crop damage (7.5). The community felt that all were highly sensitive to climate change, except for invasive species, which was unknown.

A19 Creating a Community Vision and a Conceptual Model⁹

A. Session Purpose:

Developing a shared vision is one of the most important steps in developing a management plan. A vision is a statement of the preferred future at the site you are trying to manage. The following questions will help you to determine what the preferred future looks like for your area:

- What does the perfect world look like for you at this site in ten years?
- What is happening biologically at your site in that perfect future?
- What is happening economically at your site in that perfect future?
- What is happening socially and culturally at your site in that perfect future?
- What is being left behind for future generations?
- How will nature/community respond to Climate change in your site in the perfect future?
- What adaptations will have happened?
- What is happening before and after a hazard that shows your resilience?

The conceptual modeling process takes this a step further and identifies factors affecting your group's vision. In this process, you will identify the following factors in relation to your site:

1. Vision
2. Threats (direct and indirect) and obstacles to achieving that vision
3. Opportunities that can help to achieve the vision
4. Strategies to overcome the threats and obstacles in order to achieve the vision



⁹ Adapted from PIMPAC Session/

In many cases it is possible to draw links between the different columns, especially the threats/obstacles and the strategies. You may find that some strategies can address more than one threat. This is great, as you may have more than one way to work to overcome your threats.

To the degree possible, try to identify the strategy that you feel will be the most effective at addressing a particular threat. This will be important later when we prioritize threats and management actions to help improve management in your MMA.

The vision and conceptual modeling process forms the foundation for all other aspects of the management plan. For this reason it IS extremely important that the group spend adequate time on this session.

B. Facilitation Suggestions

Depending on the number of people present, you may choose to carry out this session in one large group or in small groups. If the total group is small enough (fewer than 20 people), you may simply choose to facilitate this process as one group. If the total group is larger, you may find that small groups work better. The advantage of small groups is that more people get to speak; however after the small group sessions, the results have to be summarized into a master vision.

1. One Large Group

- a) Ask the participants to answer the questions on the worksheet below to help them identify their vision.
- b) Once they have answered the questions, the facilitator should help them craft the answers into a vision statement.
- c) Then facilitator should lead the group through a brainstorming session to identify threats and obstacles to achieving the vision and finally to identify strategies to overcome the threats and obstacles.
- d) This should all be recorded on flip charts so all the participants can see it.

2. Small Group (Each small group will need a facilitator.)

- a) Have participants form small groups of four to eight.
- b) Ask the participants to answer the questions on the worksheet below to help them identify their vision.
- c) Once they have answered the questions, the small group facilitator should help them craft the answers into a vision statement.
- d) After this is complete, the small group facilitator should lead the group through a brainstorming session to identify threats and obstacles to achieving the vision and finally to identify strategies to overcome the threats and obstacles.
- e) Once each group has completed the entire process, bring them back together and lead the entire group through a process to summarize the results and make one master vision table.

THE VISION AND CONCEPTUAL MODELING PROCESS

(1) The vision and conceptual modeling process is normally recorded on flip charts as participants brainstorm in small groups. However, particularly with the vision statement, it is helpful if people clarify their thoughts first by answering the questions below.

To help develop a vision statement, answer the following questions:

What does the perfect world look like for you at this site in 10 years?	
What is happening biologically at your site in that perfect future?	
What is happening economically at your site in that perfect future?	
What is happening socially and culturally at your site in that perfect future?	
What is being left behind for future generations?	
How will nature/community respond to Climate Change in your site in the perfect future?	
What adaptations will have happened?	
What is happening before and after a hazard that shows your resilience?	

Answer these questions in your small groups. The facilitator can then summarize these answers into a vision statement that helps to cover everything your group wants to see in the future for your site. Your vision statement should...

- Describe what you all want to see happening at your site in the future;
- Not assume that the future world will be the same as the world today;
- Be written in the present tense as if you were living in that future right now;
- Be specific to your site and group;
- Be positive and inspiring; and
- Be idealistic — but not so much so that the vision is clearly unrealistic to achieve.

(2) Once the vision statement is completed, it is easy for the group or groups to brainstorm together for the threats/obstacles, opportunities, and strategies. The facilitator should simply record these on the flip chart as the group brainstorms each column one by one.

(3) At the end of the process, the facilitator will summarize the results.

A20 Completing a SWOT Analysis¹⁰

A. Session Purpose

A SWOT analysis is a subjective assessment of the internal (your group's strengths and weaknesses) and external (opportunities and threats) forces acting at your site. In discussing these four dimensions, you will...

- Have a better overall understanding of what you think is happening at your site;
- Think more proactively rather than relying on habitual or instinctual thinking;
- Be able to make better decisions regarding how best to plan your work;
- Be able to characterize yourselves and your site on your own rather than having this done by outsiders;
- Be able to revisit and update your SWOT results as conditions change; and
- Be able to compare today's SWOT results with those generated in future years, allowing your group to monitor its own progress through time.

During the vision and conceptual modeling process, you discussed opportunities and threats. You should transfer these from your vision sheets and review whether there are any opportunities or threats you have missed.

B. Facilitation Suggestions

1. You may want to facilitate this session by having the participants form small groups of four to eight and asking them to fill out the worksheet.
2. You may not need to have each small group present their findings; instead, get the group back together and ask them to each offer one or two findings under each category.
3. You can then facilitate the process of creating one master SWOT analysis by combining the major findings of the small group during one large group session.

¹⁰ Adapted from the PIMPAC Session/Worksheet 6.

WORKSHEET: COMPLETING A SWOT ANALYSIS

(1) Using four pieces of flip chart paper taped together to create a table with two columns and two rows, labeled as follows:

	Internal	External
Positive	Strengths	Opportunities
Negative	Weakness	Threats

(2) Think about everyone (and every organization or stakeholder group) who is (or will be) involved in your collaborative effort to manage the MMA (site). Identify and discuss the strengths of this group of people and organizations. Write your responses in a bulleted list under the “strengths” dimension of the table you created. Here are a few questions to help you get started:

- What are your group’s capabilities?
- Does your group have any advantages over other groups?
- What is unique and special about your team?
- What kinds of resources are available to the group? These could include assets (funding, equipment), people (staff, volunteers, experts), and/or information (data).
- What experience, skills, and/or knowledge does your group have?
- Do you have financial support?
- Does your group have any cultural or behavioral assets? Good social structures present?
- Organizations that can respond to climate change?

(3) Think about, identify, and list any known management weaknesses within your group. Think carefully. The more honest you are, the more useful your results will be. Here are a few questions to get you started:

- What gaps are there in the group’s abilities?
- Does your group have any known vulnerabilities?
- How much staff capacity exists? Are there any shortcomings?
- Does your group face any disadvantages at your site?
- Does your group’s reputation presence and reach as strong as it need to be?

- How strong is your group’s financial support? Other resources (see above)?
- How is the team morale, commitment, and leadership?
- Can they make tough decisions?
- Is there leadership/political will to push the process?

(4) Fortunately you have already thought through the opportunities and threats that exist at your site. But it is good to review these and make sure you have covered everything. Transfer the opportunities and threats onto the flip chart, and then review the opportunities with the following questions in mind:

- Are there any recent events, developments, or influences that can help your efforts to conserve this site?
- Are there any scientific or social trends working in favor of conservation?
- Has new technology been put to use at your site that can assist you?
- Is there local and/or national demand for your conservation services on-site?
- Are there any geographic opportunities or benefits to working at your site?
- Is any information or research emerging to help conservation efforts on-site?
- Are there any opportunities for potentially beneficial partnerships on-site?

(5) Review the threats with the following questions in mind:

- What human activities are destroying or impacting the natural resource target(s) at your site?
- What human activities target certain species or communities of species?
- What natural events impact your site?
- Are there any extractive technologies being used at your site that have negative impacts?
- Are there any social, economic, cultural, political, legislative, or behavioral threats impacting your site?
- How has the market or demand changed related to extractive (e.g., fishing) and/or nonextractive (e.g., tourism) uses of the natural resources located at your site?
- How is the economic outlook changing locally, nationally, and regionally?
- How aware is the public of what is happening on-site?
- How much information exists on the impacts of what is taking place?

Using Your SWOT Results (during and after the workshop)

The results of the SWOT analysis will help understand the adaptive capacity of the community for both conservation and adaptation purposes and can now be used to address six specific questions regarding how best to develop a plan and implement management actions:

<i>Your SWOT results...</i>	<i>...can help you answer these six planning questions:</i>
Which of our identified strengths ...	1. ...do we need to maintain in our future work? 2. ...must we build upon (increase) or leverage ?
Which of the identified opportunities ...	3. ...do we need to prioritize or optimize new management action/energy into?
Which of our identified weaknesses ...	4. ...will we need to remedy prior to implementing planned management actions? 5. ...requires us to exist out of certain planned management actions?
Which of the identified threats ...	6. ...requires that we act to counter them?

A21 Crafting a Good Goals and Smart Objectives

A. Session Purpose

In this session you will get into the details of your management plan. You will start by converting your vision statement into a goal. A goal will be very similar to your vision in that it will talk about the preferred state of the managed area where you are working. However, a goal will be more practical.

Some managed area staff find it useful to have multiple goals. This is particularly helpful if you have a very complex management area. In this manual we will only develop one goal. However, it is fine if you find it more useful to have multiple goals.

Objectives are practical translations of the strategies that you have developed in the vision process. Each strategy should have at least one objective. Through the worksheet below, we will develop at least one objective for each of the strategies from the vision process. But first what follows is an example of a good goal and SMART objectives.

Goal	Objective
Broad – your dream or vision state in practical terms	Specific – How to achieve your dream
Opposite of the problem	Tool to solve the problem
Easy for the public to understand	Used by project staff to guide your activities

A good objective is also SMART:

- **S – specific**
- **M – measurable**
- **A – achievable**
- **R – Realistic**
- **T – time-limited**

EXAMPLES:

INEFFECTIVE GOAL	EFFECTIVE GOAL
To save Kavieng Harbor	To restore the health of reef fisheries of Kavieng Harbor
INEFFECTIVE OBJECTIVES	EFFECTIVE OBJECTIVES
To establish managed areas	To create 2 new coral reef LMMAs by December 2008
To get the communities involved	To assist the 2 communities to clarify their dream by December 2006
To work with the communities to make rules at the LMMAs	To work with the 2 communities to develop fishing rules by June 2007
To enforce the community rules	To build the capacity of 10 community members at each LMMA to enforce fisheries rules by August 2007

***Check to see if there are there “no-regrets” (taking climate change related decisions or actions that make sense in development terms, whether or not a specific climate threat actually materializes in the future) objectives to also address Climate Change?**

B. Facilitation Suggestions:

1. If you have enough time, you may find it interesting to divide the Planning Team into two or three small groups and ask them to develop both a Goal and Objectives. After they have each done this you can compare their results. By dividing into small groups, the Team may come up with more ideas than they would have if they had stayed together in a large group. The small groups should each present their results and the others should comment on whether the Objectives are SMART or not. After everyone has presented, the facilitator can lead a process of integrating the results into one overall Goal and a set of Objectives.
2. If your time is limited or your group is small, you may simply want to go through the process all together.

A TABLE FOR WRITING SMART OBJECTIVES

Strategy	What	How	Why	Who	How many or how much	Where	When	Impact or outcome

A22 Developing Management Actions to Achieve the Objectives¹¹

A. Session Purpose

Now that you have developed the objectives for your management plan, it is important to put more detail about specific actions that need to be carried out in order to achieve each of the objectives. In this session, we will use a simple work-plan format to develop key actions that must be taken to achieve each objective. It is not enough, however, to simply list all of the actions that need to be done under a specific objective. To be useful from a management planning perspective, for each action listed we also need to identify the following:

- Who specifically will be responsible for getting the action done (or making sure that it gets done);
- When the action needs to be completed by (due date);
- What estimated amount of financial resources, if any, will be needed to complete the activity; and
- Who (stakeholders, groups) needs to be involved (if anyone).

On a quarterly basis, you can also use this same work plan to develop tasks that must be undertaken to complete the action.

Some common management actions are included below:

- Capacity building activities such as training for staff and volunteers;
- Enforcing the rules and regulations of the managed area;
- Public education and outreach activities such as school tours at the site;
- Monitoring activities such as implementing community coral reef monitoring;
- Infrastructure such as installing mooring buoys or building a field station; and
- Performing targeted biological and social research for management purposes.

B. Facilitation Suggestions

1. Just as in the session on developing Objectives, if you have enough time, you may find it interesting to divide the Planning Team into two or three small groups and ask them to develop the Management Actions for each Objective. By dividing into small groups, the Team may come up with more ideas than they would have together. After they have each done this you can compare their results and integrated this into one set of Management Actions.
2. If your time is limited or your group is small, you may simply want to go through the process together in one group.

¹¹ Adapted from PIMPAC Session/Worksheet 11

WORKSHEET: DEVELOPING MANAGEMENT ACTIONS TO ACHIEVE THE OBJECTIVES

(1) Write down your objectives and as a group discuss and list all of the associated management actions that need to be taken in order to achieve the selected objective. Also include actions that can help/reduce sensitivity and/or increase adaptive capacity. As you identify each, also fill in the other information under the relevant columns in the table. Don't worry about Indicators yet. We will develop these in the next session.

Objective	Management Action	Who	Due Date	Cost	Indicator	Status as of _____
Objective 1						
	Action 1:					
	Action 2:					
Objective 2						
	Action 1:					
	Action 2:					

WORKSHEET: DEVELOPING INDICATORS

(1) With the table that you used to develop your Management Actions, fill in your Process and Impact indicators both for Objectives and for the Management Actions. You may have several indicators for each Objective and Management Action.

Objective	Management Action	Who	Due Date	Cost	Indicator	Status as of _____
Objective 1						
	Action 1:					
	Action 2:					
Objective 2						
	Action 1:					
	Action 2:					

A23 Developing Good Indicators¹²

A. Session Purpose

Monitoring a good indicator helps you to determine whether you are making progress toward your objectives. Indicators can be integrated into your work plan to help your project keep on track.

There are two main types of indicators:

- **Process:** A process indicator tracks how your project is doing in terms of the processes you developed in the Management Plan. For example, have you developed the community council? Have undertaken biological monitoring every quarter? Have you held the education and awareness workshop you identified as necessary? In many cases, process indicators are tracked by simply identifying whether or not the activity has been completed. As you track these indicators, provide details about the status of each activity.
- **Impact:** Impact indicators convey how your management actions are changing the resource or situation in your area. They measure how your actions are impacting the area, with a focus on the factors you are trying to change. For example, has poaching has been reduced by 40%? Are fishermen seeing catches increase by 20%? Is the neighboring village requesting assistance establishing its own MMA? These impacts have resulted from the project activities. In many cases, impact indicators are developed and tracked as part of a biological or socioeconomic monitoring plan. We will work in the development of these monitoring plans in a later session.

B. Facilitation Suggestions

Developing indicators is best accomplished within a small group. One option for facilitation of this session is to assign a small group or a sub-group to develop the project tracking plan and present it back to the larger group. The sub-group could develop the indicators outside of the workshop sessions to save time.

¹² Taken from PIMPAC Session/Worksheet 12

A24 Prioritizing Management Actions¹³

A. Session Purpose

Given the human and financial resources limitations that most managed areas have, it is very valuable to prioritize management actions. This can not only help to conserve resources but also to help direct management actions to the highest priority threats. It is extremely helpful to go through this exercise at least annually to help ensure that your project is still addressing the highest priority threats by applying the highest priority actions.

B. Facilitation Suggestions

Prioritizing management actions is best done in a large group. In this way, everyone has a chance to provide their input. Use the worksheet below. It is a key that all Planning Team members be present for this exercise.

¹³ Taken from PIMPAC Session/Worksheet 14

WORKSHEET: PRIORITIZING MANAGEMENT ACTIONS

(1) Create a table with eight columns and a row for each identified management action. At the top of the table, label each column from left to right as follows:

Actions	Capacity	Enabling Environment	Funding	Support	Threats	Targets	Total Score

(2) Under “actions” list all of the management actions you have identified for **one** of your objectives, one management action per row. Use short hand if necessary.

(3) Use the following six criteria to determine which management actions are the most important (highest priority) for you to try and address in the immediate future.

- a) “Capacity” – the ability of those involved in the management of your site to implement the action now. (Do we have the time, qualified personnel, equipment, and non-monetary resources that will be needed to do this action?)
- b) “Enabling environment” – the authority to implement this action and the political will to support it. (Do we have permission to do this activity? Does the government or other necessary authority approve?)
- c) “Funding” – the potential for funding this action based on both the immediate availability of funds as well as the ability to raise new funds. (Do we have funds to implement this action, or do we need to raise funds? If we need to raise funds, do we have ideas for how we can **quickly** raise funds to support this action?)
- d) “Support” – the amount of public support that exists for this type of management action and the level of conflict that may result among the involved stakeholders. (Will the local community support this activity? Will anyone find this activity controversial or feel that it threatens their livelihood and/or values?)
- e) “Threats” – the number of your top five threats addressed by this objective.
- f) “Targets” - the number of natural resource targets affected by this objective.

(4) As a group, discuss and choose a ranking for the first four criteria. Rank the four criteria using the following scales:

“Capacity” ranking:

- 1 = little to no capacity to implement action
- 2 = some capacity to implement action

3 = fully capable of implementing action

“Enabling environment” ranking:

1 = do not currently have authority to do the action; not approved by government or other authority

2 = have authority to do action; somewhat approved by government

3 = have authority; strong approval and support of government

“Funding” ranking:

1 = little to no funding; little potential to raise funds quickly

2 = some funding; existing mechanisms to raise funds quickly

3 = funding readily available

“Support” ranking:

1 = little to no support; likely to cause conflict

2 = some support; not likely to cause conflict

3 = good support; little to no conflict

Write the group’s four rankings under the appropriate column for each action. Continue until all actions have been ranked.

(5) As a group, count the number of threats from your group’s top-five priority threats (product of worksheet eight) that are addressed by each management action identified. Record the total number of priority threats affected under the “threats” column for each action.

(6) As a group, count the number of natural resource targets that will be affected by each action identified. Record the total number of targets affected under the “target” criteria column for each action.

(7) Across each action listed, determine the total score of all six criteria by adding up the six numbers listed in that row in the table. Check your math.

(8) When all of the total scores have been listed and checked, identify the actions with the highest total scores in the table. Note that more than one action may share the highest score.

These highest-scoring actions are the highest priority actions you will want to implement in the immediate future. On a flip chart, list these top priority actions (in order from highest to lowest or alphabetically) and corresponding scores in a table with three columns labeled as follows:

Highest Priority Actions	Total Score
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	

A25 Action Plan Template – Namdrik Example

Köttöbar eo	Action ko	Wōn	Due Date	Cost	Status as of 2016
1. Kwopej	Awareness Program Dump site/ storage for recycles/hazardous	Partners (Milner, EPA, MICS) LRC, LG National Gov't, local & Partners ** LRC & MICS	1 ½ yio 1 yio	Experts Warehouse plot of land, drieka	Erreo, ajmour im laplak melele in kwopej im jorran ko rej walok jen i Clean & healthy environment/Armij remelele kin jorren ko walok jen kwopej
<p>a. Komman awareness program/campaign ko ikijen kwopej einwot non jikuul ko im aolepen community (nana in an wor kwopej ilo melaa j ko, lojet, bar ijoko jet re jekar aer bed, 'R' kan 4, e lon bar poster, bar dvd, im men ko jet) <i>Conduct an awareness program/campaign for schools and community (topics to include impacts of trash on land and sea, the 4 'R's, and media for distribution</i></p> <p>b. Kojenolok juon jikin im kalek juon mon kakwon kwopej ko rekkar non recycle, im kwopej ko rekawotata bwe ren bojak in transport non Majuro <i>Identify place and build a storage place for trash (recyclables and hazards) prior to transport to Majuro</i></p>					
2. Ene Jako lak	Kalip Jannor/Jelitak Kallikar joko im rekkar nan ebbok bok im dreka Etale wawein ko rejjet ilo ekkal seawalls	Community Partners (MICS, EPA, CMI) LG, LRC MICS, EPA, CMI, LRC/Local Council **LRC	2 yio jen kio 1 yio jen kio 1 yio jen kio	Gardening tools/Seedlings Barge/excavator Expert/equipment	Ne ejab tobrak bar bukwot jet wewein ko rekkar. Ne emman, komane nan aolepen Namdrik. Kabbok ro retelok bwe en bukwot mejlan aban Drik lok an jako barijet Elap lok melele kin issue in
<p>a. Kallip Jannor/Jelitak ilo ijoko elap aer jeleti, iar im lik. <i>Shoreline replanting, lagoon and oceanside</i></p> <p>b. Kallikar joko im rekkar nan ebbok bok im dreka ak la. <i>Identify places best to take sand and aggregates</i></p> <p>c. Jermal iben dron im etali aolepen bunten ko rekkar im jejjet non ekkal seawall. <i>Work together to find best practices/designs/etc for seawalls</i></p>					
3. Oktak in season	Kōmman katak ko kōn season ko.	Partners; -MICS, MIMRA, WUTMI, NGOs, LRC & Community of	1 year "Jen ieen eo approve plan in"	Grant Writer	Elaplok melele im bojak (<i>ñan menin jorrán ko</i>)

		Namdrik Atoll **LG & LRC leaders			
a. Kajitok ibben partner ro non kamman katak ko kon oktak in season ko <i>Assistance from partners to learn more about the changing seasons and impacts affecting Namdrik</i>					
4. Invasive species	Kokajur lok quarantine nan namdrik Request nan R&D nan control mar/kij ko renana ion NDK in	Partners (Kenear, LRC, MIIST, community) Local Gov't **R&D, LG, LRC	6 months 3 months	Tools – chainsaw, diesel, gas, AMI ticket, wood chipper,	Lonlok menin edrek im jeramon jukjuk in bed in, im laplok mona (local food)
a. Kokajur lok quarantine nan Namdrik einwot kin awareness im kalaplok kapeel <i>Strengthen quarantine measures and awareness</i>					
b. Kajitok non Ministry an R&D non control mar/kij ko renana ion Namdrik in <i>Assistance from R&D to control invasives on namdrik</i>					
5. Ibwij (<i>wallōñ lak in dren eo ilojet- SLR</i>).	1) Bikot im katak kōn ijoko rej ibwiji. 2). Training nān monitoring. 3) Ippán doon im monitori ijoko rej ibwiji 4) Kapijōk jen LRC ikijen ekkal ko rejimwe im jejjet ilo ijoko im rej ibwiji.	1) Ro rōtimjelak kōn apōñ in. 2) Experts & LRC + Community & LG **LRC & LG	1) 2 iiō jen an dedelak Management Plan (MP).	1) Monitoring Equipment ko. (<i>Kein jermal ko nān monitor</i>)	1) Melele im jelá ia ko rōkkar nān ekkal im emakūt nān. 2) Moko renaj utiej lak jen jal. Ekkal ion joor.
a. Katak kin ijoko rej ibwij non komman awareness program ko nan jikuul ko im community eo bwe ren melele im jela nan aer bojak im jelmae ne enaj wor ibwij ko renaj walok nan jikin kein ba kaki <i>Awareness program on impacts of flood areas to make a contingency response plan</i>					
b. Kalap lak kapeel im jela nan etale an wallon lok dren einwot an walok ke ewor jet jikin ko ralikkaer aer ettā <i>Training on the impacts of the SLR and rising water lens and impacts on low areas</i>					
c. Jermal ippan dron im etali aolepen bunten ko rekkar nan ad maron kadriklok joraan ko renaj walok jen ibwij					

Work together towards best practices to mitigate impacts on flood areas

d. Kapilok ko jen LRC ikijen ekkal ko rejimwe im jejjet ilo ijoko rej ibwiji

a. *Advice from LRC on best ways to address flooding and impacts*

6. Eiet lok menin jeraaman ko jen lojet	Awareness kin size limit nan menin jeramon ko lojet Koman limit nan jonan ebbook ek im men ko jet einwot libuke im likjaur Restocking the lagoon with Namdrik species Monitoring program of catch of marine species on Namdrik	MIMRA im partner LRC Local Gov't LRC, LG, MIMRA, MIMF, Taiwan-ICDF, CMI, MICS LRC, LG, Shear, ri-enod, MIMRA **MIMRA & LRC	3 months 6 months 2 year 2 year 3 years (+)	AMI tickets, refreshment, materials, poster, info sheets,	Elap lak an naj jeramon im ejmour lak jukjuk in bed in
<p>a. Katak im melele ikijen enod einwot size limit non menin jeramon ko lojet <i>Awareness programs on size limit for marine resources</i></p> <p>b. Komman limit non control jonan ebbook ek im men ko jet einwot libuke, likajur, mejen wod, wolalo, likabejrat im men ko jet <i>Establish fisheries management measures such as catch and size limits (esp. for cowries, giant clams, rock clams, trochus and other threatened local marine resources)</i></p> <p>c. Bar kanne im kejbaroke alele/ Ejaak program im taap menin jeramon in lojet ko an Namdrik emoj aer jino eietlok <i>Restock the lagoon with aquaculture activities involving threatened marine species.</i></p> <p>d. Kakajur lok program in etale jonan ek ko rej kojek (catch data program) ilo Namdrik <i>Strengthen the catch data program.</i></p>					
7. Ejoraan kein ekkal	Komman group non ekkat ma, banana, ni, etc. Lolorjake im jibwe tok program in kalup rej itok jen R&D Train I group ko non kalup Wia locally fertilizer im seedling mokta jen ro jet ilo namdrik	Community im LG im LRC LG, LRC R&D & Franko **R&D, Osi, LRC	1 year 6 months 1 year	Transportation, tools, refreshment, seedling, Air Marshall ticket, fertilizer (copra cake)	Emmanlok an bikot maroro. Lonlok kein ekkal Enej lonlak jaan Ejmour lok armij Elaplok melele ko kin kilin ekkat

- | | | | | | |
|---|--|--|--|--|--|
| | | | | | |
| <p>a. Komman group non ekkat/kalup ma, ni, banana, apple, im ekkan ko jet</p> <p>b. Lolorjake tok program in kalup ko jen R&D (im Taiwan)</p> <p>c. Kalaplok kapeel im jela ko ikijen kalup nan group in ekkat/kalup ko ilo jukjuk in bed eo</p> <p>d. Wia ine ko im men ko jet rebed iben armij ro ilo jukjuk in bed eo mokta.</p> | | | | | |

A26 Marshall Islands Conservation Area Design Principles¹⁴

Design Principles

Design principles are guidelines for the selection, design, establishment and management of conservation areas. The principles were discussed and developed during a 3-day workshop by the National Planning Team, based on those used in the Great Barrier Reef Marine Park^{21, 22}, Palau's Protected Area Network²³, Kimbe Bay²⁴ in Papua New Guinea and international literature. These principles can help achieve the Conservation Goals in an ecologically sound and socially acceptable manner and will help to ensure the system remains resilient to global threats such as climate change.

Design principles are applied here at two key scales:

National-Scale Design Principles

National-scale design principles are used to guide the development of the overall national conservation area network for the Marshall Islands. They can be used to periodically assess how well conservation areas across the nation meet the basic requirements of an effective eco-regional conservation area network.

Comprehensiveness: Conservation areas should represent the full range of biogeographic and socio-cultural diversity.

Balance: The network should be balanced (i.e. not under representing some targets and over representing others).

Adequacy: Conservation areas should be large enough, and the ecosystems being conserved should have viability and integrity to allow them to persist.

Representativeness: Conservation areas should include sites typical of or a good example of, a habitat type or feature.

Efficiency: Conservation and management should aim to achieve the objectives with minimal resource use, cost, and effort.

Key sites: Include sites that contain rare or unusual features, areas of special cultural significance, areas of high biodiversity or endemism and areas with significant populations of threatened species.

These principles should be used to review and assess the overall conservation area network periodically, to determine whether conditions are being met and where additions and adjustments are needed.

Atoll-Scale Design Principles

At the atoll-level, the design principles provide guidance to the facilitator and the community on how to select the most appropriate sites within the atoll. These design principles include both biophysical and socio-economic considerations and can help achieve conservation goals (the quantity of each target to be managed) in an ecologically sound and socially acceptable manner.

¹⁴ Reimaanlok, 2008

These principles serve as a guideline only. Facilitators who work with local communities should acquire a good enough understanding of these principles to be able to modify them in a sensible way to suit the community. Each atoll will have different requirements and slightly different management objectives. The resulting conservation area design will have considered and balanced as many of the design principles as possible.

Comprehensiveness and balance: Conservation areas should represent the full range of atoll-wide biogeographic and socio-cultural diversity and its variation.

- Determine which habitats, processes, threats and community uses/ habits are relevant to achieve the management objectives and ensure *ALL* these are addressed in the selection of conservation areas.
- include both inhabited and uninhabited areas:
 - Inhabited: often high threat, low health levels, but HIGH visibility which helps with education, flagship reserves and easier enforcement.
 - Uninhabited: already quite low threat from resident population, but more threat from illegal unchecked activities.
- Exposure - include both exposed and sheltered areas, and in-between.

Protecting key sites: Include special and unique sites including:

- permanent or transient aggregations of key fisheries species (e.g. groupers, Napoleon wrasses, invertebrates),
- areas that support high species and habitat diversity (e.g. passes),
- areas that support rare, endemic, or vulnerable species (e.g. birds, sharks, turtles, rare corals, and those on the IUCN red list), and
- distinctiveness: unusual, endemic, rare, or significant features are specifically considered.

Adequacy: Include sites and quantities of the target that allow its persistence, so that *Effective Conservation* is achieved. This means the resources continue to exist in a quality and quantity required to support the life of the local community that depends on them.

- Threats. Sites have priority if they have low threats. Highly threatened sites are only given priority if they host critically threatened or unique species.
 - Sometimes highly threatened targets must be protected because they are threatened everywhere.
 - Different types of threats must be reviewed separately.
 - A low threat site takes less effort to conserve than a high-threat site.
 - A low risk site for one threat can be a high risk site for other threats. The scenarios must be balanced on a case by case basis.
 - High threat sites are often required for visibility and education and sometimes for threatened species.
 - If a fishery or conservation target is threatened, explore why the community thinks it is threatened.
- How big should the managed area be? How much of each atoll should be under management, and how much of each atoll should be under Type I or Type II management?
 - Area must be large enough to maintain the feature to be protected, e.g. species with larger home range require larger conservation areas. Bigger is better.

- What area do your animals need? E.g. damselfish territory can be $\sim 1 \text{ m}^2$ but Napoleon wrasse needs much bigger area. Consider the target species in an area- what size do they need?
- When designing sites, size and shape can be determined by natural features, e.g. reef patch or island.
- Landmarks and seascape features are used to define boundaries so people know where it starts and ends.
- To discuss size of management areas with communities, consider producing an information sheet that shows target species and their ranges as a basis for discussion of size.
- **Adjacency:** Include habitats adjacent to each other in each management site.
 - Aim to protect adjacent habitats at the same management levels, to ensure the continuity of processes that require more than one target to function, e.g. choose reef flat adjacent to lagoon slope and outer reef targets.
 - Keep in mind land-reef interactions and ensure some managed areas on reefs and land are next to each other. For example coconut crabs need access to water to breed; mangroves, pollution and sedimentation cross the land-water boundary; and turtles need access from resting and feeding areas to nest peacefully on beaches.

Existing protection: Maintain and include sites where management already exists. Ask the community for existing or formerly active sites of traditional management (TM) (such as *mo*).

- Explore how the community defines the geographic delineation and rules of the *mo* or TM site.
- Try to understand why the TM/ *mo* were created.
- Incorporate active sites so the community can relate. Conservation will be more relevant if it is based on existing knowledge and sites, complemented by additional sites that achieve objectives not yet achieved by the TM.
- Inactive TM sites: Find out why this management stopped, and evaluate if it would be a good idea to resurrect these sites. What is the current use, and biological condition of these sites? Carry out a rapid survey.

Integrity: Healthier ecosystems or a less modified cultural context are better from a scientific perspective. If there is a choice of sites, choose the better, healthier site (everything else being equal). Choose a less healthy site that is close to the community to foster stewardship, community-monitoring initiatives, and education.

This is something to think about when balancing between healthy habitat (often healthy because less accessible) and visibility (and thus stewardship).

Risk spreading: Replicate areas, spread sites. Duplicate or triplicate targets in different areas, so choose more than one managed area for each atoll. This means if one area is damaged by a catastrophic event, there are still some good areas remaining to replenish the damaged areas.

Replicated areas dispersed over a wide geographic range allow for the recovery from a catastrophic event on one site (such as a typhoon, oil spill, crown of thorns outbreak) from other unaffected sites further away (don't put all the eggs in one basket, just in case).

Representativeness: Include sites that are typical of the target, and some say it should be among the better examples of this target. Conserve areas that are typical of a "type" of site

Effectiveness: While achieving conservation objectives, find conservation strategies that maximize outcome while minimizing the effort and resources required. Aim to achieve the best possible outcome with your limited resources.

Socio-Economic Design Principles

Community-based issues:

- Determine the concerns of the community to define management objectives.
- Understand and incorporate local knowledge and traditional fisheries management and conservation practices.
- Recognize and respect local resource owners and customary marine tenure systems and protect areas of cultural importance.
- Minimize negative impacts on existing livelihood strategies, and avoid conflicting uses (e.g. sites for tourism versus coral mining).
- Equity: Distribute costs and benefits fairly within and among communities.
- Consider current and future population trends and changing resource use.
- Identify use patterns that pose an unsustainable use threat.
- Ensure maintenance of cultural heritage and Marshallese lifestyle.
- Facilitators should take care not to over-sell the benefits of conservation or management to a user group. Be careful not to promise spillover in an already healthy system. Be careful with promising alternative income generation.
- For all design principles, facilitators need to translate concepts effectively to explain to the community, and how they relate to their objectives.
- Ecosystem education is needed in order to enhance understanding of ecological, social and economic issues affected by management.
- Ensure a transparent decision-making process and a fair process for dispute resolution.

Fisheries:

- Ensure the management plan supports sustainable subsistence and artisanal fisheries for local communities by recognizing diverse livelihood strategies, and different areas and seasons for fishing.
- Consider the costs and benefits to local communities of managing commercial fisheries.
- Promote artisanal fishing over commercial coral reef fisheries, and manage, limit and prohibit unsustainable methods and fisheries (e.g. destructive fishing methods, live reef food fish trade, aquarium trade and fisheries for vulnerable species like sharks, rays, and sea cucumbers).

Shipping:

- Accommodate existing shipping infrastructure (i.e. avoid placing highly protected areas in the vicinity of these areas).

Pollution:

- Avoid establishing conservation areas next to likely sources of pollution (e.g. don't place a conservation area beneath a dump-site).

Other economic activities: Consider a variety of economic activities and their effects on natural resources.

- Regulate game fisheries.
- Support sustainable aquaculture, but avoid proximity to aquaculture sites when selecting no-take reserves.
- Potential and planned developments, new enterprise: Avoid areas that have been or might soon be affected by new developments. Communicate conservation and management efforts to developers and other internal and external users to foster understanding and to avoid conflict.
- Tourist potential: Tourism creates alternative income and is frequently an incentive to establish conservation areas. Tourism can also damage the environment through inappropriate buildings or poorly managed tourism activities.

A27 Fisheries Management Ordinance Template

(name of atoll) LOCAL GOVERNMENT
FISHERIES MANAGEMENT ORDINANCE

.....Local Government, in exercise of the powers conferred on it by section..... Article IX of the Constitution of the Republic of the Marshall Islands and section 44 and 45 of the Marine Resource Act of 1997 as amended; hereby make the following Ordinance relating to the management, sustainable development and use of the marine resource within its area of jurisdiction.

1. Short Title

This Ordinance may be cited as the Fisheries Management Ordinance 2010.

2. Interpretation

In this Ordinance, unless the context otherwise requires, the terms used in this Ordinance shall have the same meaning as appear the Marine Resources Act 1997 as amended unless otherwise specified;

"Act" means the Marine Resources Act 1997 as amended;

"Area of Jurisdiction or Local Government area" means an area as described in Article IX, Section 1(2) and (3) of the Constitution of the Marshall Islands;

"Artisanal fisheries" or "artisanal fishing" means in-shore fishing by citizens using vessels powered by outboard engines, and which could include commercial fishing;

"closed season" means a period of time during which fishing is prohibited;

"Director" means the Director of the Marshall Islands Marine Resources Authority.

"Commercial fishing" means any fishing resulting or intending or appearing to result in selling or trading any fish which may be taken during the fishing operation, and does not include subsistence fishing;

"Fish" means any living marine resource;

"Fisheries Management Area" means the sea and seabed of the internal waters of the (name of) Atoll system of local government jurisdiction and to the surrounding sea and seabed to a distance of 5 miles from the baseline from which the territorial sea is measured;

"Fisheries Management Ordinance" means an Ordinance for the management, development or sustainable use of a fishery within the (name of Atoll) Atoll system of local government;

"Fishery Management Plan" means the fishery management plan of the (name of) Atoll system of local government adopted and approved pursuant to the Act;

"License" means a license issued in accordance with this Ordinance or the Act;

"Local Fishery" means one or more stock of fish or any fishing operation based on such stocks which can be treated as a unit for purposes of conservation and management, taking into account geographical, scientific, technical, recreational, economic and other relevant characteristics;

"Marine Protected Area" means that parts declared within the local fisheries management area of (name of Atoll) Atoll and clearly marked where fishing is prohibited,

"Mayor" means the Mayor and office of head of the (name of) Atoll Local government system;

"Person" means a company, owner, or individual fisherman

"Subsistence Fishing" means fishing by a citizen substantially for personal consumption, and does not include any fishing resulting or intending or appearing to result, directly or indirectly in selling or trading for profit any fish which may be taken during the fishing operation.

3. Purpose and Scope

The purpose of this Ordinance shall be to promote the protection, conservation, management, development and sustainable use of the fishery and marine resources within the Fisheries Management area of the (name of Atoll) Atoll Local Government.

4. License Required and Procedure

A license shall be required in the Fisheries management area for the following:

- (a) Commercial fishing
- (b) fishing for a species for which a license is required by the Local Government by a resolution
- (c) sport fishing
- (d) diving
- (e) fish cultivation
- (f) any other activities that the Local Government Council may, by resolution, requires.

5. License approval and issuance

- (1) The Local government shall, in consultation with the Director, be responsible for approving guidelines governing the issuance of the license.
- (2) The Mayor or his designee is responsible to issuing of all licenses in accordance with this Ordinance.
- (3) The Mayor or his designee shall review each application submitted in accordance with this Ordinance and may seek advice from the Director and other relevant bodies.
- (4) Applications for licenses shall be in such form as the Local Government council may authorized. A license may be issued after application is made in accordance with this Ordinance, and the required fee is paid.
- (5) The Mayor or his designee may, with consultation with the Director, attach terms and conditions to the license which may include but is not limited to:
 - (a) license period
 - (b) license restrictions
 - (c) gear types
 - (d) reporting
- (6) The Local government council may by resolution, in consultation with the Director, prescribe:
 - (a) Form and procedures for application for license

- (b) any conditions which may be attached to a license
- (c) period of validity of license
- (d) criteria for renewal, refusal, suspension or cancellation of a license

(7) All license fees received shall be deposited into the Fisheries Management Fund established under Section 18.

(8) Where a person contravenes terms and condition of a license issued pursuant to this Ordinance commits an offence and shall be liable to a fine of(\$) and or any things used or obtained in the commission of the offence may be seized and forfeited to the Local Government.

6. License Denial

(1) If the application is denied, the Mayor or his designee shall notify the applicant in writing within a reasonable time of reasons for denying the application.

(2) The application for license shall be denied where:

- (a) the application is not in accordance with the Act and the Ordinance;
- (b) the Mayor or his designee is satisfied that the information required to be given is false, incomplete or misleading;
- (c) the applicant is subject of pending court proceeding in relation to fisheries violations;
- (d) the Mayor, after consultation with the Director, determines that the issuance of a license would not in the best interest of the (name of Atoll) local Government;
- (e) there has been failure to satisfy any judgment for violation of the Act and the Ordinance;
- (f) the Mayor, in consultation with the Director, determines that the issuance of the license would be inconsistent with the management measures implemented in accordance with the Act or this Ordinance; and
- (g) the required fees have not been paid

7. Suspension and revocation

If a person has committed any act prohibited by the Act or this Ordinance or other applicable laws, or any license issued in accordance with this Ordinance, or if any fee or penalty imposed under the Act of this Ordinance has not been paid within 30 days of the due date, the Mayor shall:

- (1) revoke such license;
- (2) suspend such license for a period of time it may deem appropriate;
- (3) impose additional conditions or restrictions on any such license.

8. Marine Protected Area

(1) The Local Government Council may by resolution, after consultation with the Director, establish Marine Protected Area on any part of the reef and fisheries management area of (name of Atoll) Atoll. Such area will be clearly marked and identified as a marine protected area. Other forms of markings may be in the form of including, geographical coordinates, the erection of notice and poles/buoys.

(2) The following activities shall be prohibited within the Marine Protected Area except as otherwise provided in the Act and this Ordinance:

- (a) Fishing of any nature;

- (b) Anchorage;
- (c) Diving;
- (d) removal of sand, rocks and coral;
- (e) recreation; and
- (f) any other activities that the Council may, by resolution, prohibits.

- (3) A person who contravenes subsection (2) commits an offense and upon conviction shall be liable to a fine of, and the catch, fishing gear or equipment, and other things used or obtained in the commission of the offense shall be seized and forfeited to the Local Government.
- (4) The local government council, after consultation with the Director may from time to time allow fishing and other authorized activities to be conducted in the Marine Protected Area
- (5) The local government council, in consultation with the Director, may provide exemption for the protection and promotion of artisanal fisheries within the fisheries management area.

9. Illegal Fishing Methods and Fishing with Poison or Explosives

- (1) No person shall use or cause to be used any destructive fishing methods of any kind, which include but not limited to the use of poison or chemical and explosives, within the fisheries management area.
- (2) A person who contravenes subsection (1) commits an offense and upon conviction shall be liable to a fine of (\$) and the catch, fishing gear or equipment and other things used or obtained in the commission of the offense shall be seized and forfeited to the Local Government

10. Fish Size Restrictions

- (1) The Local Government council may by resolution, after consultation with the Director, prohibits the harvest of certain fish species of certain specified sizes. The Local Government council shall, before imposing the size restriction on the harvest of certain fish species, widely publish to the public the list of fish and specified sizes 60 days before the effective date.
- (2) A person who harvest fish of a size restricted by the Local Government Council commits an offence and upon conviction shall be liable to a fine ofand the catch, fishing gear or equipment and other things used or obtained in the commission of the offense shall be seized and forfeited to the Local Government.

11. Season Closure

- (1) The Local Government Council may by resolution, after consultation with the Director, declare a close or open season within the fisheries management area for a period of time or all times for:
 - (a) any fish, or
 - (b) specified areas
- (2) A declaration by the Local Government Council in subsection (1) shall be widely published in Marshallese and English Language. A specified area declared for closed season shall be clearly marked by using geographical coordinates and including but not limited to other forms of marking such as erection of notice, poles and buoys.
- (3) A person commits an offence who harvest a specified fish specified in the declaration during close season for that fish species, or fish within the specified area during close season for such area, and

upon conviction shall be liable to a fine ofand the catch, fishing gear or equipment and other things used or obtained in the commission of the offense shall be seized and forfeited to the Local Government

12. Minimum Mesh Size for Net

(1) The Local Government council may by resolution, after consultation with the Director, specify the minimum mesh size for cast net and traps to be used in the fisheries management area. The specified minimum mesh size for cast net and traps shall be prohibited to be used in the fisheries management area. The restriction for mesh size for cast net and traps shall be widely publish 60 days before it effective date.

(2) A person who use or caused to be used a specified minimum mesh size of a cast net or a trap in subsection (1) commits an offence and upon conviction shall be liable to a fine of..... (\$), and the catch, fishing gear or equipment and other things used or obtained in the commission of the offense shall be seized and forfeited to the Local Government.

13. Existing Fisheries Regulations

All other fishery or fisheries regulations and schedules adopted and made effective pursuant to the Act shall apply to the local fisheries management area of (name of Atoll) Atoll.

14. Additional Prohibited and Restricted Activities and Pollutants

No person shall cause to be dumped or with intend to be dumped and discharged any garbage, pollutant and any material within the fisheries management area, including any other material of any kind that will have a negative impact on the environment of the fisheries management area. All schedules and regulations adopted and promulgated pursuant to the National Environmental Protection Act 1984 and the Act and other relevant law shall apply to the fisheries management area of (name of) Atoll.

15. Registration of Fishing Activities

a. In addition to other requirements, a company or a fisherman who carry out fishing for commercial purposes shall be required to be registered with its fishing boats and type of fishing gears with the Local Government Council upon the payment of a prescribe fee by the Local Government Council. The Local government council shall maintain a registry.

(1) The Local government council may require to register a company, or a fisherman for the purpose of operating aquaculture in the fisheries management area.

b. The Local government council may require to register fishing boats with outboard and inboard engines for the purpose of fishing in the fisheries management area of (name of atoll).

c. The Local Government Council may impose a registration fees and shall keep and maintain the registry.

16. Monitoring, Control and Surveillance

Monitoring, control and surveillance of the local fisheries management area of the (name of) Atoll shall be governed by local government ordinances of the (name of) Atoll local Government relating to harvesting of fish and marine resources, and in accordance with the Act.

17. Offences and Penalties

- (1) A person who contravenes any provision of this Ordinance commits an offence, and if there is no specific penalty provided for contravention of such provision, shall be liable upon conviction to a fine of, and the catch, fishing gear or equipment and other things used or obtained in the commission of the offense shall be seized and forfeited to the Local Government
- (2) Any proceeds received from any fine and penalty under the Ordinance shall be deposited into the Fisheries Management Fund established under Section 18

18. Fisheries Management Fund

- (1) There is hereby established a Fisheries Management Fund.
- (2) The fund shall be a fund other than the general fund of the Local Government.
- (3) There shall be deposited into the Fund:
 - (a) all monies appropriated by the Local Government council;
 - i. all monies received by the Local Government Council for the intended purpose of the conservation and management of the fisheries management area;
 - ii. all fine or penalties and proceeds of forfeitures or settlements collected by the Local Government pursuant to violations of or offenses committed against this Ordinance;
 - iii. the proceeds of sale of fish seized equipment and gears forfeited pursuant to violations of this ordinance
- (4) Payment may be made out of the Fund only to carry out the purposes of this Ordinance and matters associated with the proper implementation and management of the fisheries management area.
- (5) The Fund shall be administered by the Mayor and shall make quarterly financial reports to the Local Government Council.
- (6) The Mayor shall maintain proper accounts and records of the Fund and the disposition of monies paid into or out of the Fund.
- (7) The accounts and records of the Fund shall be audited annually by such auditors as the Local Government shall appoint.

19. Repeals

The following Ordinances are repealed in their entirety *(if there is other Ordinance to be repealed then this is relevant)*:

20. Effective Date

This Ordinance shall become effective upon certification and attestation of the Mayor and Clerk of the (name of) Atoll Local government Council, and in accordance with rules of procedures of the (name of) Atoll Local Government, and the relevant Acts.

A28 Fisheries Management Ordinance – Likiep Example

**LIKIEP ATOLL LOCAL GOVERNMENT COUNCIL
CONSTITUTIONAL REGULAR SESSION, 2008**

AN ORDINANCE

Ordinance No.

1 **TO ESTABLISH**

2 a local authority to be known as the Likiep Atoll Sustainable Fisheries Authority and for
3 related purposes.

4 **Section 1. Short Title.**

5 This Ordinance may be cited as the Likiep Atoll Local Government Sustainable Fisheries
6 Authority Ordinance of 2008.

7 **Section 2. Definitions.**

8 In this Ordinance:

9 (1) "the Authority," means the Likiep Atoll Sustainable Fisheries Authority;

10 (2) "the Board," means the Board of Directors of the Likiep Atoll Sustainable Fisheries
11 Authority;

12 (3) "coastal waters," includes the sea, the seabed and subsoil of the internal waters of the
13 Likiep Atoll and to the surrounding sea, seabed and subsoil to a distance of 5 miles from the baselines
14 from which the territorial sea of Likiep Atoll is measured;

15 (4) "the Council," means the Likiep Atoll Local Government Council;

16 (5) "the Executive Committee," means the Executive Committee for the Likiep Atoll Local
17 Government;

18 (6) "the Fund," means the Likiep Atoll Sustainable Fisheries Development Fund;

1 (7) "the Local Government," means Likiep Atoll Local Government;

2 (8) "the Mayor," means the duly elected and certified sitting Mayor for Likiep Atoll;

3 (9) "the National Government," means the Government of the Republic of the Marshall

4 Islands;

5 **Section 3. The Likiep Atoll Sustainable Fisheries Authority.**

6 (1) There is established the Likiep Atoll Sustainable Fisheries Authority.

7 (2) The Authority shall be a body corporate with perpetual succession and a common
8 seal, and may sue and be sued in its own name.

9 **Section 4. Management of the Authority.**

10 The powers and functions of the Authority shall be vested in and exercised by a Board of
11 Directors, which shall consist of six (6) members.

12 **Section 5. Board of Directors.**

13 (1) The Board shall consist of the following members:

14 (a) the Mayor, who shall serve as Chairman of the Authority;

15 (b) one elected member of the Council appointed by the Council signified by
16 resolution;

17 (c) one resident of the Likiep Atoll appointed by the Mayor;

18 (d) two representatives, one each from of the Capelle and deBrum family appointed
19 by the respective family; and,

20 (e) the Director, who shall be a non-voting ex-officio member and shall serve as the
21 Secretary of the Board.

22 (2) The term of office of the members appointed under Subsection (1)(b) to (d) shall be two

1 years. Upon expiration of a member's term, the rights and other powers of such member shall lapse
2 and a vacancy shall exist on the Board.

3 (3) The seat of a member of the Board shall become vacant on the resignation of a member
4 the death of a member, the inability of a member to perform his duties for a period not less than six
5 months due to illness or any other reason.

6 (4) On the occurrence of a vacancy on the Board, the Director shall declare the vacancy and
7 notify the Mayor in writing of such vacancy. Vacancies occurring before the expiration of a
8 member's term shall be filled in the same manner as the original appointment for the remainder of
9 the term of office of the vacancy.

10 (4) The Board may act notwithstanding any vacancy in membership, provided that there is
11 a quorum as provided for under Section 7 of this Ordinance.

12 **Section 6. Delegation of Authority.**

13 The Authority may delegate any of its powers to the Chairman or the Director.

14 **Section 7. Executive Committee Policy Direction to the Board.**

15 The Executive Committee may give to the Board in writing directions with respect to policy
16 matters, and the Board shall give effect to such direction.

17 **Section 8. Meetings of the Board.**

18 (1) The Board shall meet at such times and places as may be designated by the Chairman,
19 provided that the Board shall meet no less than once every quarter.

20 (2) The Board shall, by majority vote, adopt its own rules of procedure and regulations for
21 transactions of business and for carrying out the purposes of this Ordinance.

22 (3) The quorum for a meeting of the Board shall be three (3) members.

1 **Section 9. Director and Staff.**

2 (1) The Authority shall employ a full-time Director of Fisheries Development and
3 Management, possessing such qualifications as may be established by the Authority, who shall be
4 in charge of and responsible for the management and administration of the Authority.

5 (2) The Director may act for and on behalf of the Authority subject to any direction the
6 Board may give.

7 (3) The Authority may employ such other employees, consultants and advisers as the Board
8 may deem necessary.

9 **Section 10. Powers and Functions of the Authority.**

10 (1) The Authority shall have the powers and functions to:

11 (a) conserve, manage and sustainable develop all fisheries resources within the
12 coastal waters;

13 (b) establish management plans and programs to manage the fisheries resources
14 within the coastal waters;

15 (c) make recommendations to the Executive Committee on the issuance fishing
16 licenses and other access permits as impacted by this Ordinance;

17 (d) negotiate and conclude access and fisheries management agreements;

18 (f) coordinate and manage fisheries monitoring, control and surveillance and
19 enforcement of this Ordinance, in consultation with the appropriate ministries, departments, agencies
20 or officers of the National Government.

21 (h) appoint authorized officers and observers in accordance with this Ordinance;

22 (i) participate in the planning and execution of projects, programs or other activities

1 related to fisheries or fishing, or the exploration or exploitation of the nonliving resources within the
2 coastal waters, seabed or subsoil thereunder, of Likiep Atoll;

3 (k) regulate the harvesting and export of fish and fish products and the introduction
4 of new fish species or to Likiep Atoll ;

5 (l) seek technical assistance for in furtherance of the purposes of the Authority;

6 (m) submit the an annual budget and an annual report regarding financial status of
7 the Fund and activities of the Authority to the Executive Committee;

8 (n) to recommend to the Executive Committee for the passage of such ordinances as
9 may be necessary or desirous to strengthen, augment, or further the aims of conserving, protecting,
10 managing or developing the fisheries resources within the coastal waters; and

11 (o) perform such other duties and functions as may be necessary to carry out the
12 purposes and provisions of this Ordinance.

13 (2) The Authority shall, in exercising its powers and functions, cooperate with appropriate
14 departments and agencies of the Government with competence, given under authority of law, in any
15 related area.

16 **Section 11. The Likiep Atoll Sustainable Fisheries Development Fund.**

17 (1) There is established a Likiep Atoll Sustainable Development Fund.

18 (2) The Fund shall be a fund other than the Likiep Atoll Local Government General Fund.

19 **Section 12. Payments into the Fund.**

20 (1) There shall be deposited into the Fund:

21 (a) all monies appropriated by the Nitijela for purposes of the implementation,
22 administration, or strengthening of activities initiated under the Likiep Atoll Fisheries Management

1 (b) all monies received by the Local Government for the development, conservation,
2 protection, of fisheries or related activities, including the monitoring, control, and surveillance of
3 marine protected areas and the coastal waters of Likiep Atoll;

4 (c) all monies received by the Local Government by way of loans, grants, aid,
5 advances, contributions, gifts or other assistance for the purposes of the development of the fisheries
6 resources of Likiep Atoll, the establishment and maintenance of marine protected areas, the
7 conservation and protection of fisheries resources in Likiep Atoll, or the monitoring, control and
8 surveillance of marine protected areas or the coastal waters of Likiep Atoll;

9 (d) all fisheries license and access fees and fines imposed for any violation of the
10 fisheries ordinances of the Local Government;

11 (d) such other monies as may be generated or otherwise received by the Authority
12 pursuant to this Ordinance.

13 (2) The Director shall keep and maintain a separate account of all monies referred to in
14 Subsection (1) of this Section.

15 **Section 13. Payments out of the Fund.**

16 (1) Payment may be made out of the Fund only for:

17 (a) carrying out the powers and functions of the Authority, and in particular but
18 not limited to;

19 (i) fisheries monitoring, control and surveillance;

20 (ii) training;

21 (iii) research;

22 (iv) fisheries development;

1 (v) such other activities as the Director may designate in accordance with
2 this Title;

3 (b) the costs and expenses of the Authority, including administration;

4 (c) the purposes of working capital and petty cash, and other related purposes;

5 (d) giving effect to the provisions of this Ordinance and any regulations made
6 hereunder.

7 (2) The Fund shall be administered by the Chairman and the Director in accordance with:

8 (a) financial regulations which may be adopted by the Authority; and

9 (b) a budget approved on an annual basis by the Board.

10 (3) The Director shall make quarterly financial reports to the Board..

11 **Section 14. Duty to Report.**

12 The Executive Committee shall submit a report to the Council on an annual basis on the
13 status of the Fund and other activities of the Authority.

14 **Section 15. Transitional.**

15 Until such time that the Authority can employ a full-time Director, the Mayor may enter into
16 a partnership agreement with any person or duly organized and registered entity that has the required
17 qualifications to assist the Board in carrying out the any of duties, responsibilities, powers and
18 functions of the Director as may be set forth in the partnership agreement. For purposes of this
19 Ordinance, such person or entity shall be entitled to sit on Board meetings in the place of the
20 Director.

21 **Section 17. Effective Date.**

22 This Ordinance shall be effective immediately upon its passage by the Council and upon

**LIKIEP ATOLL LOCAL GOVERNMENT COUNCIL
CONSTITUTIONAL REGULAR SESSION, 2008**

AN ORDINANCE

Ordinance No.

1 certification by the Mayor and shall supercede the provisions of any other Ordinance to the contrary.

2

3 Introduced by:

Date: 05/21/08

4

5

6 
Honorable James E. Capelle

7 Mayor

8 Likiep Atoll Local Government

9

A29 Implementation Guidelines – Likiep Example

**RULE IN KWELOK
AN
LIKIEP ATOLL SUSTAINABLE FISHERIES AUTHORITY**

July, 2010 Edition

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Rule 1. Karok In Kobban Board eo an Authority eo.

1. Ro Uwaan Board Eo. Uwaan Board eo ej einwot an ellajrak iumin Section 5 in Likiep Atoll Local Government Sustainable Fisheries Authority Ordinance eo an 2008.

2. Obija Ro. Uwaan in obija ro an Board eo, ekkar non Section 5 in Ordinance eo, rej einwot in:

- (a) Chairperson eo, eo im enaj Mayor eo;
- (b) Vice-Chiarperson, eo im enaj Representative eo jen Likiep Atoll Local Government Council eo;
- (c) Secretary eo, eo im ej Director eo; im,
- (d) Treasurer eo, kelet jen juon ian representative ro jen bamle ko an Capelle ak deBrum jen ro jet uwaan Board eo;
- (e) 1 Director, eo im ej representative eo jen juon ian bamle ko an Capelle ak deBrumro ededelok jiton ir jen ibben bamle ko an Capelle im deBrum im ejjab kabijer obij eo an Treasurer eo ilo tore en.

Rule 2. Jerbal Ko An Officer Ro.

(1) Chairman eo. Chairman eo ej eddoik:

- (a) kebellok im lolorjake kwelok ko an Board ekkar non kakien ko rekkar an Kien eo colap, ordinance ko an Likiep Atoll Local Government im rule in kwelok kien;
- (b) kamol kin signature eo an aolep minute, resolution, jermal im jemlok ko jet kweppeni jen Board eo;
- (c) kemeleleik jejet in rule ko ne ewor kajitok kaki;
- (d) lorlorjake im komani jermal ko jet emoj liloj non e kin kien im rule kein;
- (e) jiton juon uan Board eo bwe en lorlorjake eddo ko an einwot Chairman im ikijien wot lolorjake kwelok ko an Board eo.

(2) Secretary eo. Ijelokin eddo ko an einwot air kemlet iumin Likiep Atoll Local Government Sustainable Fisheries Ordinance eo, Secretary eo enaj lolorjake bwe en kommon record in aolep minute, resolution, jermal im jemlok ko an Board im enaj kommon kojjele einwot an kemlet iumin rule in kwelok kein kin aolep kwelok ko an Board, regular im special. Aolep record im pepa ko an Authority eo renaj bed iumin kejbarok im lolorjake eo an ekoba aolep record in account ko an Authority eo.

(3) Treasurer eo. Treasurer eo enaj an eddoin bok ak kollaik aolep money ko rej itok non

ak rej aikuj kolla jen ibben Authority eo im enaj kadelon aolep money ak menin aurok ko ilo etan im ikijien Authority eo ilo bank ak jikin kejbarok money ko einwot maron kalikar jen ibben Board of Director eo. Aolep muri ko an Authority eo renaj kollaiki kin check im aolep check ko renaj aikuj sign jen ibben Chairman eo im bareinwot Treasurer eo.

Rule 3. Kwelok Ko an Board.

1. Ien Kwelok. Board eo enaj kwelok ilo regular meeting juon alen ilo aolep jilu allon ko ilo jikin eo, raan eo, im awa eo kalikar jen ibben Chairman eo. Elane emenin aikuj, Chairperson eo emaronin kir non an Board eo kwelok ilo special session jabrewot ien. Elane Chairperson eo enaj kir non an Board eo kwelok ilo sepcial session, Chairperson eo enaj kommon bwe un in kwelok eo en ajeded ibben kojjele eo ikijien kwelok eo.

(2) Quorum. Ejelok kwelok an Board enaj kommon elane ejako elon lok jilu (3) uwaan Board eo.

(3) Karkan Kwelok Ko. Board eo enaj loor karkan wawin kommoni kwelok ko an einwot an ellajrak ijin ilal:

- (a) jar;
- (b) roll-call;
- (c) ennan jen ibben Chairman eo;
- (d) kweppen minit ko an kwelok eo lok;
- (e) jermal ko raar jab dedelok;
- (f) report ko;
- (g) jermal ko rokaalnew business;
- (h) jermal ko jabrewot;
- (i) kilok.

(4) Kwelok ko Rejenolok. Board eo enaj kwelok ilo special meeting elane:Chairman eo emaronin kir juon special meeting an Board eo elane:

- (a) Chairman eo ej lo bwe ewor jermal eo emenin aikuj ak eidin im ej aikuj bwe Board eo en kommon an bebe ikijien menin aikuj ak idin eo ak jermal eo ejjab maron kottar non an Board eo kwelok ilo regular meeting; ak
- (b) ejjab iet lok jen ruo uwaan Board eo renaj kin kajitok ilo jeje non Chairman eo non an kir Board eo non juon special meeting. Kajitok in enaj kalikar un eo ak ko im rein im rej kajitok bwe en kwelok Board eo ilo special meeting:
 - (i) kajitok eo non special meeting enaj iiklok Chairman eo im Secretary eo jimor im enaj an Secretary eo eddo eo non kommon kojjele kin

special meeting eo an Board ekkar non eon ko an Section in;

- (ii) kojuela eo enaj kalikar raan eo, awa eo, jikin eo im special meeting eo enaj bok jikin im bareinwot un eo ak ko non an kir Board eo non an kwelok.
- (iii) Secretary eo enaj kebaak Chairman eo non an bok an lomnak ikijien, raan ta, awa ta im jikin kwelok eo enaj bok jikin, ijowotke, kwelok eo ejjab aikun rumijlok jen lalim (5) raan jen raan eo im kajitok eo ear tobar Chairman eo ak Secretary eo, eo elik iaerro.

(5) Karkan Kwelok ko Rejenolok. Jabrewot special meeting an Board eo enaj kommon ekkar non lajtrak in kwelok in ej walok ijin ilal im enaj kenono wot kin un eo ak ko im rej walok ilo kojuela eo einwot an kemlet iumin Section (4)(b)(ii) in Rule in:

- (a) jar;
- (b) roll-call;
- (c) naan jen Chairman;
- (d) jermal ko ikijien un eo ak ko rej walok ilo kojuela eo;
- (e) kilok.

(6) Karkan Jermal Ko Jet. Karkan wawin kwelok ko an Board eo, ko im rejjab alikar iumin iumin Rule kein renaj kommon ekkar non jabrewot wawin eo Board eo kin vote ko rellon maron kweppeni. Kajitok eo elane juon karkan kwelok ejjab walok iumin Rule kein enaj telokin Chairman eo uake. Elane ewor kajitokin jabrewot uak an Chairman eo jen Board eo ikijien wawin in, Board eo enaj uake kajitok eo kin majority vote.

(7) Kejbarok Ien Kwelok ko an Board. Ej an kajojo uwaan Board eo eddo non air earon im kejbarok kir ko non kwelok ko an Board eo.

Rule 4. Bebe Ko.

(1) Komakit Juon Bebe. Ejelok bebe maron kommon jen ibben Board elane ejjab kin juon motion eo ededlok second e bwe Board eo en bok bebe eo bwe en mweien.

(2) Kajitokini Juon Bebe. Ilo ien en im juon bebe ej likio imaan Board eo, melelein ededlok komakiti im second e, Chairman eo enaj kobellok ien non kajitokin im kenono kin bebe eo. Chairman eo enaj kiil ien kajitokin ak kenono kin bebe elane ej loe bwe ededlok an aolep bok kunaier iikijien kajitokin ak kenono kin bebe eo, ak ej lo bwe kenono ko rej elijin men.

(3) Vote i Bebe Eo. Elkin an kilok ien kajitokin bebe eo, Chairman eo enaj kajitokin aolep ro uwaan Board eo kin vote eo air nae bebe eo. Jabrewot bebe eo enaj weppen im mweien Board eo kin vote ko rellon jen ro uwaan Board eo robed im rej vote i bebe eo. Jabrewot bebe eo im jab

weppen jen Board eo kin vote ko rellone jen ro uwaan Board eo rebed im rej vote i bebe eo enaj jako.

(4) Kajitok non Karumijlok Kajitokin Juon Bebe.

- (a) Chairman eo enaj karumijlok kajitokin ak kenono kin juon bebe eo elikio imaan Board eo elane ewor motion eo ededelok second e non karumijlok kajitokin ak kenono kin juon bebe im motion eo ej ella kin vote ko rellone jen ro uwaan Board eo im rebed im rej vote.
- (b) Juon motion non karumijlok kajitokin ak kenono kin juon bebe eo elikio imaan Board eo enaj kwalok tore eo im kajitokin ak kenono kin bebe eo enaj rumijlok. Motion eo non karumijlok ien kajitokin ak kenono kin juon bebe elikio imaan Board eo emaron kajitok bwe bebe eo en rumijlok non jemlok in agenda eo an kwelok eo ak non regular meeting eo jinoin an Board eo elkin wot kwelok eo im kajitok eo ear kommon.

Rule 5. Minute Ko an Board.

(1) Eddo Non Lolorjake Minute ko. Secretary eo enaj lolorjaake bwe en wor minute in aolep kwelok ko an Board eo, mekarta kwelok ko rej regular ak special. Minute ko renaj kalikar jemlok in aolep bebe ko raar jade imaan Board eo, elane bebe eo ear weppen, jab weppen ak rumijlok.

(2) Melele ko Kobbun Minute ko. Ijelokin wawin eo kemlet iumin Section (1) in Rule in, kajojo minute ko renaj kalikar kein kajote kwelok eo an Board eo, raan, allon im yio eo, awa eo im jikin eo im kwelok eo ear kommon, ta jermal ko raar kommon ilo kwelok im ej aikuj sign jen ibben Chairman eo im kamole jen Secretary eo.

(3) Weppen eo an Board eo. Mokta jen an juon minute sign im kamol jen Chairman eo im Secretary eo, minute eo ej aikuj bwe Board eo en kweppene. Board eo enaj kweppen kajojo minute ko ilo regular meeting eo an imantata elkin wot kwelok eo im minute eo ej ikijien einwot an alikar iumin Rule 3, Section 3(d) in Rule kein.

(4) Bellok Non Etali Minute ko Minute ko an Board rej bellok non etali jen jabrewot uwaan Board eo ekoba ro uwaan Likiep Atoll Local Government Executive Committee eo im Council eo.

Rule No. 6. Report Ko.

Chairman eo enaj ilo kwelok eo an Likiep Atoll Local Government Council imantata ilo kajojo yio jakemanlok juon report kin aolep emakitkit ko an Likiep Atoll Sustainable Fisheries Authority eo ilo yio eo ej jemlok. Report in enaj bar kwalok aolep diwoj - delon in jeen an Authority eo.

Rule 7. Oktak Ko Non Rule Kein.

(1) Kweppen Rule Kein. Rule kein renaj jijjet kitier elkin wot an Board eo kweppeni kin vote ko rellon an ro uwaan Board eo rebed im rej vote.

(2) Oktak ko. Rule kein maron ukoti jabrewot ien jen ibben Board eo kin vote ko rellon an ro uwaan Board eo rebed in rej vote.

A30 Implementation Budget Template

Republic of the Marshall Islands - Terrestrial										
Estimated Annual Recurring Costs of Protected Areas										
Conservation Area: Type: Status: Approx Area (sq. km): Agency/Organization:	Site 1					TOTAL				
	Alik atoll - terrestrial					Subtotals				
	Outer atoll									
	- 5.50					5.499783				
	Establishment costs			Current costs	Effective conservation	Establishment costs			Current costs	Effective conservation
	One off	Replacement (total)	Replacement (annual)			One off	Replacement (total)	Replacement (annual)		
Salaries										
Staff Salaries - Management	\$ -	\$ -	\$ -	\$ 1,500.00	\$ -					
Staff Salaries - Field Staff	\$ -	\$ -	\$ -	\$ 1,000.00	\$ 5,000.00					
Staff Salaries - Administration	\$ -	\$ -	\$ -	\$ -	\$ 400.00					
Subtotal	\$ -	\$ -	\$ -	\$ 2,500.00	\$ 5,400.00	\$ -	\$ -	\$ -	\$ 2,500.00	\$ 5,400.00
Training										
Fees	\$ -	\$ -	\$ -	\$ -	\$ -					
Registration	\$ -	\$ -	\$ -	\$ -	\$ 500.00					
Travel, Food, Lodging	\$ -	\$ -	\$ -	\$ -	\$ 6,000.00					
Fellowships	\$ -	\$ -	\$ -	\$ -	\$ -					
Subtotal	\$ -	\$ -	\$ -	\$ -	\$ 6,500.00	\$ -	\$ -	\$ -	\$ -	\$ 6,500.00
Equipment/Materials										
Car	\$ -	\$ -	\$ -	\$ -	\$ -					
Boat incl. engines	\$ -	\$ -	\$ -	\$ -	\$ -					
Radar	\$ -	\$ -	\$ -	\$ -	\$ -					
Furniture	\$ 1,000.00	\$ 1,000.00	\$ 200.00	\$ -	\$ -					
Tools (GPS, radio, scuba equipment etc)	\$ 5,000.00	\$ 5,000.00	\$ 1,000.00	\$ -	\$ -					
Maintenance	\$ -	\$ -	\$ -	\$ -	\$ 900.00					
Subtotal	\$ 6,000.00	\$ 6,000.00	\$ 1,200.00	\$ -	\$ 900.00	\$ 6,000.00	\$ -	\$ 1,200.00	\$ -	\$ 900.00
Monitoring and Surveillance										
Demarcation	\$ -	\$ -	\$ -	\$ -	\$ -					
Monitoring	\$ -	\$ -	\$ -	\$ -	\$ 3,000.00					
Other	\$ -	\$ -	\$ -	\$ -	\$ -					
Subtotal	\$ -	\$ -	\$ -	\$ -	\$ 3,000.00	\$ 2,500.00	\$ -	\$ -	\$ -	\$ 3,000.00
Construction										
Land Acquired/Leased for Facilities	\$ -	\$ -	\$ -	\$ -	\$ -					
Facilities, Utilities, Mooring, Trails	\$ -	\$ -	\$ -	\$ -	\$ -					
Construction Labor	\$ -	\$ -	\$ -	\$ -	\$ -					
Subtotal	\$ 2,500.00	\$ -	\$ -	\$ -	\$ -	\$ 2,500.00	\$ -	\$ -	\$ -	\$ -
Field Operations										
Vehicle/boat Fuel	\$ -	\$ -	\$ -	\$ -	\$ 3,600.00					
Vehicle/boat Maintenance	\$ -	\$ -	\$ -	\$ -	\$ -					
Building & Trail Maintenance	\$ -	\$ -	\$ -	\$ -	\$ 500.00					
Eradication & management programs	\$ -	\$ -	\$ -	\$ -	\$ 25,000.00					
Overflights, Maps, & Supplies	\$ -	\$ -	\$ -	\$ -	\$ 500.00					
Subtotal	\$ -	\$ -	\$ -	\$ -	\$ 29,600.00	\$ -	\$ -	\$ -	\$ -	\$ 29,600.00
Research and Special Studies										
Land Tenure, Ecological, etc.	\$ -	\$ -	\$ -	\$ -	\$ 5,000.00					
Other	\$ -	\$ -	\$ -	\$ -	\$ -					
Subtotal	\$ -	\$ -	\$ -	\$ -	\$ 5,000.00	\$ -	\$ -	\$ -	\$ -	\$ 5,000.00
Education and Awareness										
Outreach material & announcements	\$ -	\$ -	\$ -	\$ -	\$ 5,000.00					
Other	\$ -	\$ -	\$ -	\$ -	\$ -					
Subtotal	\$ -	\$ -	\$ -	\$ -	\$ 5,000.00	\$ -	\$ -	\$ -	\$ -	\$ 5,000.00
Institutional Support/Admin.										
Phone, Fax, Printing, etc.	\$ -	\$ -	\$ -	\$ 1,500.00	\$ -					
Rent, Utilities, Permits, Fees, etc.	\$ -	\$ -	\$ -	\$ 3,800.00	\$ -					
Office Supplies/Miscellaneous	\$ -	\$ -	\$ -	\$ 2,500.00	\$ -					
Office Equipment	\$ -	\$ -	\$ -	\$ -	\$ -					
Subtotal	\$ -	\$ -	\$ -	\$ 7,800.00	\$ -	\$ -	\$ -	\$ -	\$ 7,800.00	\$ -
Professional Services										
Legal and Accounting Services	\$ -	\$ -	\$ -	\$ -	\$ 3,000.00					
Other Consultant Fees	\$ -	\$ -	\$ -	\$ -	\$ 3,000.00					
Subtotal	\$ -	\$ -	\$ -	\$ -	\$ 6,000.00	\$ -	\$ -	\$ -	\$ -	\$ 6,000.00
Audits										
Audit Services	\$ -	\$ -	\$ -	\$ -	\$ 1,500.00					
Other	\$ -	\$ -	\$ -	\$ -	\$ -					
Subtotal	\$ -	\$ -	\$ -	\$ -	\$ 1,500.00	\$ -	\$ -	\$ -	\$ -	\$ 1,500.00
Others										
Trips to outer atolls	\$ -	\$ -	\$ -	\$ -	\$ -					
On ground community consultations	\$ -	\$ -	\$ -	\$ -	\$ 7,500.00					
REAs	\$ -	\$ -	\$ -	\$ -	\$ -					
Subtotal	\$ -	\$ -	\$ -	\$ -	\$ 7,500.00	\$ -	\$ -	\$ -	\$ -	\$ 7,500.00
TOTAL	\$ 25,000.00	\$ -	\$ -	\$ -	\$ 7,900.00	\$ 25,000.00	\$ -	\$ -	\$ 7,900.00	\$ 32,800.00

TOTAL TERRESTRIAL				
Establishment costs (one off)	\$	36,000.00		
Establishment replacement (total)	\$	-		
Establishment replacement (per year)	\$	1,200.00		
Current costs	\$	10,100.00		
Effective conservation	\$	70,700.00		
Area of sites (km ²)		5.50		
Number of sites		1		
Total annual management (recurrent) costs	\$	82,000.00		
Total establishment costs	\$	36,000.00		
Management (recurrent) costs per sq km	\$	14,909.09		
Establishment costs per sq km	\$	6,545.71		

Annual terrestrial management costs	Total Area	MC area	costs/sq km	Total costs
Total MC terrestrial management costs	181.7	36.3	\$ 14,909.68	\$ 541,818

Terrestrial establishment costs	Total	MC area	costs/sq km	Total costs
Total MC terrestrial establishment costs	181.7	36.3	\$ 6,545.71	\$ 237,871

Republic of the Marshall Islands - Nearshore Marine (outer atolls)																
Estimated Annual Recurring Costs of Protected Areas (outer atolls)																
Conservation Area Type (main axis (N/S), & N/W), or Outer Island	Site 1					Site 2					TOTAL					
	Alik Atoll					Likiep Atoll					Subtotals					
	Outer atoll					Outer atoll										
Conservation Area Status	Fisheries management area					Fisheries management area										
Approx. Area (sq. km.)	265					334										
Agency/Organization	Community/CMAC (24-67 man/0.021 ter)															
	Establishment costs			Current costs	Effective conservation	Establishment costs			Current costs	Effective conservation	Establishment costs			Current costs	Effective conservation	
	One off	Replacement (total)	Replacement (annual)			One off	Replacement (total)	Replacement (annual)			One off	Replacement (total)	Replacement (annual)			
Salaries																
Staff Salaries - Management	0	0	0	20,000	0	0	0	0	20,000	0						
Staff Salaries - Field Staff	0	0	0	5,000	0	0	0	0	5,000	0						
Staff Salaries - Administration	0	0	0	2,000	0	0	0	0	2,000	0						
Subtotal	0	0	0	27,000	0	0	0	0	27,000	0	0	0	0	44,000	10,000	54,000
Training	0	0	0	0	5,000	0	0	0	0	5,000						
Fees	0	0	0	0	0	0	0	0	0	0						
Registration	0	0	0	0	0	0	0	0	0	0						
Travel, Food, Lodging	0	0	0	0	2,500	0	0	0	0	2,500						
Fellowships	0	0	0	0	0	0	0	0	0	0						
Subtotal	0	0	0	0	8,000	0	0	0	0	8,000	0	0	0	0	16,000	16,000
Equipment/Materials																
Car	0	0	0	0	0	0	0	0	0	0						
Boat incl. engines	20,000	20,000	4,000	0	0	40,000	40,000	8,000	0	0						
Radar	0	0	0	0	0	0	0	0	0	0						
Furniture	200	200	40	0	0	200	200	40	0	0						
Tools (GPS, radio, suba equipment etc)	3,000	3,000	600	0	1,500	0	5,000	5,000	1,000	1,500						
Maintenance	0	0	0	0	3,500	0	0	0	0	0						
Subtotal	23,400	23,400	4,640	1,500	3,500	46,400	45,000	9,040	1,500	8,500	68,800	0	13,680	3,000	10,320	85,800
Monitoring and Surveillance																
Demarcation	5,000	0	0	0	0	5,000	0	0	0	0						
Monitoring	0	0	0	0	6,500	0	0	0	0	6,500						
Other	0	0	0	0	0	0	0	0	0	0						
Subtotal	5,000	0	0	0	6,500	5,000	0	0	0	6,500	10,000	0	0	0	13,000	23,000
Construction																
Land Acquired/Leased for Facilities	0	0	0	0	0	0	0	0	0	0						
Facilities, Utilities, Moorings, Trails	5,000	5,000	1,000	0	0	5,000	5,000	1,000	0	0						
Construction Labor	1,500	1,500	300	0	0	1,500	1,500	300	0	0						
Subtotal	6,500	6,500	1,300	0	0	6,500	6,500	1,300	0	0	13,000	0	2,600	0	0	16,600
Field Operations																
Vehicle/boat Fuel	0	0	0	0	3,800	0	0	0	0	12,000						
Vehicle/boat Maintenance	0	0	0	0	200	0	0	0	0	200						
Building & Trail Maintenance	45,000	0	0	0	1,000	45,000	0	0	0	1,000						
Eradication & management programs	0	0	0	0	5,000	0	0	0	0	5,000						
Overflights, Maps, & Supplies	0	0	0	0	500	0	0	0	0	500						
Subtotal	45,000	0	0	0	5,300	50,000	0	0	0	18,700	95,000	0	0	0	24,000	119,000
Research and Special Studies																
Land Tenure, Ecological, etc.	0	0	0	0	7,500	0	0	0	0	7,500						
Other	0	0	0	0	0	0	0	0	0	0						
Subtotal	0	0	0	0	7,500	0	0	0	0	7,500	0	0	0	0	15,000	15,000
Education and Awareness																
Outreach material & announcements	1,000	1,000	200	0	0	1,000	1,000	200	0	5,000						
Other	0	0	0	0	0	0	0	0	0	0						
Subtotal	1,000	1,000	200	0	0	1,000	1,000	200	0	5,000	2,000	0	400	0	10,000	12,400
Institutional Support/Admin																
Phone, Fax, Printing, etc	0	0	0	0	3,000	0	0	0	0	3,000						
Rent Utilities, Permits, Fees, etc	0	0	0	0	7,200	0	0	0	0	7,200						
Office Supplies/Miscellaneous	0	0	0	0	5,000	0	0	0	0	5,000						
Office Equipment	10,000	10,000	2,000	0	0	10,000	10,000	2,000	0	0						
Subtotal	10,000	10,000	2,000	15,200	0	10,000	10,000	2,000	15,200	0	20,000	0	4,000	30,400	0	64,400
Professional Services																
Legal and Accounting Services	0	0	0	0	3,000	0	0	0	0	3,000						
Other Consultant Fees	0	0	0	0	3,000	0	0	0	0	3,000						
Subtotal	0	0	0	0	6,000	0	0	0	0	6,000	0	0	0	0	12,000	12,000
Audits																
Audit Services	0	0	0	1,500	0	0	0	0	1,500	0						
Other	0	0	0	0	0	0	0	0	0	0						
Subtotal	0	0	0	1,500	0	0	0	0	1,500	0	0	0	0	3,000	0	3,000
Others																
Trips to outer atolls	0	0	0	7,800	0	0	0	0	7,800	0						
On ground community consultations	5,000	0	0	5,000	0	5,000	0	0	5,000	0						
REAs	95,000	95,000	9,500	0	0	95,000	95,000	9,500	0	0						
Others institution support	0	0	0	75,000	0	0	0	0	75,000	0						
Subtotal	100,000	95,000	9,500	87,800	0	100,000	95,000	9,500	87,800	0	200,000	0	19,000	175,800	0	394,800
TOTAL	190,900	17,840	17,840	128,000	46,810	146,640	5,960	5,960	0	0	408,800	0	39,680	295,000	110,320	814,800

TOTAL NEARSHORE MARINE OUTER ATOLLS																
Establishment costs (one off)	408,800					146,640	5,960									
Establishment replacement (total)	0				7,887											
Establishment replacement (per year)	39,680				726											
Current costs	295,000			320												
Effective conservation	110,320															
Area of sites (km2)	799	25	2,565													
Number of sites	2															
NEARSHORE MARINE OUTER ATOLLS																
Total annual management (recurrent) costs	406,000															
Total establishment costs	408,800															
Management (recurrent) costs per sq km	508	10,443														
Establishment costs per sq km	511	10,567														

Annual nearshore/marine management	Total Area	MC area	costs/sq km	Total costs
Total MC nearshore/marine management ci	11,438	3,449	608	1,761,918

Nearshore/marine establishment costs	Total	MC area	costs/sq km	Total costs
Total MC nearshore/marine establishment ci	11,438	3,449	511	1,764,000

A31 Management Skill Set Assessment and Management Training Needs Analysis

Change competencies descriptions to suit your situation. Replace the sample scores with those from your own group's management skill set assessments. Note that the totals and averages cells contain formulae for calculating totals so don't over-write these. Lowest scores are obviously the training priorities, although consideration needs to be given to the relative importance of the skills. If helpful show the most important skills by highlighting the rows as in the example (but change to suit your own situation). The spreadsheet can be extended right by copying the section to create new sections for other departments, and then to create organizational totals and averages.

NOTE: The shaded areas are just examples of most important skills - change shading for your own situation. The lowest scores in the most important skills are the development priorities.

Most important skills are normally those which deliver best performance improvement, but importance could also be for legislation or policy reasons.

individual name	individual name	individual name	team/group/depart totals	team/group/depart average	team/group/dept totals	team/group/dept averages
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Skills (add new ones as appropriate)	
1	Planning, prioritizing and organizing tasks and activities, time management, self and team.
2	Motivation and leadership of team and individual team members.
3	Communication skills, questioning and active listening, building trust, empathy and mutual understanding.
4	Performance appraisals planning, conducting, and follow-up, for team, and self.
5	One-to-one counseling, handling grievances, discipline, helping and enabling others with their challenges.
6	Training and developing others, coaching and mentoring, assessing training needs.

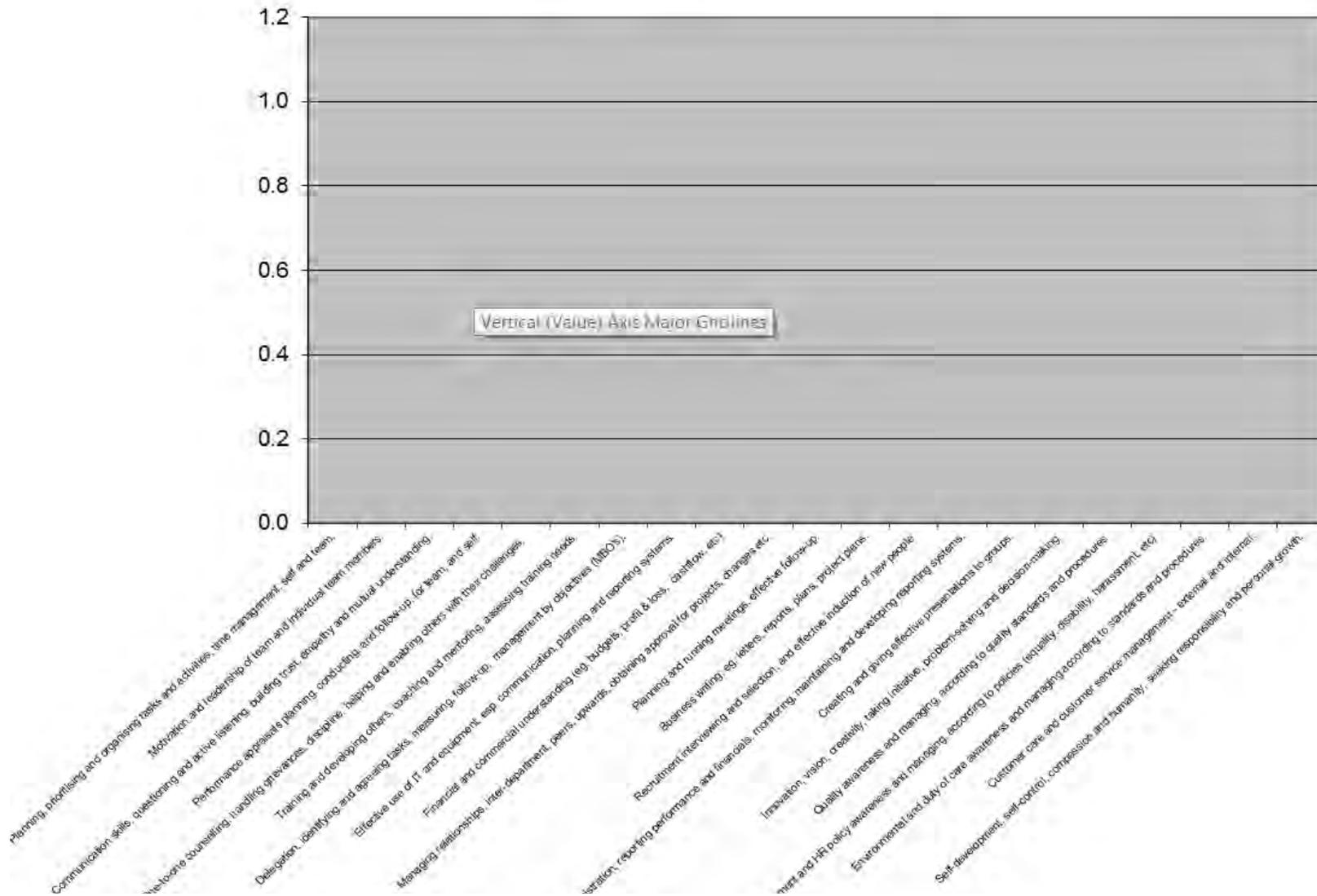
7	Delegation, identifying and agreeing tasks, measuring, follow-up, management by objectives (MBO's).								
8	Effective use of IT and equipment, esp. communication, planning and reporting systems.								
9	Financial and commercial understanding (e.g. budgets, profit & loss, cash flow, etc.)								
10	Managing relationships, inter-department, peers, upwards, obtaining approval for projects, changes etc.								
11	Planning and running meetings, effective follow-up.								
12	Business writing, e.g. letters, reports, plans, project plans.								
13	Recruitment interviewing and selection, and effective induction of new people.								
14	Administration, reporting performance and financials, monitoring, maintaining and developing reporting systems.								
15	Creating and giving effective presentations to groups.								
16	Innovation, vision, creativity, taking initiative, problem-solving and decision-making.								
17	Quality awareness and managing, according to quality standards and procedures.								
18	Employment and HR policy awareness and managing, according to policies (equality, disability, harassment, etc.)								
19	Environmental and duty of care awareness and managing according to standards and procedures.								
20	Customer care and customer service management - external and internal.								
21	Self-development, self-control, compassion and humanity, seeking responsibility and personal growth.								
22	Appreciation/application of social responsibility, sustainability, humanity and ethical considerations.								

23	additional skill 1						
24	additional skill 2						
25	additional skill 3						
totals							
averages							

This analysis is designed to show collective training needs and priorities and also the relative training needs of individuals. For organizational analysis you can use this tool to consolidate and show departmental totals instead of individual names. Use this analysis with the skill assessments (2nd view scores). Use graphs from this analysis to show the results at a glance. More information at www.businessballs.com

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sample management skills training needs analysis



average individual scores out of ten

Management Skill Set Assessment Name _____

		score/10		
Skills (add skills or attributes relevant to your role as applicable)		self-assess	2nd view	importance (A/B/C)
1	Planning, prioritising and organising tasks and activities, time management, self and team.			
2	Motivation and leadership of team and individual team members.			
3	Communication skills, questioning and active listening, building trust, empathy and mutual understanding.			
4	Performance appraisals planning, conducting, and follow-up, for team, and self.			
5	One-to-one counselling, handling grievances, discipline, helping and enabling others with their challenges.			
6	Training and developing others, coaching and mentoring, assessing training needs.			
7	Delegation, identifying and agreeing tasks, measuring, follow-up, management by objectives (MBO's).			
8	Effective use of IT and equipment, esp. communication, planning and reporting systems.			
9	Financial and commercial understanding (eg, budgets, profit & loss, cashflow, etc)			
10	Managing relationships, inter-department, peers, upwards, obtaining approval for projects, changes etc.			
11	Planning and running meetings, effective follow-up.			
12	Business writing, eg, letters, reports, plans, project plans.			
13	Recruitment interviewing and selection, and effective induction of new people.			
14	Administration; financial/performance reporting, monitoring, maintaining and developing reporting systems.			
15	Creating and giving effective presentations to groups.			
16	Innovation, vision, creativity, taking initiative, problem-solving and decision-making.			
17	Quality awareness and managing, according to quality standards and procedures.			
18	Employment and HR policy awareness and managing, according to policies (equality, disability, harassment, etc)			
19	Environmental and duty of care awareness and managing according to standards and procedures.			
20	Customer care and customer service management - external and internal.			
21	Self-development, self-control, compassion and humanity, seeking responsibility and personal growth.			
22	Appreciation/application of social responsibility, sustainability, humanity and ethical considerations.			
23				
24				
25				
26				
27				

Use this to assess your competence in your current job, or for your next job. Initially score yourself out of 10 for each skill in the self-assess column for the job concerned. Then validate or revise your scores in discussion with your boss or someone who knows you. Put these scores in the '2nd view' column - this is your actual assessment. At the same time confirm with the other person the importance of each skill (A, B or C, A = most important) for the job concerned. Your development priorities are therefore the lowest scores in the most important skills. This is an ideal tool for workshops, team meetings and group training needs analysis. For further information and guidance visit www.businessballs.com.

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A32 Management Plan Example – Ailuk Example

**Fisheries Management Plan
for**

Ailuk Atoll

Prepared by:

The People of Ailuk Atoll

**with
assistance from MIMRA**

**and
support from CMAC**

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Statement by Irojlaplap Remios Hermious

Fish and shellfish in lagoons and reefs of Ailuk Atoll provide the major source of protein for the island community. It has been the livelihood for our people since the the beginning of times. We are now realising more that there is a growing negative change from what the Communities of Ailuk used to have in the past and what we have today. Catches of fish and shellfish have been drastically decreased due to various causes. Use of unregulated fishing and harmful fishing practices contribute the main problem and causes of fast fish depletion in the island. If we won't do anything to minimise this problem now, our children and future generations will only inherit from us the sour taste and the consequences of our carelessness. In that regard, it is indeed my great pleasure to present the fisheries management plan for the Communities of Ailuk.

The Community-Based Fisheries Management Plan (CBFMP) for Ailuk is seen as a positive step forward to make people of Ailuk realise the present situation of our marine environment and the stage of our inshore fisheries resources. The management plan can predict what to expect if the problems identified during community discussions remain unresolved. It provides our community to take immediate actions to resolve the problems encountering the conservation and management of our marine environment and its fisheries resources.

Outcomes of various community workshops clearly point out the changes that the community is feeling from their fishery resources as a problem in our marine environment, and how such problem could be resolved. As the traditional leader of the community, I will see to it that undertakings by our community under the plan are carried out soon enough to minimise the effects of the problems to our community. As much as our community is ready and prepared to work towards the management of our marine environment and fish stocks, we would expect the Local Fisheries Committee along with the Local Government and national agencies such as MIMRA support us in any ways, especially the provision of technical advices and services. To this end, every member of our community is being compelled under our management plan to contribute to the fast recovery of our depleted fish stocks and our polluted marine environment through various community efforts.

I sincerely believe that the Community-Based Fisheries Management Plan for Ailuk will set a good example for other Island communities in the Northern Atolls with similar goals and aspirations to follow.

Komoltata,

Irojlaplap Remios Hermious–

1. Vision

Nan jiban ejaak development opportunities ko;

Nan kakmanmanlok level in Mour nan ro ilo jukjuk im bed eo;

Nan Drebij im kojberok ejmour im aiboujoj eo an lojet im menin mour ko ie;

Ilo ad kile etonak kein, Armij in Ailuk renaj:

Bok kunaer ilo manage ak kojberbal im kojeberok menin jeramon ko jen lojet eo;

Jerbal ibben partner ro jen ien nan ien;

ILO MELELE IN KE:

Kojeberok im Kojerbali menin jeramon kein ilo Jimwe im jejjet enaj JIBAN kottobar in.

2. Background

Ailuk Atoll is situated at the (position). The atoll is quite different from any other atolls in the Marshall Islands where the traditional values and customs are still entirely connected to the people, resources and its environment. No study has been conducted to support any decrease of the atoll's fishery resources but the local residents have realized the impacts of some developments on its marine environment. Approximately 300 people lived in Ailuk Atoll with 50 live in Enejlar island that form part of Ailuk community. There are 3 churches and 2 schools within the atoll. People relied heavily on their daily subsistence and livelihoods from their waters and land and surrounding natural environment. The pandanus tree is one of the staple food intakes almost everyday. The pandanus tress can be cooked or raw while eating and has nutritious values. Breadfruit trees, coconut trees, and other agricultural food also supported the community. The community uses some imported foods such as rice, canned meats, sugar, flour, cooking oils, kerosene, and other related items sold in the private owned small stores.

In terms of transportation excess, canoes (**tibnol, korkor**) are the available source of transports used in the waters when somebody goes for fishing or visiting other neighbors islands whether to look for food consumption or relaxing. The canoes as one visitor highlighted, in Ailuk Atoll, have never seen a canoe in his entire life but can be potentially considered environmentally friendly as it does not need fuel. If the world runs out fuel one day, Ailuk community will not have problems in searching for fuel, as canoes do not need fuel to sail except its traditional sailings equipments.

3. Status of the fishery resources

It is not understood if fishery resources have been declining in Ailuk Atoll because of lack of information and no study being conducted over the last past years. Information necessary

for fishery management such as status of fishery, catches, landing, consumption and biological and ecological features of the resources' are unknown at the present time. Collecting information mentioned above is urgently necessary in order to understand the resource conditions and also for management of the resources and the fishery.

In any case, if there is a possibility or danger of decrease of fishery resources in Ailuk atoll, precautionary measures must be taken for sustainable use of the resources. It is in this regard that all the stakeholders such as the national government, the Ailuk atoll local government and all the community shall ensure to cooperate each with each other and establish the Fishery Management Plan in order to conserve and manage our precious fishery resources for the maximum sustainable yield resources of Ailuk community so that younger generations can see these valuable resources.

The Ailuk Atoll Local Government has its mandate to manage and protect its marine resources within its 5 miles water jurisdiction. (MIMRA Act, 1997). The Iroj, Iroj-drik ro, Alaps and dri-jerbal have important roles to play and advise the Local councils pertaining to the economic and social development issues and the well-beings of the community residents. The Mayor of Ailuk, on the other hand, plays such an important role as to improve the standard livings of the Ailuk community. The Mayor, played and active role in seeing that the project succeeds. Furthermore, Madame Mayor Alfred has significant responsibilities and functions in improving the development and growth of Ailuk community. She is a very good leader with many invaluable experiences and skills and an inspirational and a good role model person.

4. Preparation of the Fisheries Management Plan

The fisheries management plan was developed from the results of the series of 7 community workshops carried out in Ailuk. Community workshops involved all sectors of the community including men, women and youth, local and traditional leaders. Workshops were conducted separately and independently by each sector provided useful information such as the common problems existed in the marine environment and the various factors that had caused such problems. Workshops also provided information on the effect of the common problems on the Ailuk Atoll community and its marine environment, and the possible ways to minimize the causes. It was clear from the result of the community workshops that lack of fish in the lagoon of Ailuk atoll constitutes the key problem to the Ailuk community. The plan was drafted by the selected representatives from each sector and was presented before the Local Council for endorsement. The fisheries management plan for Ailuk Atoll is awaiting final approval by the Marshall Island Marine Resources Authority. The plan has now placed obligations to the Ailuk community to implement management actions (undertakings) to help in the management of its marine environment and fisheries resources. The plan also offers technical services and advices required from MIMRA and iAt the same meeting, the Fisheries Department offered to support the fisheries plan by providing the Ailuk community with technical services and advices.

5. Objectives (required by law-taken from old text)

The objectives of the plan are as follows:

5.1 Development for Fishery

Develop fishery to stabilize livelihoods of fishery communities, maximize economic benefits to Ailuk Atoll community and realize stable supply for consumer within and outside of the Ailuk Atoll.

5.2 Fishery resources sustainable use

Realize sustainable use of fisheries resources in the Ailuk Atoll.

5.3 Conservation of marine environment

Conserve marine environment in the Ailuk atoll water area.

5.4 Ensure fishermen and local government's accountability to fisheries

Define obligations and rights of Ailuk community residents and duties and powers of the Local Government in order to ensure implementation of fishery management and to achieve the above objectives.

6. Strategy to achieve the objectives (required by law)

6.1 Responsibilities of the Ailuk community

In order to achieve the objectives of its plan, Ailuk community is committed to carry out the following responsibilities-

- i) Establishment of aquaculture for the important fishery resources namely 1) tero libuke, 2) majenwood, jeno, dimuh and kabor and 3) lik.
- ii) Ban the use of the destructive fishing practices such as 1) Clorox, 2) chemicals, 3) scuba diving gear, and 4) other chemicals that contains poison.
- iii) Closed seasons will be introduced for the harvest of 1) kiro, 2) dilin and 3) lejebjeb.
- iv) Introduce licensing fees to foreigners that wish to fish waters of Ailuk Atoll.
- v) Introduce closures on certain breeding sites during spawning seasons of important fish to allow them to breed. Notifications on banning of fishing and other activities shall be made before the breeding seasons.
- vi) Ban of lobster fishing within one year period

- vii) Conservation Areas designated by the Community : 3 main channels including Eneje Island
- iiiv) provision of data and information as requested by MIMRA through filling of questionnaires.
- vii) Develop Fisheries Management Ordinances to legally bind the ban on destructive fishing practices, seasonal closures as stated above, licensing conditions and fees.
- vii) The Local Fisheries committee will review the plan and Fisheries Management Ordinances every two years or when required by the Ailuk community.

6.2 Responsibilities of MIMRA

In order to support the Ailuk community in its attempt to management and develop its marine environment and marine resources through its Fisheries Management Plan, the Marshall Island Marine Resources Authority and interested partners have agreed to provide the following supports-

- i) provide technical and scientific advices and training on the development of aquaculture for 1) tero libuke, 2) majenwood, jeno,dimuh and kabor and 3) Iik.
- ii) provide technical and legal advices on the preparation of Fisheries Management Ordinances on destructive fishing practices and seasonal closures on breeding stites for important fish of Ailuk.
- iii) conduct based-line survey on marine resources in waters of Ailuk, provide report on the survey and run community workshops to explain results and the situation of marine resources in waters of Ailuk Atoll.
- iv) conduct socioeconomic survey to ascertain the importance of fishery resources for the people of Ailuk, provide report and run community workshop to explain results and the situation in Ailuk.
- v) conduct routine surveys on Marine Reserve /MPA to determine their success and provide information to the Local Fisheries Committee and the community.
- vi) develop marine resource awareness materials to advice Ailuk community on the importance of proper management and conservation of its marine resources and environments through running community workshops, radio local news papers and TV advertisement and provision of information sheets.

7. Management area

The Fisheries Management Plan of Ailuk community will cover the whole lagoon of Ailuk Atoll, its reefs, and extend to 5 miles seaward from the baseline from which the territorial sea is measured. All fishing, management and development activities carried out in the above prescribed area are subject to conditions and matters directed under the plan. The exploitation of fish, shellfish and any marine resource within management area are also guided under the plan.

8. Establishment of Local Fisheries Committee

The community of Ailuk has established a Local Fisheries Committee to manage and oversee the operation of the plan.

8.1 Representatives of the committee

The Ailuk community has established a Local Fisheries Committee that comprised –

- 2 representatives from women
- 1 representatives from men
- 2 representative from Ailuk Council
- Mayor or designee
- Fisheries Officer (ex-officio)
- 1 Youth
- 1 Iroj
- 1 Alab
- 1 from Enejelar Community

8.2 Responsibilities of the committee

The committee will be responsible for the overall administration and operation of Ailuk Fisheries Management Plan. Its specific tasks include-

- i) Develop an annual work-plan to guide the yearly implementation of the plan activities and to the achievement of its objectives.
- ii) Make sure that the responsibilities of the community under the plan are properly carried out and be completed in a timely manner.
- iii). Work closely with MIMRA and follow up MIMRA's obligations under its responsibilities so that they are carried out in a timely manner.

- iv) Report the progress on the development of the Fisheries Management Plan to the community and Ailuk Government Council from time to time or when required.
- v) Arrange and organize community workshops and gatherings as required under the responsibilities of both the community and MIMRA.
- vi) Represent the interest of Ailuk community in national and regional gatherings in matters concerning marine environment and fishery resources.
- vii) With assistance from MIMRA, initiate and establish processes that lead to the formulation and approval of Fisheries Management Ordinances as required under the Fisheries Management Plan and Section 50 of the Marine Resource Act 1997.
- viii) With Assistance from MIMRA, determine conditions and licensing fees for consideration and approval of the Local Government Council.

9. Institutional arrangement and relation to MIMRA and CFMC

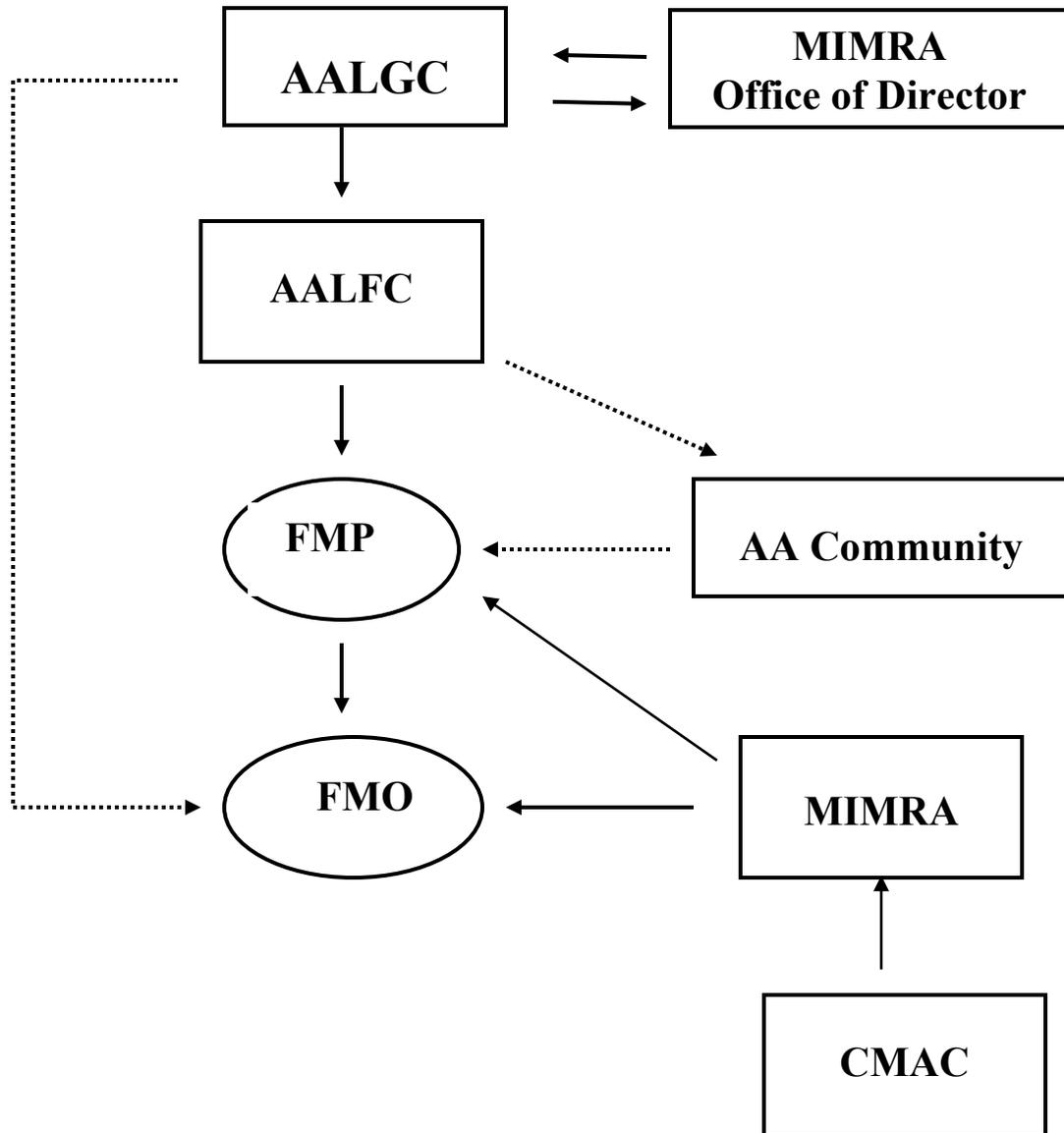


Figure 1- Flow Chart reflecting how the FMP and FMO are to be implemented

The overall administration and operation is Fisheries Management Plan and Fisheries Management Ordinances are carried out by the Ailuk Atoll Local Fisheries Committee (AALFC). The committee however reports to the Ailuk Atoll Local Government Council (AALGC) on the progress of the plan and the management ordinances in terms of achievements of the plan objectives and the difficulties encountered. The Local Government Council can directly oversee the enforcement of the Fisheries Management Ordinances with assistance of the Committee. The committee will make sure that its responsibilities and

those of the community are implemented as required under the plan. In addition, the committee make sure that the supporting services and advices by MIMRA under the plan are carried out in a timely manner. Where the needs for implementing certain aspects of the plan and the management ordinance fall outside MIMRA's expertise, the assistance of the Coastal Management Advisory Council (CMAC) will be sought. The assistance of the CMAC may include the identifying of external resources to implement parts of the plan. Having report to the Local Government Council the achievement of the plan, the council has the responsibility to consult with the Director of MIMRA on various matters including the endorsement of the Fisheries Management Ordinances and the approval of the Fisheries Management Plan if it was to be review. Figure 1 provides a simple flowchart outline of the institutional arrangement on how both the Fisheries Management Plan and the Fisheries Management Ordinance are implemented and monitoered.

10. Monitoring and Plan Evaluation

The progress in the development of the plan and the degree of success in fulfilling the plan objectives will be carried out jointly by the Local Fisheries Committee and MIMRA. This exercise should be carried out six-monthly or when the need arises. The report on the evaluation should among others consist of-

- i) Information on the activities implemented and level of achievement
- ii) Challenges met during the course of the plan implementation and suggestions how these challenges may be overcome.
- iii) Information on the status of the fishery resources as the results of assessment surveys.
- iv) Suggestions on new developments for consideration of the Ailuk community, Government and MIMRA to better serve the interest of the people of Ailuk and,
- v) Recommendations on how the plan may progress in future

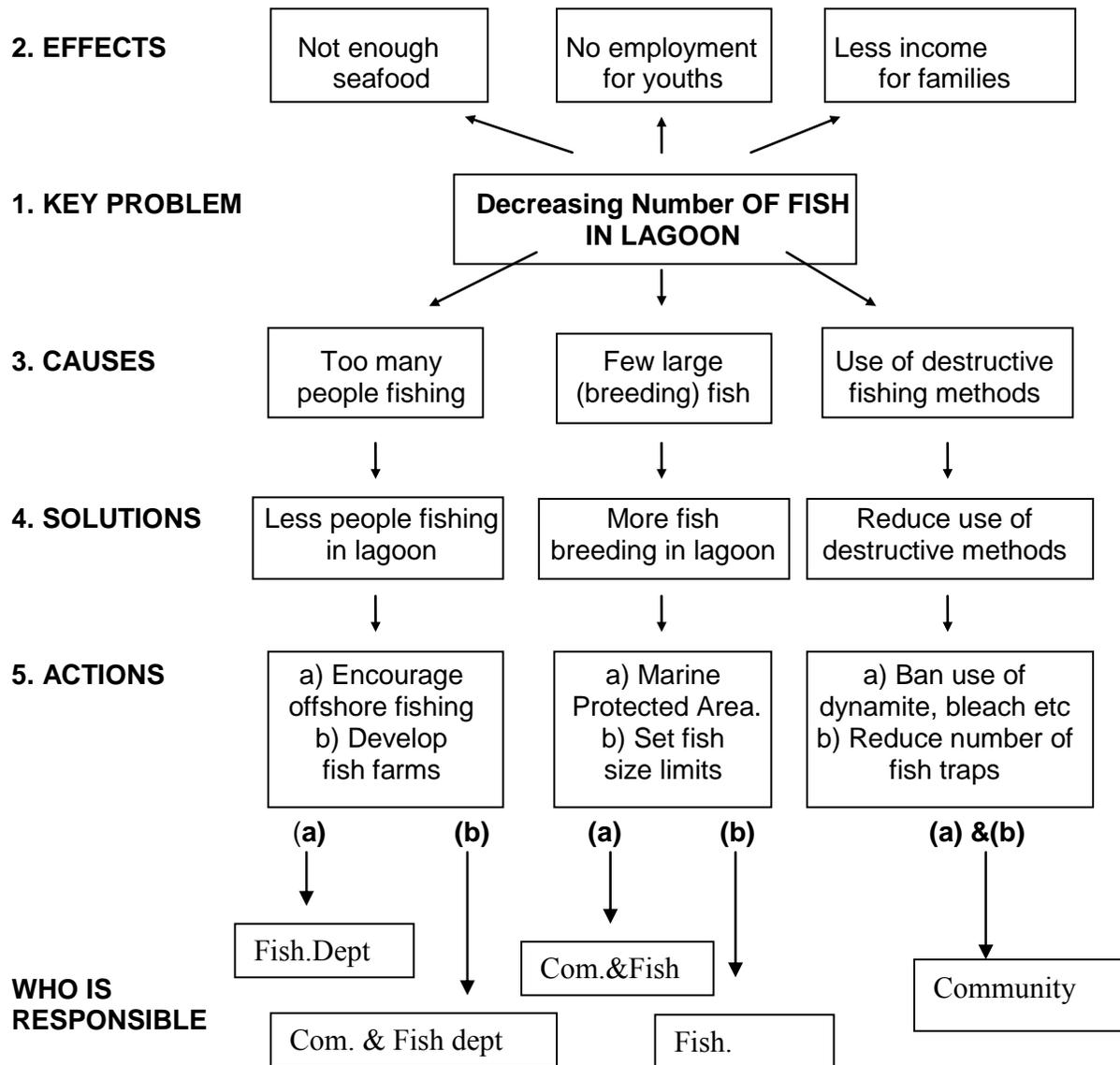
11. Conclusion

The Fisheries Management Plan of Ailuk Atoll which is about to be implemented marked a step forward for the island community to realize the importance of its marine environment and fisheries resources for the future generations of Ailuk community. Community members of the Ailuk Atoll are resource users of its marine environment and they must take the prime responsibility of looking after its fisheries resources. The plan can only work successfully when the community takes it as its obligation to implement responsibilities listed under the management plan. With the support from the Marshall Island Marine Resources Authority, the plan will work towards the betterment of Ailuk community, its people and future generations.

Appendix 1 – List of Fisheries Management Ordinances need to be developed during the implementation of Ailuk Fisheries Management Plan.

1. Conditions on development of Aquaculture
2. Ban on the use of destructive fishing practices-1) Clorox, 2) chemicals, 3) other chemicals that contains poison
3. Ban on fishing using scuba diving gear.
4. Imposition of closed seasons for the harvest of kiro,
5. Imposition of closed seasons for the harvest of dilin,
6. Imposition of closed seasons for the harvest lejebjeb
7. Imposition of licensing conditions and fee levels or foreigners
8. Imposition of closed seasons on certain breeding sites during spawning of important fish species
9. Ban of lobster fishing within one year period
10. Ban on minimum size limit of various fish and shell fish
11. Restriction of fishing gear and methos.
12. Registration of fishery, fishermen and fishing boats.
13. Restriction of harvest of target species
14. Provision fro penalties and violations
15. Establishment of community's exclusive fishing grounds
16. License to sell fishery products from Ailuk Atoll to outside outlets.
17. Special exemption of permits for scientific activities in waters of Ailuk.

Appendix 1- :Example of a problem/solution tree that may be constructed community members



The process begins with step 1 (Key Problem) before proceeding in the numerical order shown. All information must be provided by the community, with the program staff acting as facilitator and recorder.

Appendix 2: Records of Community workshops

Effects	Problem	Causes	solution	Actions	Implementers
Reduction in Reef fish species diversity and species abundance	lack of fish	Overfishing of reef fishes	Reduce reef fishing activities	1) Provide assistance in offshore fishing techniques 2) Regulate fishing of reef fishes and shell fishes through formulation of village rules/bylaws 3) Awareness programmes	1.Fisheries 2.Community 3.Fisheries
Excess to resource, anytime, anywhere, anyhow.	ditto	Lack of Legislation and Enforcement	Have appropriate community rules, bye laws, legislations	1.Develop village rules to regulate sustainable harvest of fisheries resources 2.Secure funding to review and formulate legislation on conservation and management of marine resources	1.Community Fisheries 2.Fisheries
Over exploitation of reef resources	ditto	Lack of awareness on management and conservation principles	Encourage and promote conservation and management principles	1. Public Awareness 2.to support initiatives regarding conservation and management principles	1.Fisheries 2.community
-Decline fish stocks -Destroy marine ecosystems.	ditto	Destructive Fishing methods	Restrict using of destructive fishing methods	1.Develop village rules or by-laws on the following -Mesh sizes for all net types 2.Educate fishers on the following -impact of -placing anchors on live corals -using nets with a smaller mesh size -foraging on reef	1.Community Fisheries 2.Fisheries
Decline in Fish stock Affect fish behaviour	ditto	Modern Technologies such as the use of torch for fishing at night, cooling storage	Regulate the use of these modern techniques	Develop village rules and by-laws to ban the use of torch for fishing at night, and encourage off shore fishing for efficient boat fishing.(with cool storage)	Community /fisheries
Decline in fish stocks, upset ecosystems	ditto	Increasing demand for fish as a source of protein	1.Have other alternative sources of protein 2.Introduce conservation and management principles	1.Encourage land based livestock farming. 2.Encourage fish restocking programs. 3.import of healthy nutritious protein products 4.promote the setting up of MPA's and stock with clams etc.	1.Community 2.Fisheries, , 3. Fisheries 4. Fisheries/community
Deteriorate ecosystems, algae blooming, bacteria living in our waters and marine contributes to fish poisoning	ditto	Pollution of Marine environment by oil spills, runoffs and solid rubbish	Minimise pollution of our marine environment by oil spills, sewage and solid wastes	1.Legislate the pollution of the environment with oil spills, sewage and solid waste 2. Raise communities' awareness on associated environmental impacts. 3.Develop village rules to ban drainage of sewage into sea when cleaning the pigstys. 4.Adopt best practice	1.Fisheries 2.Fisheries 3. community 4. community/fisheries
Excessive caught, usually wasted and undersized fish are also caught	ditto	Large taking of fish during important gatherings (traditional fishing competitions) - cultural	Regulate some of the Cultures that have great impact on fisheries resources	1.Develop village rules to regulate fishing rules during community fishing competitions. Eg – set time limitation 2.Provide technical assistance on the impact of large taking large quantity of fish at any one time	1.community 2.Fisheries
	ditto	Coastal erosion	Minimise erosion of coastal areas	1.Plant trees along the coastal 2.Develop proper seawalls along the coastal area	1.community 2.Fisheries
Degraded marine ecosystem	ditto	Natural Disasters	????????? 15	strengthen religious belief (faith)amongst the community	community

STEP 6 - SIGN-OFF

A33 Sign off Document Template

Resolution for the XX Atoll Resource Management Plan

This document is to certify that the XX Atoll Local Council approves and endorses the XX Atoll Resource Management Plan. The implementation of the XX Atoll Resource Management Plan shall be under the responsibility of the XX Atoll Local Government and the designated XX Local Resource Committee. It is further recognized that multiple national, regional and international partners are available to assist in the implementation of the XX Atoll Resource Management Plan and requests for technical support and capacity building shall be addressed to the national partners through the Coastal Management Advisory Council (CMAC).

Approved this ___ day of the month of _____, 2012.

Mayor

XX Atoll Local Government

Council Clerk

XX Atoll Local Government

STEP 8 - MAINTAINING COMMITMENT

A34 Annual Work Plan

Atoll: Namdrik

Coordinator: Noah Luther / Emos Bwein

Goals: To gauge the community into conservation, protection of biodiversity, food security and adaptation to climate change.

Objectives: Build network with the Local Government, raise the level of awareness on the in

Activities	Expected Outcomes	Months					
		Jul	Aug	Sept	Oct	Nov	Dec
Community and Council Consultation							
Awareness on SLR <ul style="list-style-type: none"> • Beach Erosion • Coral Damage 	Once every month, which will include schools, church groups and community groups						
Awareness on Solid Waste	- - - - -						
Battery Collection	Once a week, every month as much as can collect.						
Beach Clean Up	Twice a month						
Replanting	20 different varieties of trees						
Underwater Clean up	Once every month						
Water Testing	Quarterly HH testing (3months)						
Under water survey and starfish collection	Once every month						
Quarterly Reports	Every three months						

CLIMATE CHANGE LENS ON RESOURCE PLANNING

**A35 Vulnerability Assessment and Local Early Action Plan
(VA-LEAP)**

Guide to Vulnerability Assessment and Local Early Action Planning (VA-LEAP)

Version 1: 2012

Recommended Citations: This document is an advance draft. Please reference it as in preparation.

To cite this tool:

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What is the Purpose of the Guide to Vulnerability Assessment and Local Early Action Planning?

This guide is designed to support a community-based or local level management and adaptation planning process. It can be used to explore the non-climate change and climate change threats within a defined geographic area or community in which there is a clear governing structure and decision-making process. The area can be large or small as long as the planning team involved in facilitating the process has decision-making authority or has the support from the governing authority of the area. For example, the area might be defined as a small coastal community that has land and sea tenure. Or, the area might be a small region of the coastline with several communities that is governed by a central agency or group. However, this tool is not designed for urbanized or densely populated areas with complex social and governance systems.

What Does This Guide Provide?

This document is a step-by-step guide for the development of a Vulnerability Assessment (VA) and a Local Early Action Plan (LEAP) for climate change adaptation.

The VA-LEAP includes the following 6 steps:

- 1) Getting organized
- 2) Raising community awareness
- 3) Assessing non-climate threats
- 4) Developing a local climate story
- 5) Assessing vulnerability to climate change
- 6) Finalizing your local early action plan for climate change adaptation

A LEAP is a simple planning document that practitioners can use to guide critical actions that need to be taken to improve management of important resources while taking climate change impacts into consideration. Developing a LEAP includes identification of priority social and natural resources, identification of threats, characterization of the vulnerability of priority resources to climate change impacts, identification of potential solutions to address threats and to reduce vulnerability to climate change impacts, identification of desired results and measurable objectives, and development of an action plan to achieve those results. The LEAP document can be used by community members and local government and/or NGOs to begin to implement immediate actions that are feasible for natural resource management climate change adaptation at the local level.

Developing a LEAP will allow your team to carry out a “qualitative” vulnerability assessment through community discussion and with local experience and knowledge. A qualitative assessment is based on descriptive information. Therefore, this guide is focused on collecting local knowledge and information to understand the perceived status of target natural and social resources, and the vulnerability of these resources to climate changes based on existing non-climate threats, past and current experience, and future predictions. The LEAP was designed this way to allow communities to explore how climate change may

impact resources that are important to them and develop “early actions” to address these threats without the need for extensive technical assistance and capacity.

Instructions are provided for each step of the LEAP process including the following information:

1. Purpose – a description of information to be captured and why it is important
2. Participants – recommendations on who should carry out or be involved in the exercise
3. Materials needed – what materials are needed to complete the exercise
4. Time requirement – approximately how much time is needed to complete the exercise
5. Worksheet – instructions on how to carry out the exercise and an example of what information will be collected in this exercise for the LEAP

What this Guide Does Not Provide

This guide does not provide complete guidance on community entry and engagement processes nor does it provide guidance on how to address major multi-stakeholder conflicts. This guide assumes that the individuals involved in the planning processes have carried out necessary community and stakeholder engagement and trust building activities and that they have the authority to complete the plan. By all means, a process for gaining community trust and stakeholder input is absolutely essential. We are only able to cover some very basic ways to do this and suggest that practitioners seek more complete guidance if they have not yet built trust with their partner community or if they are in a situation of major stakeholder conflict.

In addition, individuals who use this guide should have a basic understanding of facilitation. This guide does not provide facilitation training.

How was VA-LEAP Guide Developed?

This document was based off a process that was primarily focused on understanding and abating man-made threats to target marine resources. It has been expanded to now include understanding the vulnerability of targets to climate change impacts. Additionally, this process has been modified to explore climate change threats/impacts to all target terrestrial and marine resources, (for example, coral reefs and upland forests) and target social resources (e.g., houses and agriculture). However, given the foundation of the original document, there is a strong focus on “nature-based adaptation planning”. It is therefore important that various agencies/organizations are included throughout the process that can provide more detailed information and input on aspects important for adaptation planning such as hazard management, health, food security, and education.

The VA-LEAP Guide is based on products developed by the Micronesia Conservation Trust and the Pacific Islands Managed and Protected Area Community who allowed CTI-CFF access to the source documents and graciously allowed for their modification for the Coral Triangle Region. The VA-LEAP Guide builds on lessons learned and input from CT6 partners to make the tools relevant to the CT region.

How is the VA-LEAP Guide intended to be used?

While this guide provides a specific series of steps to develop a LEAP, it should be adapted to meet local needs. Your team should review and decide on which steps and associated exercises are most appropriate for your community. For example, if your community has already been through participatory and learning activities (mapping, historical timeline, etc) or a resource management planning process (such as problem/solution tree), information and products from those activities can be used in this process. You should collect and review the information from earlier planning efforts as a foundation for the exercises in this document. In some cases, you might need to collect additional information while in other cases you may find that you already have enough information and can skip an exercise instead of doing it again.

This guide is designed to support a community-based or local level management and adaptation planning process. It can be used to explore the non-climate change and climate change threats within and defined geographic area or community in which there is a clear governing structure and decision-making process. Worksheets included in this document include examples.

Who is the audience for the VA-LEAP Guide?

This guide is designed for practitioners working within and with local governments and communities that normally facilitate capacity development at the community or local level.

This guide can be used by practitioners who generally work with local stakeholders and/or community groups. No specific technical expertise in climate change adaptation is required to carry out the basic process. However, specific expertise may be required to best understand appropriate adaptation strategies for specific issues (fisheries, erosion, agriculture, etc). Therefore, your team should consider bringing in experts before finalizing the plan to help determine feasible and positive actions to consider within the local context.

An Overview of The Local Early Action Planning and Management and Adaptation Planning Process

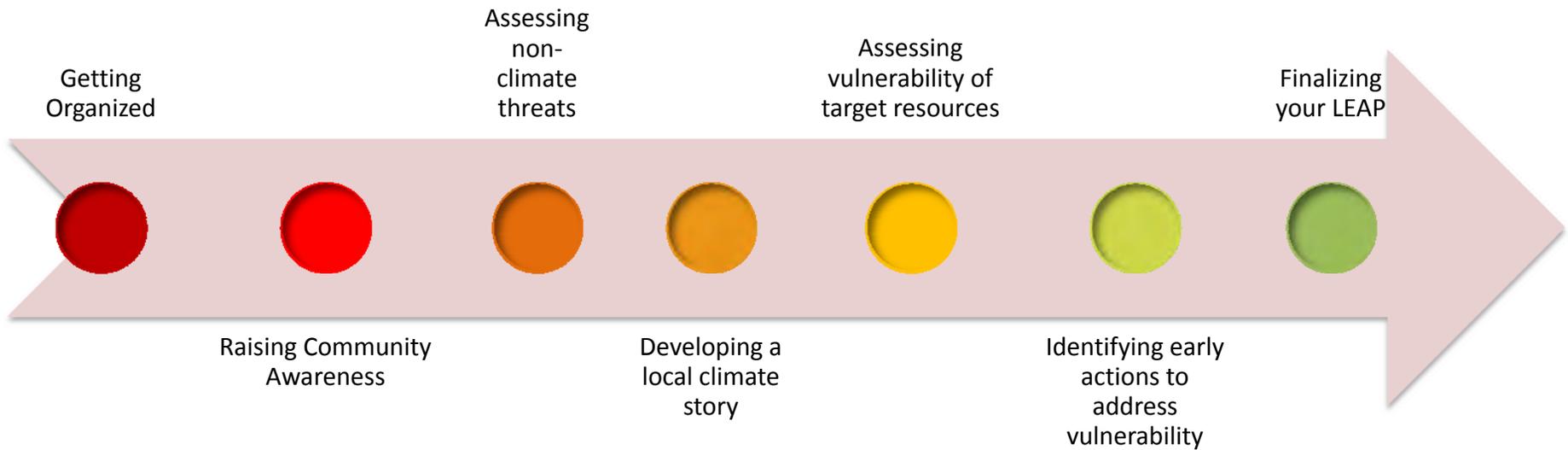


Table 1: Overview of the LEAP process:

Key Steps & Purpose	Activities/ Worksheets	How?
1. Getting Organized		
Purpose: To prepare your team to facilitate a community based LEAP process	<ul style="list-style-type: none"> Review the LEAP template - <i>Worksheet One</i> Organize your team – <i>Worksheet Two</i> Identify Stakeholders – <i>Worksheet Three</i> Developing your Community Profile – <i>Worksheet Four</i> 	Planning Team Meetings & Meetings with Key Informants
2. Raising Community Awareness		
Purpose: To foster an understanding of climate change impacts, adaptation approaches, and other key information needed for your stakeholders to make informed decisions	<ul style="list-style-type: none"> Raising Community Awareness Checklist – <i>Worksheet Five</i> 	Community Meetings
3. Assessing Non-Climate Threats		
Purpose: To identify the most important natural and social resources in your community and explore the main threats to them as well as what you can do to better manage the area.	<ul style="list-style-type: none"> Map the community – <i>Worksheet Six</i> Identify and map natural resource and social targets – <i>Worksheet Seven</i> Identify and map threats and impacts & Identify causes of threats – <i>Worksheet Eight</i> Identify potential early actions to address threats and/or better manage natural resource and social targets – <i>Worksheet Nine</i> 	Community Meetings
4. Developing a Local Climate Story		
Purpose: To understand which climate hazards and related impacts are most important for the community to address through early actions based on historical and present knowledge and future predictions.	<ul style="list-style-type: none"> Conduct a historical timeline exercise – <i>Worksheet Ten</i> Conduct a seasonal calendar – <i>Worksheet Eleven</i> Walk through the community to ground truth the map – <i>Worksheet Twelve</i> Explore the strength and weaknesses of the community – <i>Worksheet Thirteen</i> Develop your local climate hazard story– <i>Worksheet Fourteen</i> 	Community Meetings
5. Assessing Vulnerability to Climate Change		
Purpose: To assess which targets are most vulnerable to the impacts of climate change based on exposure, sensitivity, and adaptive capacity and refine or develop actions to address vulnerabilities	<ul style="list-style-type: none"> Complete the Vulnerability Matrix – <i>Worksheet Fifteen</i> Refine and identify additional early actions – <i>Worksheet Sixteen</i> Prioritize your actions – <i>Worksheet Seventeen</i> 	Community Meetings

6. Finalizing Your Local Early Action Plan for Climate Change Adaptation

Purpose: To finish your LEAP into a simple plan to address priority climate and non-climate threats to the most targets within your community

- Develop Objectives - *Worksheet Eighteen*
- Developing a Work-plan - *Worksheet Nineteen*
- Complete information for the LEAP template – *Worksheet One*

Planning Team
Meetings

Facilitation Tips

Many of the exercises in the LEAP process should be carried out through community or stakeholder meetings to collect local perceptions and knowledge needed to inform various sections of the plan as well as involve the stakeholders in the process. These exercises have been labeled “community meeting” in the participant section. Additionally, many of these exercises benefit from good facilitation skills and a “neutral facilitator” who will not influence the results of the discussion but capture the views of the participants. A neutral facilitator can be a member of your team and/or community who is well respected for being fair or it can be someone from outside your community who can be viewed as neutral. This section provides some tips that your planning team should consider to facilitate these meetings:

- To capture input from the whole community, it is critical to include participants that can represent various groups such as women, men, various ages (including young and old), various income levels and occupations, various ethnic groups, and any other “groups” who are part of the community.
- You may need to adjust how you facilitate each step depending on how many people are present. If your meeting has several participants (more than 12 people) you may find it useful to divide into one or more small groups, which allow more people to talk and share ideas. In general, dividing into small groups to discuss the focal topic (such as the threats and their causes) may be helpful. Typically more people will speak in small groups. If you choose to discuss each topic in small groups it’s important to review the results as a large group.
- Facilitation requires preparation for success. It is important to come to each meeting with a clear understanding for what will be accomplished. To do this, you should collect, prepare, and review materials and exercises needed for the meeting ahead of time so that you are clear about how the meeting will flow. Additionally, you should let the participants know what the objectives of the meeting are in the beginning and how long the meeting will be. Therefore, it is important to have a “time-keeper” to keep track of the time and progress that is being made.
- Exercises in this guide document can be modified and adapted to best meet your team’s and community needs. Your team should decide on how best to facilitate and carry out the exercises to achieve the best outcomes for the local situation.

Local Early Action Plan Template Overview

Purpose: This section provides a template for your LEAP, which you can fill in as you move through the planning process. It provides an overview of the LEAP and the information that will be included in the completed document.

Participants: The Action Planning Team only (the core group of individuals who are involved in the management of your area and who will work with the community to facilitate the LEAP process)

Materials Needed: Computer

Time Requirement: The time it will take to complete the LEAP process will depend on how much activity has already been carried out in your community. For example, if you have already completed awareness programs, and some participatory planning activities you will not need to repeat them for this process and your time will be shorter. It also depends on how much time is needed to conduct a series of community meetings. Therefore depending on the previous work in your community, the whole LEAP process could take anywhere from a few weeks to several months.

WORKSHEET ONE: WRITING YOUR LOCAL EARLY ACTION PLAN (LEAP) FOR CLIMATE CHANGE ADAPTATION

Instructions: After completing specific exercises, you will be directed to take the information you have captured and insert it directly into this LEAP template so that at the end of the process your LEAP will be complete and ready to use.

LEAP Template

Community Name:

Community Profile (Worksheet Four):

Targets (social and natural), their Existing Condition, Non – Climate Threats and Impacts, and Root Causes of Threats (found in Worksheets Six - Nine):

Local Climate Story (climate change impacts and hazards of most concern to your community): (found in Worksheet Fourteen)

Describe which Resources are Highly Vulnerability to Climate Change Impacts and Why: (found in Worksheet Fifteen)

Existing Resilience/Adaptation Strategies & Community Strengths to Maintain or Build upon (found in Worksheet Ten & Thirteen)

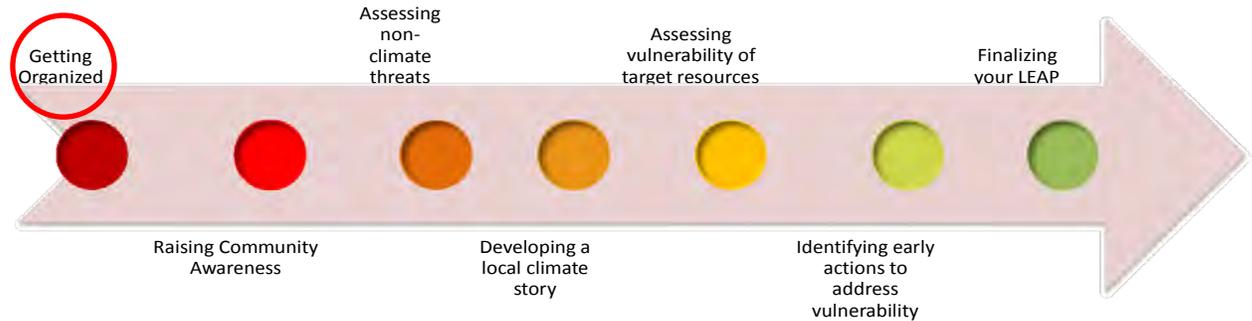
Early Actions to Address Climate Change Impacts and Non-Climate Threats (found in Worksheet Nine & Eighteen):

Objectives and Actions to Address Climate Change Impacts and Non-Climate Threats:

Objective One:						
This objective will:		Reduce Exposure		Reduce Sensitivity		Increase
Management Actions	Who	Due Date	Cost	Indicator	Tasks to Complete the Action	Status as of_(date)_____
Action One:					1. 2.	
Action Two:					1. 2.	
Objective Two:						
This objective will:		Reduce Exposure		Reduce Sensitivity		Increase
Management Actions	Who	Due Date	Cost	Indicator	Tasks to Complete the Action	Status as of_(date)_____
Action One:					1. 2.	
Action Two:					1. 2.	

Estimated Cost:

Local Early Action Planning Process - Getting Organized



Organize the Action Planning Team

Purpose: This activity will help prepare your team to efficiently develop a local early adaptation plan (LEAP). The key question that you want to answer is: Why do we want to develop a local early action plan at this time and are we ready? If you decide that you are ready to develop a LEAP, there are several questions found in Worksheet Two that you should answer to get ready to start the process.

Participants: The Action Planning Team

Materials Needed: None

Time Requirement: The checklist itself will require only an hour. However, after completing the list your team will need to decide if more time is needed to organize the team, information, or the community before moving forward.

WORKSHEET TWO: GET ORGANIZED FOR ACTION PLANNING

Instructions and Example: Review the statements below. Check the boxes YES or NO for all statements and fill in the blanks for those that apply to your situation. It is recommended that all of the getting organized activities at least be discussed and ideally be completed before moving forward.

	Organization Statement	YES/ NO	Example Answer
1	We have clearly defined the results we would like to achieve from developing a local early action plan for climate adaptation at this time.	YES	What is your reason? <i>We are noticing changes that might be related to climate change and want to understand how our community might be impacted and what we can do.</i>
2	People in our community really want to develop a local early adaptation plan.	YES	<i>There have been several meetings with the community leadership and key representatives and they are supportive of having more discussions to better prepare for CC and manage resources.</i>
3	We have identified the geographic boundaries of the area that will be included in the planning process.	YES	The area is: <i>The entire community area from ridge to reef</i>
4	We have identified a strong team of local leaders and experts that have agreed to develop the local early adaptation plan. Who are they and what skills to they bring? (For example representatives from the following sectors: traditional or municipal councils, natural resources, hazard management, health, water resources, food security/ agriculture)	YES	Team members: <ul style="list-style-type: none"> ○ <i>Traditional leader – lead community in discussions and decisions</i> ○ <i>Representative of Women’s Group – will help organize meetings and women’s voice</i> ○ <i>2 members of our community based organization – will provide support in organizing the community meetings, keeping records, and providing outreach</i> ○ <i>Representative from government natural resource agency – will facilitate process</i>
5	We have identified a neutral person who will lead the local early adaptation plan process.	YES	Who? <i>Representative from government natural resource agency – will facilitate process</i>
6	We have the authority to carry out a local early adaptation plan process.	YES	<i>Yes we have both traditional leaders and government leaders engaged and supporting this effort</i>
7	We have a clear plan for who will use the local early adaptation plan and how it will be used.	YES	When? <i>This will guide the community based organization activities as well as local government planning agencies that will support this effort.</i>
8	We have a target date for finishing the plan.	YES	<i>November 2012</i>

9	We know how the plan will be approved and who has authority to approve it.	YES	How? <i>Members of the planning team will sign off after community meetings to endorse the proposed activities</i>
10	We know how the plan will be integrated into existing community plans and projects.	YES	The existing plan(s) are: <ul style="list-style-type: none"> • <i>Management plan for local marine managed area.</i> • <i>Local government hazard management plans</i> • <i>Mangrove conservation project</i>
11	We have collected existing information about the area (e.g. management plans, maps, historical photos, social or biological studies, information on climate).	YES	This includes: <ul style="list-style-type: none"> • <i>Some basic studies were done by the community college on forest species and coral reef species</i> • <i>Culturally important areas have also been mapped</i>
12	We have collected information about national and regional climate change and we know how to use it	YES	<i>We have the “Adapting to a Changing Climate outreach tool and Regional Climate Information Brief for the Coral Triangle”</i>
13	Our team has sufficient time and financial resources to complete our local early adaptation planning process.	YES	List financial sources: <i>There is sufficient time in the community if the process is carried out on weekends. We do not have many financial resources but have support from a local community based organization.</i>

After reviewing the statements in the checklist, your team should decide if you are prepared with the right information and if now is the right time to initiate the development of a local early adaptation plan OR if you need to carry out more activities to get organized. If most or all of the boxes are checked YES and you decide that you are ready, fill out Worksheet Three to understand how to involve stakeholders in the development of your local early adaptation plan.

Identify Stakeholders

Purpose: You should involve key stakeholders in the development of your LEAP. This exercise is extremely important because it will help you identify the individuals and organizations that have a stake in your area and involve them in creating your local early action plan. The way you engage your stakeholders can either help or hinder your work!

Participants: The Action Planning Team (including a neutral facilitator)

Materials Needed: Flipchart, markers, and tape

Time Requirement: 1-2 hours

Stakeholders are the main groups of people in your area that have who have an interest, or “stake”, in your community and its natural resources.

WORKSHEET THREE: IDENTIFYING AND INVOLVING STAKEHOLDERS

Instructions and Example:

Tape several pieces of flipchart paper on the wall with the five following columns written like the example worksheet below. Review the questions below. Working with your neutral facilitator and your Action Planning Team, fill in the boxes in the table.

What are the main groups of people involved in the area?	Describe their interest in the area	Describe the validity of their interest or “stake”?	How important is this group to the planning process?	How and when would you like to involve them in the planning process?
Local community members (including men, women, and youth)	Clan ownership of many of the resources. Recognized resource use rights	Highly valid. They have had a role in the area for generations	Very important	From the very beginning of the process. Involve them in community visioning process, all regular community meetings, quarterly feedback opportunities.
Fishermen from other villages on the island	Historically they would fish in the area only by asking permission. Now they often fish without asking permission	Low. Historically we would not deny them access as long as the stock was healthy. Now they come in without asking.	Medium. They may choose not to follow the rules unless they are involved. But they have little valid stake in the area.	Inform them that the process is going on and ask for their input after the community has carried out the planning process. Ask them for their input on the activities and the rules and consider revisions if appropriate. Inform them of our decisions, pointing out how we have involved their concerns.
Illegal fishermen from far outside the area	Sharking fining, tuna fishing, catching turtles, etc.	None. They are fishing completely illegally in the area	Not important	Inform them of the rules once established. Enforce when necessary.
Enforcement agency	They are mandated to enforce the rules of the area	High. Once rules are law, they must enforce them.	Very important. They can help determine what is practical in terms of enforcement.	Inform them early on about the process. Ask for their input early on and invite them to key meetings. Ask them to have a focus group after the community has gone through Steps One to Three.

Developing a Community Profile

Purpose: This exercise can be used by the planning team as an “entry point” into your community to begin discussions about climate change. The aim is to capture and understand some basic information about the community situation and the problems they are facing. This information will form the foundation for outreach discussions and future planning activities. If you already began working with the community used another exercise (e.g., problem-solution tree), you can continue to use that method to capture this information.

Participants: The planning team and key informants in the community. It is important to talk to representatives from various stakeholder groups such as men, women, elders, youth, and major occupational groups (e.g., fisher, farmers, etc).

Materials: Worksheet and pen and paper to capture notes

Time requirement: 1-2 hrs per stakeholder group

WORKSHEET FOUR: DEVELOPING A COMMUNITY PROFILE

Instructions and Example: Information for your community profile can be captured through guided discussions with representatives from various stakeholder groups. You can carry out this discussion in one meeting if key informants will be comfortable speaking about their concerns together. If not, you can have separate discussions with various key informants and the planning team can then compile the information together to develop the community profile.

You can use the questions in the table below to guide the discussion and form your community profile. After talking with the various stakeholder group representatives, your planning team can compile all the information into one statement.

Community Profile Questions	Example Answer
About how many people live in your community?	250
What are the major occupations (income generating and subsistence activities) of community members?	<i>Fishing, farming, teaching, government</i>
What local resources does your community depend on? Explain why.	<ul style="list-style-type: none"> • Reef fish- food and income • Coastal land – homes and agriculture • Rivers – fresh water for drinking, bathing and crops • Mangroves – food (crabs) and wood for building and cooking
How are decisions made in your community? Who has authority?	<i>Combination of traditional management (chiefs) and local government. Traditional management is still respected in the community but legally needs to be backed by local government.</i>
What social groups are currently active and what purpose do they serve?	<ul style="list-style-type: none"> • Council of Chiefs – make major decisions regarding land and marine resources and other plans in the community • Women’s Group – ensure women’s input is provided to decision making process • Youth Group –ensure youth input is provided to process and function as community “surveillance” for marine managed area
What are the main strengths of your community? What aspects of resource management and quality of life are working well?	<i>Our community works well together and supports one another. When someone is in need, others will help. Our resources are still able to provide many of us with food and income.</i>

Please explain 1-3 major problems your community is facing. Provide details.	We are noticing changes to our resources. Our fish populations are declining and the coastline is eroding. We are experiencing more flooding during king tides.
Please explain 1-3 social problems your community is facing. Provide details.	<ul style="list-style-type: none"> • Health/sanitation – water resources are contaminated from piggery waste and no longer safe to drink – people/children have gotten sick from this. • Loss of traditional practices – young adults are moving away and traditional practices are not being passed down to new generation • Lack of job opportunities – there are not many jobs available for young adults and they have to move to more urbanized areas
Do the problems listed above affect different groups of community members equally?	Less fish, and lack of jobs are mostly impacting youth especially those that would like to be fishermen. People living on the coastline experience more flooding of their homes during king tides. The whole community is facing loss of traditional knowledge and sanitation problems as these problems spread throughout the entire population.
Are there any new community improvement initiatives planned? (e.g., development, capacity, transportation)	A new health center is being built in the next two years to provide more immediate access to health care in the area.

<p>COMMUNITY PROFILE STATEMENT – Write a brief statement that includes the information captured through your discussions.</p>
<p>The community of _xxx_ has a population of about 250 people and is located in the northern area of the island of _xxx_. The decision making structure is made up of traditional management that is supported with the government legal system. The major occupations within the community are farming and fishing. The strengths of the community are that the community is well organized with strong leadership. Most people are able to earn income and/or harvest food from local resources. The resources the community members are mostly dependent on and concerned about are</p> <ul style="list-style-type: none"> • Reef fish - food and income • Coastal land – homes and agriculture • Rivers – fresh water for drinking, bathing and crops • Mangroves – food (crabs) and wood for building and cooking <p>The main problems they are facing are:</p> <ol style="list-style-type: none"> 1) Coastal erosion of low-lying coastal areas where many homes and farms are located 2) Loss of mangroves over time 3) Decline in fish populations and loss of income for fishermen, especially young fishermen 4) Polluted water resources that are no longer healthy for human use 5) Lack of job opportunities for youth 6) Loss of traditional knowledge and practice in the new generation <p>Existing actions the community is taking to address these problems:</p>

- *Many fishermen are starting to do more farming to supplement income*
- *Moving farms away from coastline where salt water inundation has occurred in the past*

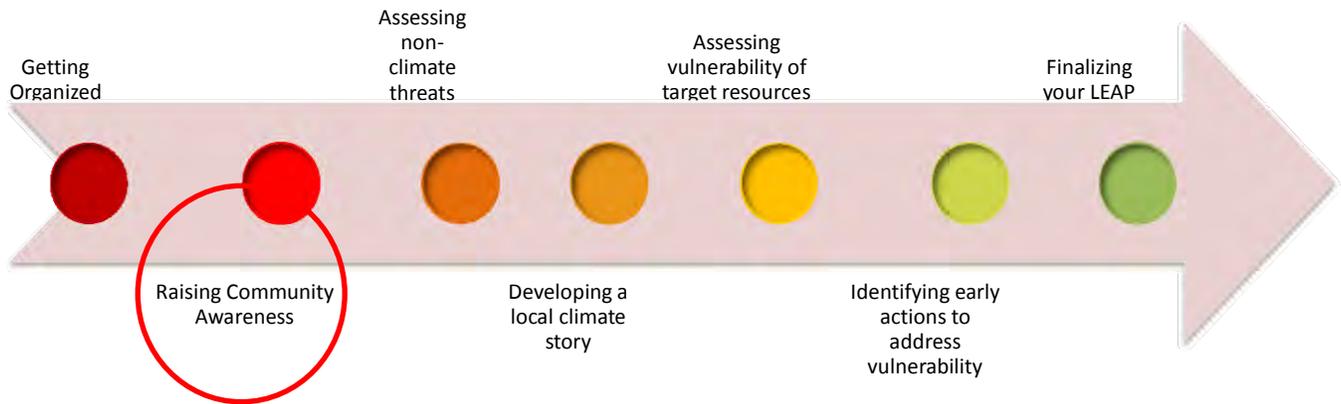
New community improvement initiatives include:

- *A new health center being built to provide access to health care to the area*

Upon completing the information above, add the “community profile statement” into the LEAP template.

This exercise completes the “Getting Organized” Step!

Local Early Action Planning Process - Raising Community Awareness



Community Awareness Checklist

Purpose: It is important that your community understand climate change, its potential impacts, and the reason for developing a LEAP. Efforts to raise awareness are used to provide key information to stakeholders so that they can make informed decisions. This activity will help your team review what information has been provided to the community and what outreach may still be needed.

Participants: The Action Planning Team

Materials Needed: None

Time Requirement: The checklist itself will require only an hour. However, after completing the list your team will need to decide if more time and materials are needed to carry out awareness raising activities with your community on specific topics.

If you determine that you need to engage in outreach efforts within your community, you can use Tool 2: Outreach Toolkit: Adapting to Climate Change in the CTI CCA LEAP Toolkit.

WORKSHEET FIVE: COMMUNITY AWARENESS CHECKLIST

Instructions: Review the statements below. Check the boxes and fill in the blanks for those that apply to your situation. While all of these outreach activities are not required to complete a successful LEAP, they will help ensure that your community has important information to support the decision making process. For boxes that are not checked, the team should discuss and decide if additional outreach is needed in the community prior to carrying out a LEAP process. If so, the group should decide on who and how the information will be shared with the community.

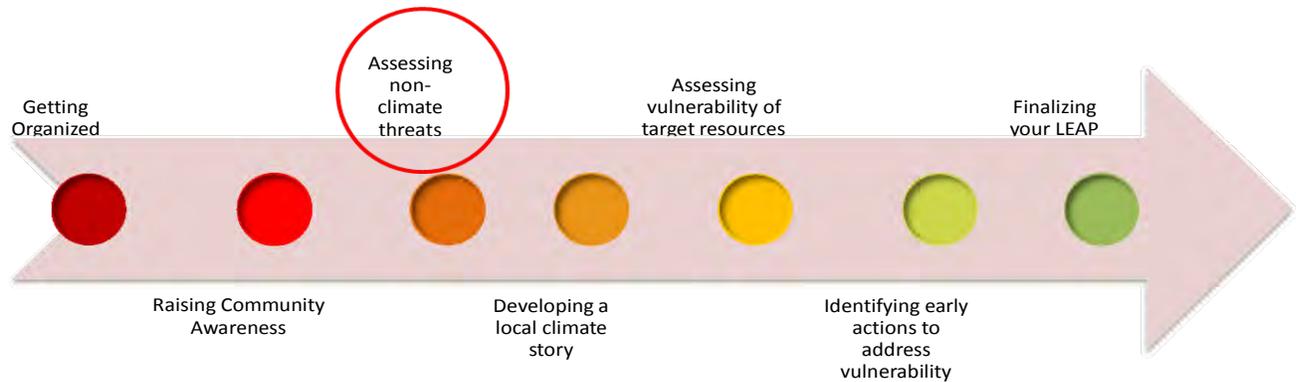
Review the statements below and check the boxes for those that apply to your situation.

	Community Awareness Activity	YES/ NO	Example Answers
1	We have carried out outreach in the community about tropical island ecology to ensure stakeholders are familiar with key ecosystem processes and services.	YES	When? <i>July 2010 – we began working with this community in early 2010 and carried out several community meetings and with local school groups to share information about ecology</i>
2	We have carried out outreach in the community about the benefits of managing resources	YES	When? <i>July 2010 – part of our meetings at this time was a discussion about resource management and best management practices that are options.</i>
3	We have carried out outreach in the community about climate change, potential impacts, and possible adaptation strategies to ensure there is a basic understanding of these concepts before developing a local early action plan. (NOTE: Tool 2: Outreach Toolkit: Adapting to Climate Change in the CTI CCA LEAP Toolkit can be used for to provide this information)	NO	When? <i>We have not provided information about climate change and there have been many questions about this issue. We now have the tools to carry out this work and will do so in April 2012</i>
4	We have carried out outreach in the community about the purpose and benefits of developing a local early adaptation plan	NO	When? <i>Our discussions about CC will include options for adaptation planning</i>
5	Other relevant outreach has been		What topics and when?

	carried out in the community	YES	<i>Our partners carried out awareness programs on maintaining safe and healthy water catchments. There have also been some meetings about emergency procedures in case of extreme events such as tsunamis</i>
6	Our community still needs to learn and understand more information	YES	<p>What topics and when will this occur? <i>What other communities are doing to address climate change</i></p> <p>Who will provide the information? <i>We will carry out a learning exchange with another local community leader who has been doing work on this.</i></p>
7	Our Action Planning Team still needs to learn and understand more information	YES	<p>What topics and where will this information be found? <i>We need to understand more information about climate predictions and past climate events (when they occurred) such as El Nino's and major typhoons.</i></p>

This exercise completes the “Community Awareness” Step!

Local Early Action Planning Process - Assessing Non-Climate Threats and Developing Early Actions



To complete this step of assessing non-climate threats and developing early actions you will carry out two main exercises:

1. **Mapping your community** – the mapping exercise will provide your group with a foundation map will then be modified as you move through the next exercise.
2. **Developing a Threat/Action Model** – the threat/action model will be developed in a series of three meetings to build the whole model.

Map the Community

Purpose: This mapping exercise will allow your community stakeholders to identify the places they use, value, and need. *If your community has already completed a mapping exercise in the past, you can use the existing map and just review the information captured on that map to see if you need to make any additions. You can also develop a 3D map as described in Tool 6: Methods to Monitor Climate Impacts and Effectiveness of Adaptation Actions of the CTI CCA LEAP Toolkit.* This activity will lay the basis for further mapping activities. Your map should cover the entire area where the community has some role or where they access resources. The location of these elements can be approximated. You will have future opportunities to draw more precise maps.

Participants: This activity should be carried out through a community meeting with representatives from various groups or with community groups individually with an opportunity for the whole community to come together at the end of the meeting to discuss the results.

Materials Needed: Large flipchart paper, markers, and tape. The action planning team can have an outline of the community area and coastline already drawn on the paper to begin. You may find it helpful to tape two or more sheets together so your map can be large enough to go into detail.

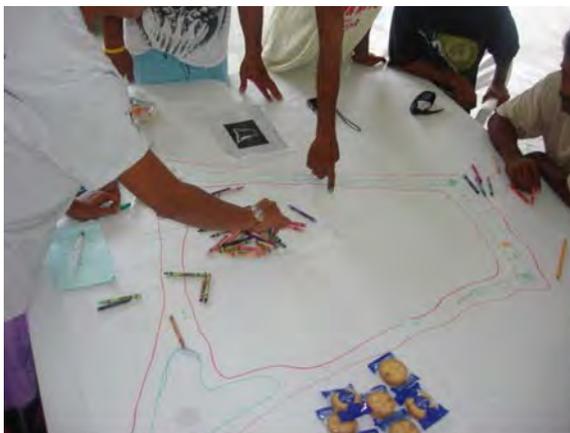
Time Requirement: 2-4 hours

WORKSHEET SIX: MAPPING YOUR SITE

Instructions: Prepare your map on large sheets of flip chart paper.

Then, with your community, answer the questions below and use the answers to draw features on your map. If you have a very large group you may want split up into two or more groups and each draw maps and then compare and come up with an agreed to final map. Be sure to create a legend so the definitions of any symbols are clear. Keep the map safe for future use. If possible, take digital pictures of your map to capture the details.

What are and where are the key habitats and species within your community area? Include terrestrial, aquatic, and marine habitats and species (e.g. mangroves, coral reefs, forests, grouper, etc)?	
Please identify habitat quality of each key habitat (e.g. good reef areas, damaged reef, healthy streams, polluted streams, etc).	
Where are the areas that are important for key species (e.g. turtle nesting beaches, dugong feeding areas, bird nesting, spawning aggregations)?	
Where are important social and cultural features such as fishing shrines, houses, fishponds, churches, etc?	
Where are the roads, bridges, buildings, schools, hospitals/clinics, churches, evacuation routes, water reservoirs or tanks, etc?	
Where are key social and economic activities carried out (farming (including type), fishing (including type), harvesting, boating, diving, snorkeling, etc)?	
Include any other features that are important to your community	



Threat/Action Model Example

Purpose: Creating a Threat/Action model will help you identify the most important information about what is going on at your site and about what you can do to better manage the non-climate threats in the area.

The Threat/Action model will be developed through three exercises and associated worksheets:

1. Identifying natural resource and social targets in your community and the location where each target is in on your community map (Worksheet Seven)
2. Identifying threats that are preventing you from managing/conserving your targets. The location where each threat is taking place, and the impact and causes of each threat (Worksheet Eight)
3. Identifying early actions to address issues (Worksheet Nine)

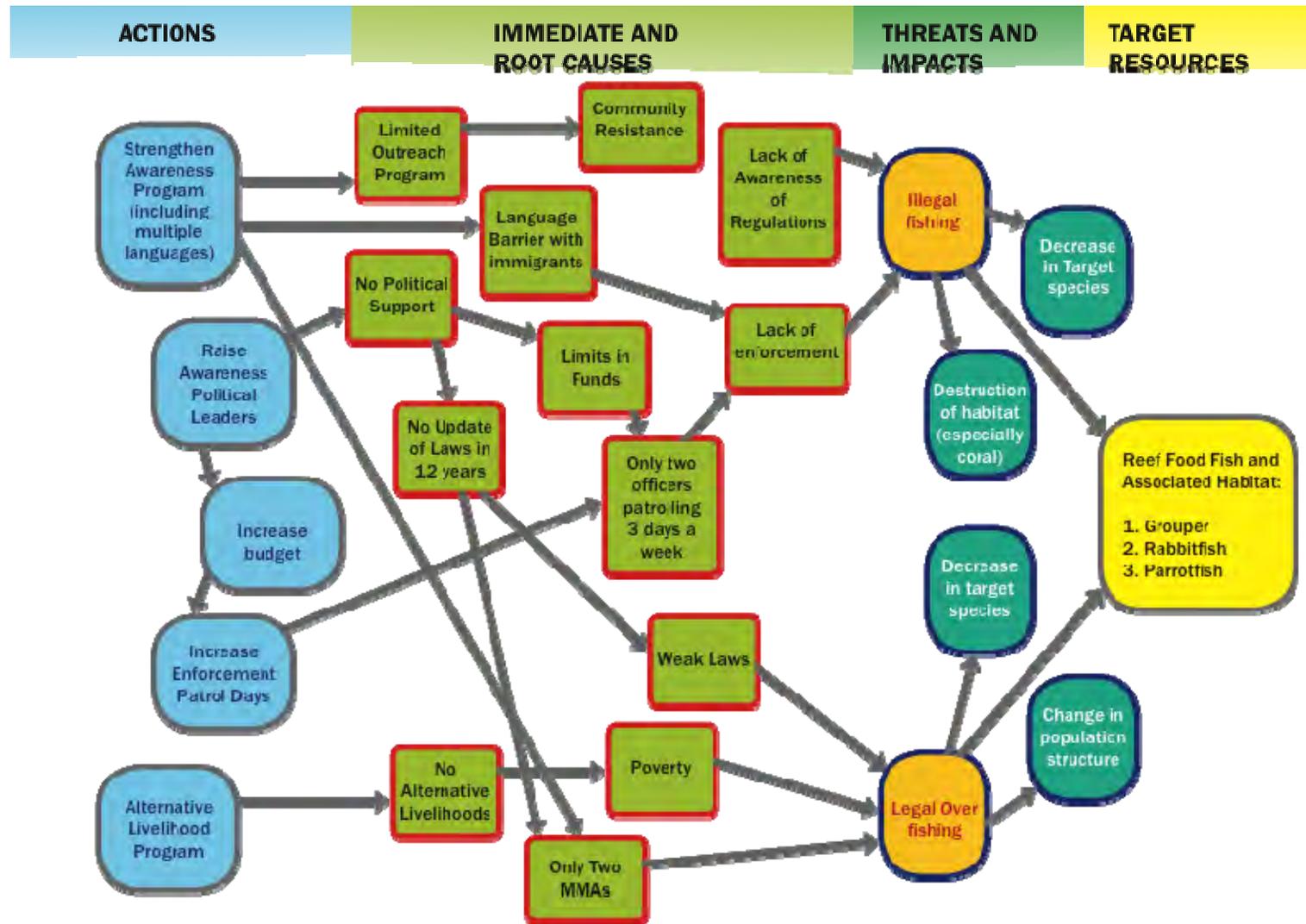
Participants: This activity should be carried out through community meetings with representatives from various groups or with community groups individually with an opportunity for the whole community to come together at the end of the meeting to discuss the results.

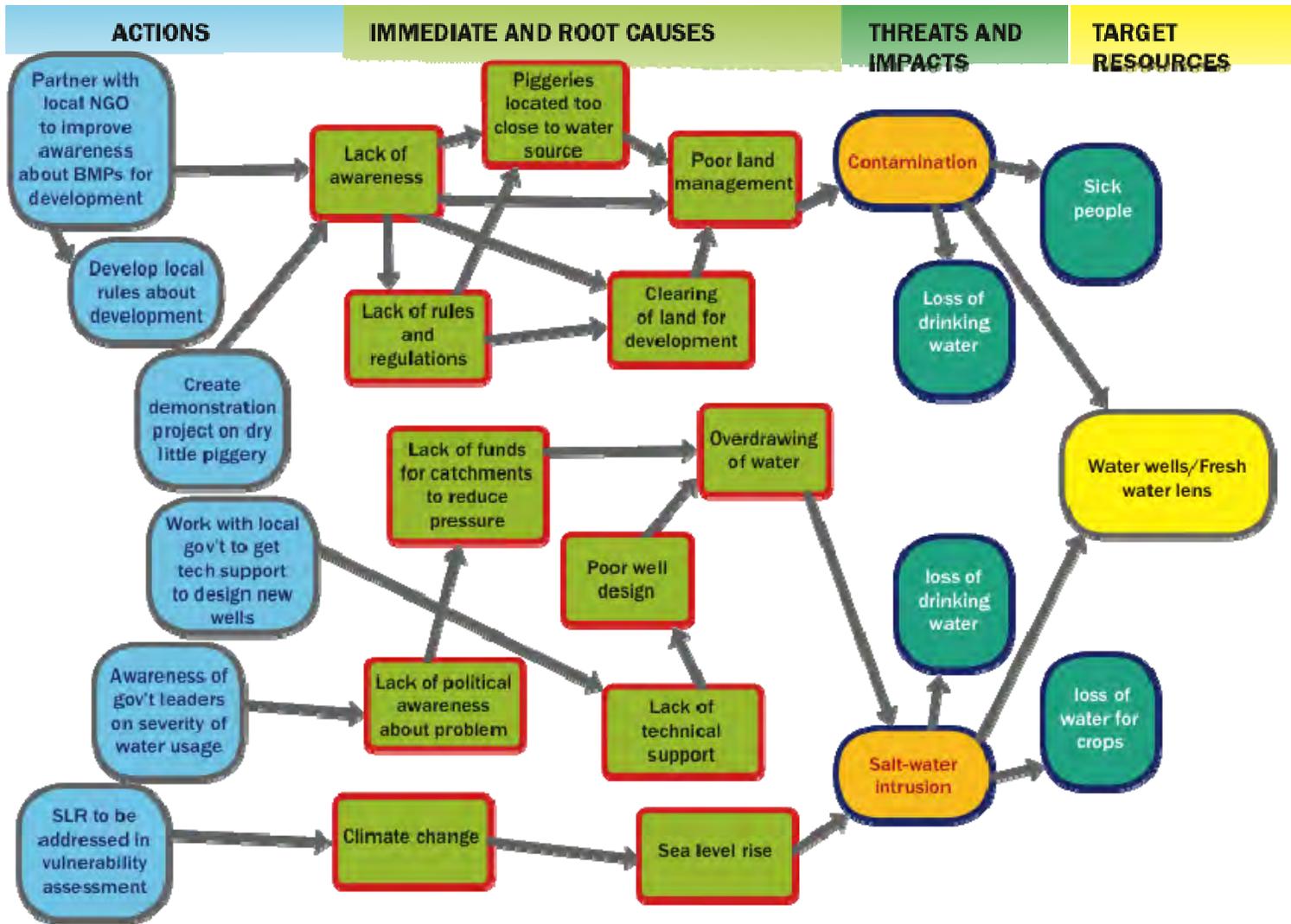
Materials Needed: Large flipchart paper, markers, and tape.

Time Requirement: The entire Threat/Action Model Step will require several meetings to complete. Your planning team should decide how to break up the model into different sessions depending on how much time you have for each community meeting. The model will include:

1. Identifying and Mapping natural resource and social targets (3-4 hours) - Worksheet Seven
2. Identifying and Mapping threats, impact and causes (3-4 hours) - Worksheet Eight
3. Identifying early actions to address issues (2-3 hours) - Worksheet Nine

The examples below show you what a completed Threat/Action model looks like for two targets (reef food fish and water resources) and what type of information is collected in this exercise.





Identify and Map Natural Resource and Social Targets

Purpose: To support the Threat/Action model, this exercise will help you identify important natural resource and social targets that your community wants to manage. These targets will be included in your Threat/Action model and drawn on to your community map.

Examples of important natural resource targets include:

- A specific habitat type (seagrass beds, coral reefs, mangroves, rivers and streams, etc)
- A specific population of a species (migratory birds, grouper, parrot fish, sea cumpers, etc)

Examples of important social targets include:

- Fresh water supply (catchments, aquifers, etc)
- Agricultural fields or gardens
- Infrastructure (homes, school, churches, community buildings, roads, etc)
- Emergency facilities (health centers, evacuation areas, etc)
- Income-generating activities (fishing, farming, alternative job opportunities, etc.)

Participants: This activity should be carried out through a community meeting with representative from various groups. Various groups are important to include as they may have different perceptions on which resources are important. You can also work within these individual groups then bring them all together to discuss their work and combine their results.

Materials Needed: Large flipchart paper, markers, and tape.

Time Requirement: 3 – 4 hours

WORKSHEET SEVEN: IDENTIFYING AND MAPPING NATURAL RESOURCE AND SOCIAL TARGETS

Instructions and Example:

1. **Identifying Important Natural Resource and Social Targets:** You may want to facilitate this session in one larger group or by having participants form small groups of three to six and asking them to fill out the tables below. Small group facilitators can also be used to capture information on flipcharts.
2. Begin the session by reviewing the “Community Profile” developed in Worksheet Four. Specifically, review the information that describes the resources that the community is dependent upon, and natural resource and social problems facing the community. Using this information as a starting point, each group should begin by listing social and natural targets that are important to them and then complete each column of the table for each resource.

Measuring Resource Status and Trend: Many factors can influence the status of your targets. For example, areas of coral reefs that have not experienced coral bleaching and that have lots of different types and sizes of fish may be in good condition while reefs that are subject to lots of sediment flowing off the land, dynamite fishing, etc would be in poor condition. In addition, a road that is in good condition but has started to be submerged during king tides may be fine now, but declining due to the damage done during king tides.

Measuring Management Effectiveness: Many factors can influence the management effectiveness. Factors that indicate effective management include:

- Outreach programs
- A management plan or action plan
- An engaged and supportive community
- Strong leadership and/or political will for management efforts
- Sustainable financing
- Enforcement of rules and regulations

Natural Resource Target	Why is this target important?	Level of community dependence on this resource. (low, moderate, high)	Current Status (poor, fair, good, very good)	Trend Over Time (improving, no change, declining)	Management Agency/ Group and Existing Management Plans or Activities	Level of Management Effectiveness (poor, fair, good, very good)
<i>Coral Reef</i>	<i>Habitat for important fish</i>	<i>high – there are several fishermen and this is the only</i>	<i>good</i>	<i>declining</i>	<i>none</i>	<i>poor</i>

Natural Resource Target	Why is this target important?	Level of community dependence on this resource. (low, moderate, high)	Current Status (poor, fair, good, very good)	Trend Over Time (improving, no change, declining)	Management Agency/ Group and Existing Management Plans or Activities	Level of Management Effectiveness (poor, fair, good, very good)
		<i>source of income – it is also a main source of food for many families</i>				
<i>Coastline</i>	<i>Only land available for homes on atoll</i>	<i>High – there is very limited available land for homes</i>	<i>fair</i>	<i>declining</i>	<i>EPA – regulates development</i>	<i>Poor – lack of capacity and regulations</i>

Social Target	Why is this target important?	Level of dependence on this resource. (low, moderate, high)	Current Status (poor, fair, good, very good)	Trend Over Time (improving, no change, declining)	Management Agency/ Group and Existing Management Plans or Activities	Level of Management Effectiveness (poor, fair, good, very good)
<i>Water Wells</i>	<i>Needed for Drinking water</i>	<i>High – no other sources of drinking water in the community</i>	<i>fair</i>	<i>declining</i>	<i>No plan</i>	<i>poor</i>
<i>Taro Patches</i>	<i>Food and culture</i>	<i>Medium – have access to other foods but is a loss of culture and nutrition from local foods</i>	<i>poor</i>	<i>declining</i>	<i>Local community member</i>	<i>fair</i>
<i>Airport</i>	<i>Brings cargo and tourist</i>	<i>High – needed for emergency events and local economy</i>	<i>good</i>	<i>Improving – resources available to make improvements to protect runway</i>	<i>Local gov't, federal gov't</i>	<i>good</i>
<i>Health</i>	<i>Well being of people</i>	<i>High – need health to function</i>	<i>good</i>	<i>Declining – lack of local</i>	<i>Local Health Clinic/</i>	<i>fair</i>

Social Target	Why is this target important?	Level of dependence on this resource. (low, moderate, high)	Current Status (poor, fair, good, very good)	Trend Over Time (improving, no change, declining)	Management Agency/ Group and Existing Management Plans or Activities	Level of Management Effectiveness (poor, fair, good, very good)
		<i>well</i>		<i>food and water resources - affecting health</i>	<i>Organization</i>	
<i>Income generating activities</i>	<i>Needed to pay for school fees, and other necessities</i>	<i>moderate</i>	<i>poor</i>	<i>Declining – declining fishery resources has made it hard for youth to enter the fishery</i>	<i>Local community and government resource management agency</i>	<i>fair</i>

3. **Agreeing As a Large Group:** If you divided into small groups, you can get everyone back together and ask them each to present their findings. You can then summarize the findings on a flip chart sheet that is in the same format as the worksheet.

If more than ten targets have been identified, look to see where you can lump resources into one bigger category. As a general rule you can lump resources that will have the same basic strategy used for protection or management. For example, if the community lists several types of coral reef food fish (e.g. rabbit fish, surgeon fish, parrot fish) and the main strategies used to help protect them are to eliminate destructive-fishing practices and create a local managed area (LMA), then all these fish can be lumped into one resource called “reef food fish”. If a particular species needs a special management activity to protect it, then it should be split out as a separate important resource.

4. **Mapping Targets:** Once you have identified priority natural resource and social targets, the location where they exist and their current status (poor, fair, good, very good) should be drawn onto the community map. Be sure to create a legend so the definitions of any symbols are clear. Keep the map safe for future use. If possible, take digital pictures of your map to capture the details.

Upon completing the information above, add these tables into the LEAP template.

Identify and Map Threats and Impacts & Identify Immediate and Root Causes

Purpose: The next section of the Threat/Action Model is to explore threats to your targets. You will identify threats and impacts to your targets and causes of those threats. It allows your community to thoroughly explore what threatens the conservation or management of the resources that are important to them and why these threats are occurring which will lead to how they must be addressed to be successful. Finally it will also allow you to show where the threats are located on the map.

Participants: This activity should also be carried out through a community meeting with representative from various groups. Various groups are important to include as they may have different perceptions on what the specific threats to the various targets exist. You can also work within these individual groups then bring them all together to discuss their work and combine their results.

Materials Needed: Large flipchart paper, markers, post-it notes or index cards, and tape. The community map will also be needed to add threats to it.

Time Requirement: 2-3 hours

WORKSHEET EIGHT: IDENTIFYING AND MAPPING THREATS, IMPACTS, AND CAUSES

Instructions:

1. **Advance Preparation:** Prepare a very large piece of paper (as much as 8 to 10 feet in width) as the “Canvas” on which your Threat/Action model will be developed. You can prepare the “Canvas” by writing the following across the top of the Canvas:

Possible Action	Causes (trace back to the root cause)	Impact	Threats	Target (natural resource or social)
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2. **Advance Preparation:** You should fill in the target column from the previous exercise (Worksheet Seven).
3. **Advance Preparation:** On a separate wall, hang up a large map of the community with the natural and social resources drawn onto the map. Be sure that the map is located where the majority of participants can easily see it. You can use the map that you created in the previous session. At this stage, the map should already include all key ecosystems, infrastructure, social activities, and the location of the targets.
4. Now identify all threats to your community’s targets with participants. If the group is large it is best to divide into small groups. First, ask the participants to brainstorm threats that are preventing them from managing or protecting their targets. These can include both climate and non-climate related threats. For example if the target is “streams”, a non-climate threat might be pollution, while a climate threat might be drought from changing precipitation patterns. Ask them to also include the impacts to the natural and social resources that each threat causes. Building off the previous example of stream, the impact from these threats might be un-safe drinking/bathing water, loss of water for crops, and loss of habitat for important species. They can write each threat and each impact on post-it note or index cards and tape them on the canvas as discussed above. You should then help to organize the threats so they are in line with the targets that are threatened by them.
5. If climate change is brought up as a threat, explain that they must identify the specific threats of concern (e.g. sea level rise, increased ocean temperature, etc and not just say “climate”) then write the impacts from that threat to natural and social resources. However, you should let them know that climate change threats will be explored in much greater detail in the vulnerability assessment. Therefore, time should not be spent thoroughly discussing these threats and the main focus should be on the non-climate threats.
6. At this point, add the threats to your map. You can use the original map that you created in your first mapping session. At this stage, the map should already include all key ecosystems and their condition, infrastructure, social activities, and the location and condition of the target. We recommend that you

add threats to the map as one large group. Be sure that the map is located where the majority of participants can easily see it.

Indicate the area and resources that the threat is impacting. Some threats may impact the entire area and some threats may be more concentrated. For example, under normal circumstances sedimentation may only be a threat close to a river mouth and in the very near-shore waters. Illegal fishing may be concentrated at a particular area where the villagers are not able to easily see the illegal boat.

7. **Conduct a threat analysis:** After all the threats are mapped it is important to identify the causes of all of the non-climate change threats. The climate change threats do not have to be analyzed for causes since we know that climate change is the cause, which is a global problem and is not something that can be addressed solely by your community. You may choose to do this as one large group with one person facilitating the process and an assistant helping by writing cause on post-it notes or index cards and handing them to the facilitator to be pasted on the model. Or if you have a lot of people, it may be better to split into small groups and assign each group one or more threats for them to analyze.

NOTE: When exploring the causes and root causes of a threat, consider:

- How modern practices and/or technology have potentially increased pressures on targets.
- How loss of traditional knowledge/management systems have impacted the status of resources.

Whichever way you choose to facilitate this process you should be sure to first identify the immediate cause of each non-climate threat and then identify the cause of that cause. With each new cause, keep asking “why does this cause occur” until you can’t go back any further. In some cases you may identify a very long string of causes. This will help to better understand the root causes of the threats the better be able to address them. The majority of solutions will be focused on overcoming the causes of the threats. This in turn will reduce or eliminate the threat.

Identify Early Actions to Reduce Threats

Purpose: In this section of the Threat/Action Model your community will develop immediate actions that they would like to implement to help reduce non-climate threats and impacts.

Participants: This activity should also be carried out through a community meeting with representatives from various groups. You can also work with these groups individually then bring them all together to discuss their work and combine their results.

Note: If feasible, having technical expertise available for specific targets (fisheries, agriculture, water resources, etc) is beneficial. These experts may come from government or non-governmental agencies or organizations that focus efforts on specific resources and activities. These experts can help provide community members with information about different actions that can reduce threats and protect targets.

Materials Needed: You should continue to build on the Threat/Action model. Large flipchart paper, markers, post-it notes or index cards, and tape.

Time Requirement: 3 – 5 hours

WORKSHEET NINE: IDENTIFYING EARLY ACTIONS TO REDUCE THREATS

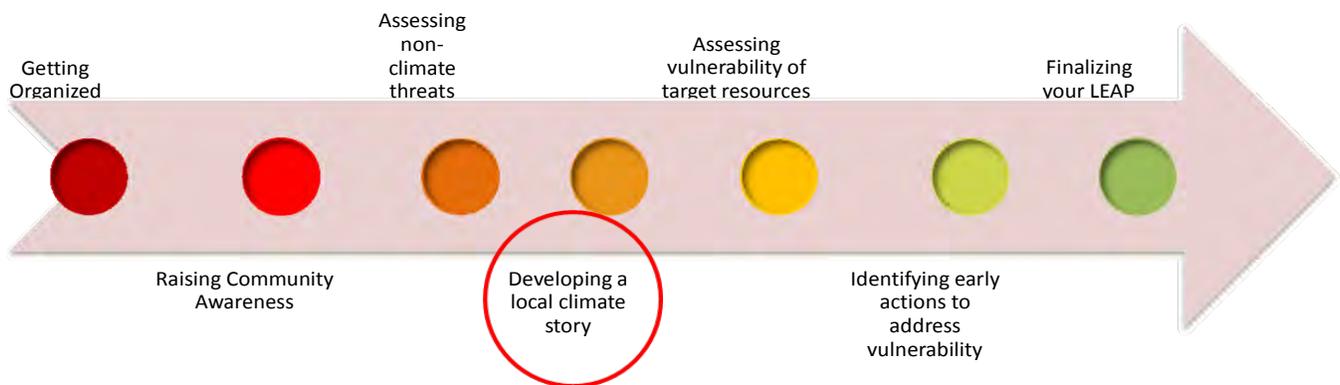
Instructions:

1. Have each group develop possible actions that will help to overcome each of the causes of the threats. Again you can do this as one large group or divide into small groups and assign one or more threats (and its causes) to each group. You should always check and make sure that you have a logical set of actions that have a high probability of overcoming the causes of the threat.
2. Have each group discuss and write the actions they developed in detail on flipchart paper. Details can include specific information about the actions. For example, rather than just stating “outreach”, discuss who will provide the outreach, who will receive the outreach, and what information will be relayed. Then use index cards to capture the action (in a few words) and place it under the “actions” column of the threat/action model.
3. If the root cause of the threat is a very difficult challenge such as poverty, or hunger, then the group can either decide to develop solutions to the direct threat or impact or to develop actions to help address the root cause. For example, if the root cause of destructive fishing is lack of job opportunities, the group could explore the option of increasing enforcement and/or looking into development of alternative livelihoods. Mainly, the facilitator should help the group discuss these issues and to work at addressing the threats and impacts in a way that is feasible and meaningful. There may be certain root causes that cannot be addressed by the community. In that scenario it may be necessary to seek assistance from organizations that focus on those issues.

Upon completing the threat/action model, add the threats, impacts, and actions into the LEAP template.

This exercise completes the “Assessing Non-Climate Threats” Step!

Local Early Action Planning Process - Developing a Local Climate Story



The Local Climate Story

Purpose: Now that you have explored non-climate threats and impacts, it is time to look more thoroughly at potential impacts from climate change to your targets. This step is aimed at summarizing past, present, and future climate scenarios of your community into a short story that describes the local situation. The following exercises can be used to gather local information:

- A Historical timeline – will collect information on past climate events that occurred, their frequency and impacts, and ways the community and resources recovered successfully or not. (Worksheet Ten)
- A Seasonal calendar – will collect information on normal and changing trends in yearly seasons and associated events such as spawning, fruiting, or harvesting periods. (Worksheet Eleven)
- A Community Walk – will help to ground truth the community map and review which areas were most impacted by which past climate events. (Worksheet Twelve)
- A Strength/Weakness Analysis – will explore the ability of the community to successfully prepare for or recover from climate events. Also, it will help identify what challenges the community faces to cope with climate events. (Worksheet Thirteen)

Additionally, the “How will climate change impact your region?” from the Tool 2: Outreach Toolkit: Adapting to Climate Change and Tool 3: Regional Climate Information Brief for the Coral Triangle can also be used to review regional climate observations and projections. Based on the local information and known regional climate projections your community can discuss which climate hazards and associated impacts they are most concerned about adapting to in the near future.

Participants: The Action Planning Team can write The Local Climate Story but the information to fill in the template in Worksheet Thirteen should be collected through community meetings.

Materials Needed: A computer. Additional information that should be used to inform this story are the “How will climate change impact your region?” section of the Tool 2: Outreach Toolkit: Adapting to Climate Change, Tool 3: Regional Climate Information Brief for the Coral Triangle, and results from the mapping activity, historical timeline, seasonal calendar, and strength/weakness analysis

Time Requirement: 1-2 hours

The example below shows a completed local climate story:

LOCAL CLIMATE STORY

Coastlines

The coastlines of Majuro have been impacted by and continue to be threatened by storm surges which cause erosion of the beaches and loss of land for living space. Changes in weather patterns (increased storm intensity and frequency) could worsen the frequency and impacts of these threats.

Water Resources

The water resources on Majuro have been impacted by and continue to be threatened by 1) drought which causes lack of catchment water and salt water intrusion to the fresh water lens, and 2) storm surges which damage the fresh water lens and crops with salt water that leads to loss of water and food sources for people. The impact of these threats is a loss of available freshwater for people and crops from both catchments and the fresh water lens. These impacts are creating a greater dependence on imported food and water. Changes in weather patterns (extended dry periods and increased storm intensity and frequency) and sea level rise could worsen the frequency and impacts of these threats.

Coral Reefs

The coral reefs of Majuro have been impacted by and continue to be threatened by 1) coral bleaching which causes a reduction habitat for important food fish, and 2) Storm surges, which can break corals and cause a reduction in habitat for important food fish. Changes in sea-surface temperature and changes in weather patterns (increased storm intensity and frequency) could worsen the impacts of these threats.

Historical timeline

Purpose: To understand how future changes in climate might affect your community, it is first important to review how past events (typhoons, floods, drought, etc) have impacted your community. This is done by creating a historical timeline. The historical timeline reviews major social and natural events that have happened in your community over a long period of time. It will help you to understand trends in frequency, impacts, and responses to those impacts. This exercise also can help your community think about climate change projections in the region to understand what hazards may occur more frequently and which climate change threats may be most important to adapt to. When you understand the likely threats and impacts, you will be in a better position to develop adaptation strategies. This information will be used later in the vulnerability assessment (Worksheet Fifteen).

Participants: This activity should be carried out through a community meeting with a mix of community members including elders, adults and youth (both females and males). It is particularly important that elders be present, as they will have the most historical knowledge of the community and past climate events and impacts.

Materials Needed: Large flipchart paper, markers, and tape. Additionally, before you begin this exercise with the community, your planning team should collate relevant information. This could include historical documents for the community, aerial photos, historical data sets, etc. Your planning team should be familiar with the material prior to holding a community meeting and can utilize this information as part of the discussion if appropriate. It is also very good to bring the community map to this project to use in the discussion.

Time Requirement: 2 – 3 hours

WORKSHEET TEN: HISTORICAL TIMELINE

Instructions & Example: Begin the exercise by explaining the purpose of doing a historical timeline. It is good to emphasize that the community has been dealing with hazards such as drought and flooding forever (this is not new) and that the aim of this step is to understand the events that occurred in the past and how the community was impacted and dealt with them. This historical knowledge can inform how to best prepare for future hazards that are similar and may be more frequent or powerful due to climate change.

1. Begin by placing pages of flip chart paper on the wall and drawing a horizontal line across the paper.
Note: People tend to know more about more recent events so the timeline may get full toward the right hand section. If needed add more paper to allow for room to write events and associated information.
2. Start the discussion by asking people to identify key events in history (typhoons, floods, drought, death of an important community member, etc). As each event is identified, record it along the line in the order that each event happened. Add flip chart paper as needed to go back as far as the community can remember. Be sure to write in large letters so that the whole group can see and mark down the year (and month if possible) with each event.
3. Use the questions below to prompt discussion and memory of specific events. Record these answers and discussion points on the flipchart timeline and separately on a piece of paper.*

What climate change impacts or hazards (typhoons, flooding, drought, salt-water intrusion, coastal erosion, etc) has your community experienced and when?		
Questions to consider:	Answer	Explain any known or perceived relationship to climate change impacts or hazards
What major impacts to natural resource have occurred in your community and when (mass mortality of fish, failing crops, bleaching events, crown of thorns (COTS) outbreak, etc)?		
Has your community experienced any health-related epidemics and if so when?		
Were there any specific times when natural resources were affected by human activities (introduction of specific fishing methods, removal of coastal vegetation or upland forest, etc)?		

Are there traditional management approaches that have been used to prevent or minimize negative impacts from climate related events and hazards? Are these still being practiced?		
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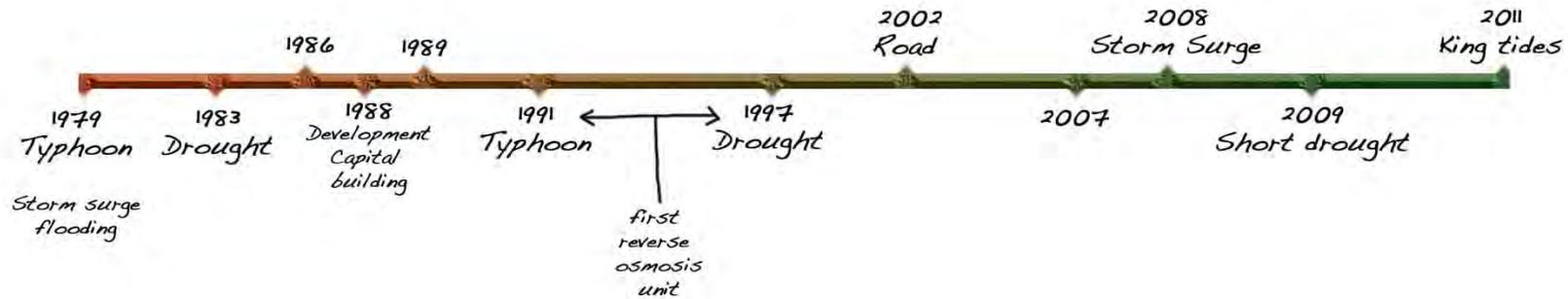
4. Now, review climate change projections for the region with your community and discuss how existing hazards may be influenced by climate change. This information can be found in Tool 2: Outreach Toolkit: Adapting to Climate Change (specifically the section on “How will climate change impact our region?”) and Tool 3: Regional Climate Information Brief for the Coral Triangle. Make notes of which hazards and impacts may occur more often or become more intense based on future projections. Questions to consider to prompt discussion about changes in climate hazards over time and socioeconomic and biological impacts and are:

How severely were natural resources affected by past climate hazards?	
What were the socio-economic impacts from past climate hazards and how severe were they?	
Was everyone in the community equally impacted? If not, how and why were individuals or groups impacted differently?	
How did those impacted by past hazards recover from them?	
Do you notice these climate hazards becoming more intense and frequent over time?	
Based on climate projections, which climate hazards and impacts will likely become more frequent or intense?	
Based on past experience and future projections, which climate hazards and impacts are the community most concerned about and why?	

5. If appropriate, add information to the community map identifying specific areas prone to certain climate related impacts (areas that flood, areas that are inundated with salt water, areas of erosion, or areas with bleaching corals, etc)

*If possible take pictures of the timeline to capture this information.

Example of Historical Timeline



Hazards: Drought Surges, King tides ⇒ (more frequency / more intense)

IMPACTS

Storm Surge →
 -flooding
 -property damage
 -evacuation to higher buildigs

Drought
 -people H₂O catchments severely impacted
 -passive on social services for water and medicine
 -pink eye epidemic
 schools closed
 -coral bleaching

COPING MECHANISMS

-reliance on family members
 not impacted

Assistance from:
 FEMA - water
 community groups
 churches
 gov't agencies
 shelter
 clean-up
 food
 H₂O

HAZARDS OF MOST CONCERN TO MAJURO, RMI ⇒ 1) DROUGHT
 2) STORM SURGES

Upon completing the historical timeline, add successful existing adaptation/resilience strategies into the LEAP template

Seasonal Calendar

Purpose: To understand possible climate change impacts, it is important for your community to review the normal seasons during the year for major natural and social events and if these are changing. As a community you will review and discuss changes in annual cycles and weather patterns (rainy/dry season, etc) and associated natural seasons (fruiting and spawning periods, etc) and social activities (harvesting periods, etc). This exercise will include a discussion of potential social and natural impacts from climate changes as well as brainstorming on how to deal with changes. This information will be used in the vulnerability assessment.

Participants: This activity should also be carried out through a community meeting with a mix of community members including elders, adults and youth (both females and males).

Materials Needed: Large flipchart paper, markers, and tape.

Time Requirement: 2 – 3 hours

WORKSHEET ELEVEN: SEASONAL CALENDAR

Instructions and Example:

1. Begin by drawing a large circle on flip chart paper. Divide the circle from top to bottom and then into 12 “pie slices”. Explain that the top of the circle is the beginning of the year and the bottom of the circle is half way through the year with the top being the end of the year. Depending on the size of the group, you can divide the participants into groups and have each group focus on one section of the seasonal calendar.
2. Ask each group to identify the **normal** weather patterns, natural events (spawning aggregations, fruiting, etc), and social events (harvesting, fishing, etc) that occur during that time or “slice” of the year. **NOTE: Although some communities feel there is “no normal seasons” anymore, they should discuss what used to be “normal or expected”. From there, the group can discuss changes they are witnessing currently. It should also be noted how long ago changes to normal seasons began.**
3. Use the questions below to prompt discussion focusing on specific times of the year. Record answers on the flipchart “pie slice” and separately on a piece of paper. Your group can also decide on symbols to represent different seasons or events on the calendar. If using symbols, be sure to draw a key. *

<p>What is the weather like during this time of the year?</p> <ul style="list-style-type: none"> • Rainy/Dry • Wind direction • Storm events 	
<p>What is happening in the ocean (examples below)?</p> <ul style="list-style-type: none"> • Spawning • Migrations • Turtle nesting • Bleaching • Currents • Tides • Sea-surface temperature • Harvesting of specific species <p>What is happening on land?</p> <ul style="list-style-type: none"> • Fruiting seasons • Birds/migrations • Agriculture (planting, fruiting, harvesting) 	
<p>What time of year do things occur that affect our communities health and why?</p>	

What time of year do various food items harvest or spawn?	
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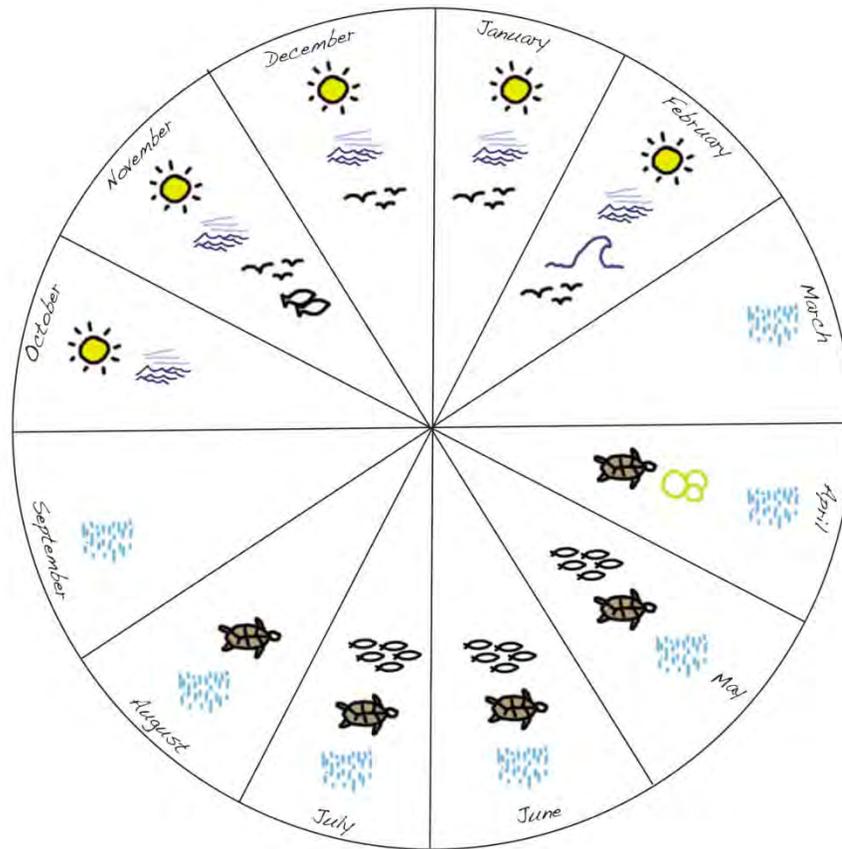
4. Once each group has completed their time of the year, bring the larger group together and review each group's work. Allow other community members to add/revise each section.
5. Upon completing the small group work and revisions by the larger group, consider discussing changes in seasonal events and activities with questions in the example table below. Capture this information on the seasonal calendar.

Example:

Are we noticing any changes to the seasons or these various events (longer or shorter dry season/ earlier or later fruiting seasons, etc)?	<i>Longer dry season, breadfruit season later and shorter</i>
How long have these specific changes in seasons been happening?	<i>10 years</i>
What time of year do climate-related impacts/events occur? Based on the historical timeline, are these events likely to increase or decrease?	<i>Mostly during the dry season - we also get the worst storm surges during this time. This is likely to increase if it is hotter and possible drier over time.</i>
Will these events possibly occur during peak times of harvesting certain resources?	<i>Not necessarily but crops are stressed in times of drought.</i>
How will changes in the seasons or seasonal event impact socio-economic factors (food security, income, health, etc)?	<i>If crops fail we are dependent mostly on imported foods. Increases storm surges put pressure on the public services such as medical services.</i>
How might the projected changes in climate influence these seasons?	<i>If it gets hotter, the dry season may be longer and more intense and storm surges may be more frequent.</i>
What changes and impacts to normal season are being noticed that are of most concern to your community and why?	<i>Drought and storm surges – these have had negative social and natural impacts in the past and seem to be getting worse. With CC projections, these events are likely to happen more frequently.</i>

* If possible take pictures of the calendar to capture this information.

Example of a Seasonal Calendar:



Normal Year
Wind direction East to West

Dry Wet
80° Less than 80°
harvest

- Changes
- Longer dry season
 - Later fruiting and shorter periods
 - Past ten years
 - Getting drier
 - Likely to get hotter in future maybe more drier
 - Storm events happen in dry seasons

KEY

	sun - dry season
	turtle nesting
	rain season
	tuna migration
	storms
	grouper spawning
	king tides
	breadfruit season
	bird migration

CC impacts of most concern ⇒ Potential for longer dry season which also includes storm surges

Community Walk/Mapping

Purpose: A transect walk is a simple task of physically walking through the community from the highest point to the lowest point (for high islands) or from lagoon to ocean side (for atolls) to look at the land use zones, key ecological features, and threats in various areas of the community. The primary purpose of this exercise is to ground-truth the community map and ensure that key features have been noted. This exercise explores spatial differences and land use and how climate change and non-climate threats can impact various parts of the community. Physically walking through the community can help community members visualize important sites including danger zones, evacuation areas, land use zones, resources used during emergencies, areas prone to specific hazards, changes to the environment over time (using historical reference) and land tenure.

Participants: This is typically done with a small group (6-10) of informants who can provide key information on the various areas of the community.

Materials Needed: If possible, bring the community map with you on this exercise. Also bring a pen and paper to capture notes from important discussion.

Time Requirement: The time requirement will vary depending on the size of the community and length of time taken to discuss each area.

WORKSHEET TWELVE: COMMUNITY WALK

Instructions: Begin by using your map to identify areas of the community that should be covered. More than one transect walk can be done if there are different areas with different uses/threats that should be included. If this is the case, it is good to divide the community into separate “areas” that will be explored through different transect walks. It is important to take good notes on each area so that they can be used to modify the existing community map. Take time in each area of the community to talk about key features including: land use and tenure, threats to the environment, changes over time, and proneness to being affected by climate events and impacts.

Through the walk the community map should be modified based on new information and to be sure that the map is as accurate as possible in terms of locations of various features. If the planning team is using a geo-referenced map, it can be useful to use a GPS for this exercise, however this is not required.

Answer the questions below while doing the transect walk to inform the vulnerability assessment which will be carried out in future steps. Capture information on the community map and on a piece of paper.

Where are our primary habitats, resources, and infrastructure? Are they already shown correctly on the community map? If not please correct them	
How have resources changed in specific areas over time?	
How has land use changed over time?	
How have past climate events and hazards (for example, storm-related flooding) impacted specific areas?	
Have certain areas been more impacted than others by past climate events?	
Where are the emergency evacuation routes?	

Strength Weakness Analysis

Purpose: To understand vulnerability to climate change, it is critical to understand what resources (emergency response, funds, etc) are available to the community as well as key gaps or needs. A Strength-Weakness Analysis is an assessment of the community's strengths and weaknesses that may affect the community's ability to prepare and adapt to climate change impacts. This exercise is particularly helpful to carry out for climate change adaptation planning to help your community think about long-term threats and explore strengths and opportunities that may help to address these threats. For example, if a community finds they are vulnerable to flooding during storm events, which are likely to become worse with sea level rise, it is important to consider how they have coped with these events in the past (e.g. the strengths and challenges faced during those times) so they can build on strengths and work to overcome weaknesses. Additionally they can explore opportunities that may help them to prepare for future floods. An example may include partnering with local hazard management agencies to explore options for evacuation planning and building homes on stilts.

Participants: This can be done with a small group (6-10) of informants who represent a mix of community members including elders, adults and youth (both females and males).

Materials Needed: Large flipchart paper, markers, and tape.

Time Requirement: 1-2 hours

WORKSHEET THIRTEEN: COMPLETING A STRENGTH WEAKNESS ANALYSIS

Instructions and Example:

1. Before discussing the strengths and weaknesses within your community begin by discussing how your community and specific groups in your community have dealt with past climate change impacts and hazards and how they would cope with potential future impacts to resources on which they depend. Use the following questions to prompt these discussions and capture the answers on a flipchart.

QUESTIONS	EXAMPLE ANSWERS
In times of past natural disasters, health epidemics, or other events that had negative socio-economic impacts on your community:	
1. Who does your community look to for assistance in times of need? Were they effective in providing help in the past? Consider: health, natural disasters, changes to natural resource	<i>Our community relies on traditional leaders to guide the assistance. We also look to the provincial government for immediate assistance. Our leaders have been very effective in organizing local support. Provincial government has provided some support but it has usually been slow to take place and not sufficient for our needs.</i>
2. What social groups are important to help the community cope with these events?	<i>The women's group is very important in spreading important information and making changes to individual households. The council of chiefs is very important for making decision on how our community resources are allocated to help in response to disasters.</i>
3. How has your community responded? Did the community make any changes from past experience to be able to better cope with similar future events? Why?	<i>There was a food crop failure in the past where most farmers lost crops due to a severe dry season. Most families struggled to provide needed income and food. Most families were able to have sufficient food through fishing. Financial support was provided from families in other areas to pay for necessities such as staple foods and school fees. The government did not provide assistance as the whole region was impacted and there was not sufficient preparation for the drought. A few community members have planted several different crops that might be able to withstand a drought since that time but there is little information on how to do this and what crops to use.</i>
If the future brings more natural disasters, health epidemics, or other events that have negative socio-economic impacts on your community:	
4. Would those community members who are dependent on resources that were severely damaged have an alternative for income or subsistence use?	<i>If the fisheries were severely damaged by climate, many fishermen would farm for subsistence. If crops failed, farmers would not have an alternative income opportunity.</i>
5. Would those community members who are dependent on resources that were severely damaged be able to use resources in another	<i>If the fishery was severely damaged in our community area it would be difficult to move to another area as we don't have tenure in other areas. If crops were damaged in one area, we may be able to move</i>

area?	<i>if the land was available within our community although it would require working together among families who traditionally use specific areas.</i>
6. How would community members cope with severely damaged or destroyed built infrastructure?	<i>Most people would move in with other family members temporarily and rebuild when possible. If the area was severely damaged, they may look to move the location of their houses up-land in response to coastal flooding and erosion.</i>
7. How would the community be warned or provided information about up-coming climate change impacts and hazards?	<i>Our community is only able to receive information from expert sources (through government agencies), through cell phone service, which is not reliable. Some individuals have radios and may use these when cell phones are not available.</i>

2. Using two pieces of flip chart paper, create two tables with three columns each labeled as follows:

Community Strengths/ Opportunities	How will we build on this strength?

Community Weaknesses/ Challenges	How we will overcome or eliminate this weakness?

3. To complete the **Strengths** column in the first table, consider the discussion you had in the first step and think about everyone (and every organization or stakeholder group) who is (or could be) involved in your community effort to implement adaptation strategies at the site. Identify and discuss the strengths of this group of people and organizations. Write your responses in a bulleted list under the “strengths” column of the table you created and in the box above. Here are a few questions to help you get started:

- What kinds of resources are available to the group? These could include assets (funding, equipment), people (partners, staff, volunteers, experts), and/or information (data).
- Does your group have any cultural or behavioral assets that can support adaptation (e.g., local knowledge of dealing with hazards in the past, ability to plan, learn and reorganize in response to disasters, effective individuals/groups in community who can mobilize awareness and resources to address adaptation)? How has the community successfully coped with climate hazards in the past (floods, drought, etc)? Are there traditional management practices that help minimize negative impacts from climate events?
- Is there local and/or national demand/support for your adaptation actions or conservation services? How effective are these groups/institutions?
- Are there any existing or new opportunities for beneficial partnerships with local agencies, groups, or other communities?

- Upon completing the list of strengths, review each strength and determine what the community needs to do to maintain or pursue that strength?

Example:

Community Strengths/ Opportunities	How will we build on this strength?
<i>Committed group of community members</i>	<i>Keep them involved in the process</i>
<i>Interested partners willing to help</i>	<i>Continue to meet with them to update them on progress and seek input</i>
<i>Traditional ownership and management and strong leadership.</i>	<i>Seek community leaders to help facilitate dialogue with community members and provide decision making about adaptation plans</i>
<i>Abundance of natural resources and healthy coral reef creates opportunities</i>	<i>Carry out awareness about importance of healthy resources for long term resilience; continue to manage natural resources effectively to maintain ecosystem health</i>

- To complete the **Weaknesses** column in the second table, think about, identify, and list any known management weaknesses within your group. Think carefully. The more honest you are, the more useful your results will be. Here are a few questions to get you started:
 - How strong is your group’s financial support for adaptation efforts? What about other resources (see above)?
 - How is team/community morale and commitment to adaptation?
 - What were the main challenges the community faced in recovering from climate change impacts and hazards in the past (floods, drought, etc)?
 - Will certain groups of people be more impacted by future climate change hazards than others? Why?
 - Are there any external social, economic, cultural, political, legislative, or behavioral threats that could inhibit adaptation efforts at your site?
 - What gaps are there in the group’s abilities to adapt to climate change?
- Upon completing the list of weaknesses, review each weakness and determine what actions does the community need to take to overcome that weakness?

Example:

Community Weaknesses/ Challenges	How we will overcome or eliminate this weakness?
<i>Lack of equipment, “tools”, skills and money</i>	<i>Seek partnerships with government and NGO’s to provide technical support and to seek grant funds</i>
<i>Lack of on going data on status and trends of the reef health</i>	<i>Anecdotal information is high and enough at this point</i>
<i>Limited number of people on island and for project implementation.</i>	<i>Choose immediate activities that are feasible with current capacity</i>
<i>Limited ability to receive information about potential hazards (warning system)</i>	<i>Work with hazard management government agency to establish a radio network that can provide more reliable communication about projected hazards</i>

8. The results of the Strength/Weaknesses analysis can now be used in the vulnerability assessment to better understand the community’s adaptive capacity to cope with climate change impacts. Additionally, it can inform the development of early actions by focusing action on ways to maintain or pursue strengths OR to eliminate weaknesses.

Upon completing the strength/weakness analysis, add priority strengths to build on into the LEAP template

WORKSHEET FOURTEEN: DEVELOPING YOUR LOCAL CLIMATE STORY

Instructions and Example:

This worksheet is a template that will help your planning team develop a Local Climate Story. You will use the information collected in the previous four exercises to complete your story. Follow the steps below to develop your story that will be inserted into your LEAP template.

- I. Fill in the known predictions about your region in the first section of the table below. Then complete short statements to describe past, present, and future climate scenarios based on what was learned by in the historical timeline, seasonal calendar, community walk, and strength/weakness analysis.

Example:

Climate Change/ Hazard	Known or likely change over time (increase/decrease/stay the same)
Air temperature will	<i>increase</i>
Sea surface temperature will	<i>increase</i>
Sea level will	<i>increase</i>
Ocean Acidification will	<i>increase</i>
Weather Patterns will	<i>Change but it is unclear exactly how.</i>
<p>PAST – Based on historical trends, what hazards are most frequent and which have the greatest impacts? (use historical timeline, mapping and SW analysis)</p> <p><i>Droughts – lack of drinking water, loss of crops, coral bleaching events, pink eye epidemics</i></p> <p><i>Storm surges – flooding of homes, solid waste problems, erosion of coastline</i></p>	
<p>PRESENT– Based on current changes to the normal seasons you are noticing, what are the impacts of those changes that are of most concern to your community? (use seasonal calendar, mapping)</p> <p><i>Longer dry seasons – fruiting seasons are later and shorter. We are mostly concerned about longer dry seasons because of an increased likelihood for droughts and loss of crops. We also have increased storm surges in the dry season, which is eroding the coastline and inundating homes.</i></p>	
<p>FUTURE – Based on past experience and future climate change predictions, which changes in climate are likely have the greatest impact to your community?</p> <p><i>Increased Air Temperature – can increase frequency and severity of droughts causing increases in a lack of drinking water, loss of crops and food security, coral bleaching events, pink eye epidemics</i></p> <p><i>Change in Weather Patterns - Storm surges come with dry seasons and a longer dry season could bring increased frequency of flooding of homes, solid waste problems, erosion of coastline</i></p> <p><i>Sea Level Rise – impacts from storm surges is already a problem and increased sea level rise could make these impacts even worse</i></p>	

2. Complete the table below by asking the following questions for each of your targets:
 - a. What climate hazards have most frequently or severely impacted this target in the past or present?
 - b. What future climate change predictions will likely impact this target and how?
 - c. What will the impacts of these climate hazards be to this target?

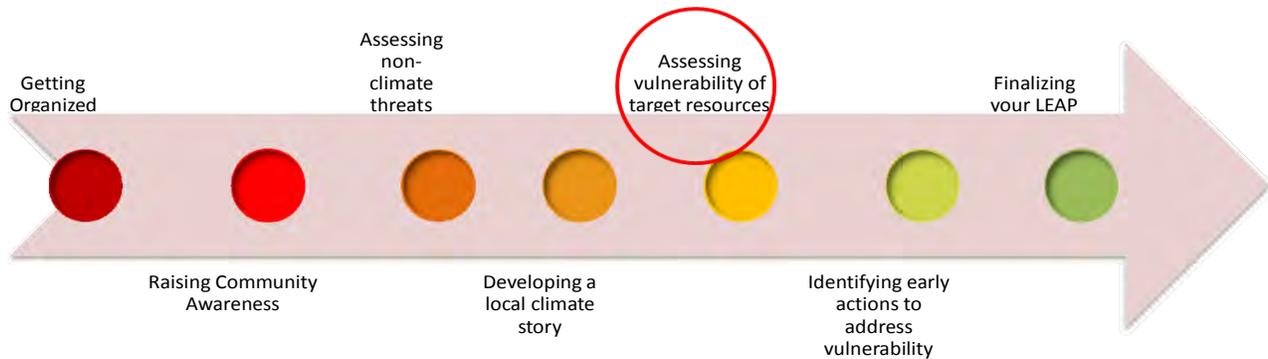
Target	Most frequent or severe climate change hazard (past, present, or future)	Impacts
Coastlines	<ul style="list-style-type: none"> • Storm surges • Sea Level Rise 	<ul style="list-style-type: none"> • Erosion of beaches, loss of living space
Water Resources	<ul style="list-style-type: none"> • Increase Air Temperature • Drought • Sea level rise 	<ul style="list-style-type: none"> • Lack of drinking water and water for crops • Salt water intrusion – loss of crops/food and water
Coral Reefs	<ul style="list-style-type: none"> • Sea surface temperature • Lack of cloud cover during droughts • Storm surges 	<ul style="list-style-type: none"> • Coral bleaching and loss of habitat for fish • Damage to reefs and habitat for fish

3. Using the table above develop your local climate story by writing a narrative about the which climate hazards and impacts your community is most concerned about based on past and present experience and future predictions.

Upon completing the information above, add this table into the LEAP template.

This exercise completes the “Developing a Local Climate Story” Step!

Local Early Action Planning Process - Assessing Vulnerability to Climate Change



Qualitative Climate Vulnerability Assessment Example

So far your community has explored the non-climate threats and impacts to their targets, and the climate hazards that are most likely to have impacts to the community. It is now time to put this information together and explore how climate change might impact your targets. This next section is aimed at understanding the vulnerability of important social and natural resources to changing climate hazards and impacts

This step will complete your qualitative vulnerability assessment.

The following table will be used to organize this information.

Questions needed to be answered to understand vulnerability:

TARGETS	CURRENT STATUS OF TARGET	THREATS (non-climate)	CLIMATE HAZARDS	EXPOSURE	SENSITIVITY	POTENTIAL IMPACTS	ADAPTIVE CAPACITY (Target and Community)	VULNERABILITY (Target and Community)
What natural resource and social targets are most important to your community and why?	What is the current status of your targets? (poor, fair, good, very good)	What are the non-climate threats to your priority natural resource and social targets?	Which of the projected climate change hazards are of most concern for this target? How do they impact this target?	How much area of this target will come in contact with climate change hazards? Specify which events? (All/ Most/ Some/ Little/ None)	How severely will your targets be impacted by increased climate hazards? And why? (Severely/ Moderately/ Hardly)	What are the current and likely impacts from these hazards to your targets and your community? (Extreme/ High/ Medium/ Low)	How would you rate the ability of your target to cope with impacts climate change hazards and your community's ability to cope with impacts to this target? (High/ Medium/ Low)	Rate the vulnerability of the target itself and your community in relation to this target (High/ Medium/ Low)
<i>Water resources that provide drinking water</i>	<i>poor</i>	<i>contamination, lack of storage</i>	<i>Drought sea level rise</i>	<i>All - by drought and most by sea level rise</i>	<i>Severely by drought because we don't have good storage</i>	<i>High –if humans don't manage water resources it not be around during drought due to evaporation and salt water contamination</i>	<i>Social - Low – we have experienced emergencies in the recent past. Gov't was needed to support community and provide freshwater</i> <i>Natural – Low the fresh water lens is not replenishing and precipitation is likely to decrease</i>	<i>Target:</i> High <i>Community:</i> High

Coral reefs that support income for several fishermen and tourism	Good away from shore – poor close to shore	Dynamite fishing, over fishing	sea surface temperature increase	All reefs	High for the near shore reef because it is threatened by dynamite fishing and overfishing so it is not healthy now	Loss of income, loss of food	Natural -low – many reefs are still no recovered after last bleaching event 10 yrs ago	Target: High
							Social - Medium – some fishermen are able to farm when fishing is not good	Community: Medium
Coastline – support all infrastructure and way of life on atoll	Fair – many coastlines are eroding	Dredging, loss of coral reefs	Sea level rise – storm surges	All coastline but especially bad on the ocean side	Severely – with increases in sea level and storm surges and possibly more frequent	High – loss of homes, crops, land	Natural – low the coastline cannot adapt to sea level rise	Target: High
							Social –medium – although not socially desirable and expensive, people can move away from areas that are regularly flooded and move to higher ground/structures	Community: Medium

Assess Vulnerability

Purpose: At this point, you should take a closer look at how climate change threats will impact your important natural and social resources. This can be done through a vulnerability assessment process (or table). The vulnerability assessment table helps the community to explore, which resources are most vulnerable to climate change, why, and which threats they may want to address through the LEAP. The vulnerability assessment table can also help the community understand specific characteristics that make them vulnerable or not including exposure, sensitivity, and adaptive capacity. Knowing these details can help the community identify key actions.

The community should already be aware of climate change concepts from pre-planning meetings and outreach. However, prior to carrying out the vulnerability assessment, you should review the concepts below and how they relate to vulnerability. If possible, use Tool 2: Outreach Toolkit: Adapting to Climate Change (flip-chart and companion booklets) to explain the terms. While these concepts are critical to understand vulnerability and get accurate information, the table was developed as a series of questions that will get at the information about without complex terminology.

Review the following terminology:

Vulnerability: is the degree to which a human or natural system is susceptible to, or unable to cope with, adverse effects of climate change. Vulnerability is a function of exposure, sensitivity to climate impacts and related adaptive capacity.

Exposure: the extent to which a system comes into contact with climate hazards or specific climate impacts.

Sensitivity: the degree to which a built, natural, or human system is negatively affected by changes in climate conditions (e.g. temperature and precipitation) or specific climate change impacts (e.g. sea level rise, increased water temperature).

Potential Impact: Exposure and Sensitivity combined will tell you how big the potential impact might be or to what degree the community could experience negative impacts from climate change. The greater the exposure and/or sensitivity the great the potential impact may be.

Adaptive capacity: potential, capability, or ability of built, natural, and human systems to adapt to impacts of climate change and variability with minimal potential damage or cost.

Resilience: ecological and social capacity to cope with, adjust to and recover from external stresses and disturbances. It is the flip side of vulnerability. Therefore, if you increase resilience of a community or resources, you will decrease their vulnerability.

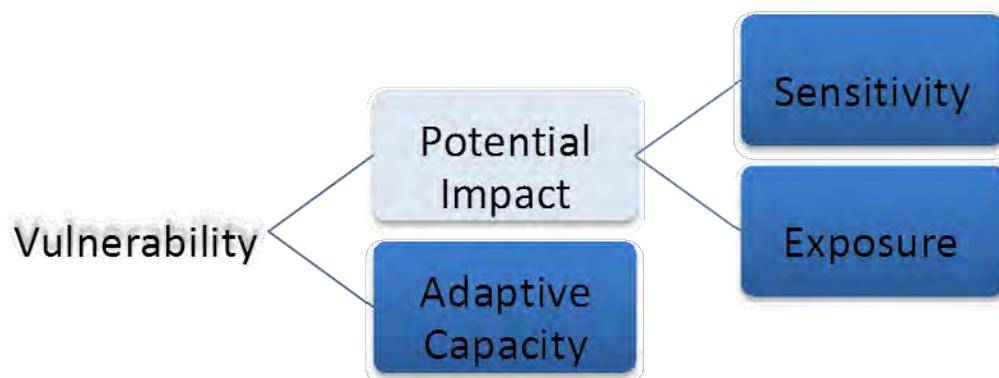


Figure 1. Vulnerability as a function of Sensitivity, Exposure and Adaptive Capacity (Marshall et. al., 2009)

Participants: This activity should also be carried out through a community meeting with a mix of community members including elders, adults and youth (both females and males).

Materials Needed: Flipchart paper, markers, tape. Additionally the outreach toolbox can be used to review concepts, and products from previous exercises should be available. Specifically the threat/action model, and the local climate hazard story, will all provide very valuable insights to help carry out the vulnerability assessment.

Time Requirement: 4-5 hours

WORKSHEET FIFTEEN: ASSESSING VULNERABILITY

Instructions: Carry out the following steps to complete the qualitative vulnerability assessment:

1. Transfer the vulnerability table (above) on to Flip Chart Paper.
2. First, enter your “targets and reason why they are important”, “current status” and “non-climate threats” from your Threat/Action model. **Choose only the top 5-6 targets identified by the community that are most important** (Consider social (people, health, social networks), economic (property, infrastructure, income), and ecological (natural resources/ ecological services) targets.).
3. Next, review this table with the larger group and explain that during this exercise small groups will explore the “vulnerability” of each of the targets by answering a series of questions.
4. Next, very briefly review the outcomes from previous exercises including: threat/action model, the local climate story and community map. Tell the participants that these products can be used to help them in small groups and are available for more detailed review.
5. Small groups should be formed around each of the targets (this can be done in one large group if there are less than 10 people). Each group should be given a print out with the series of “vulnerability assessment core questions” provided below. Ideally there will be a small group facilitator for each small group.
6. Each small group should answer the core questions for their targets, and rate the level of exposure, sensitivity, adaptive capacity, impact, and vulnerability for each resource. Small groups should use information collected from previous exercises to help determine answers. Ranking tables are also provided to help groups decide how to rank potential impact and adaptive capacity.
7. Upon completing the core questions for each important resource, the small groups should get back together into a larger group. Each group should report back on their answers to the core vulnerability questions with a short description of why it was rated at the level it was. Allow other groups to provide input or ask questions at this point. As each group reports back the facilitator should capture the ranking on the large table on the wall.
8. After each group reports back and agrees on the vulnerability ranking for each resource the vulnerability table is complete.
9. At this point, you can review the results noting specifically which targets were identified as highly vulnerable. The group should discuss the results to explore and confirm that the results are accurate based on the experience of the group.

10. Finally, you should note that the targets that are particularly vulnerable to climate change and their associated non-climate threats should be considered as possibly “high priority” resources and/or threats to address in further planning activities.
11. It is also good to discuss here if there were any “surprises” to what was previously considered a priority to the community. Capture notes from this discussion.

Vulnerability Assessment Core Questions

EXPOSURE	
First answer the following questions to help your group understand the level of exposure of the community and its resources to climate change threats. Information to support answering these questions can be found in results from the following exercises: mapping, historical timeline, transect walk, and seasonal calendar.	
What climate change impacts/hazards have happened in your area?	
Which of these hazards come into contact with this target?	
How frequent have these events been or how often does your target come into contact with these events?	
Are they increasing or decreasing?	
Based on the information collected in the previous 6 questions, answer the following to determine exposure:	
Core Question 1: How much area of this target will come in contact with climate change hazards? Specify which hazards? (if multiple hazards occur, answer exposure for each)	Pick one: all, most, some, little, none *fill this answer into the VA table

SENSITIVITY	
First answer the following questions to help your group understand the level of sensitivity of the community to climate change threats. Information to support answering these questions can be found in results from the following exercises: mapping, and threat/action model	
How severely were your targets impacted by past climate change impacts and hazards?	
What is the current condition of your natural resource or social target?	
How has this natural resource or social target changed over time?	
What is your current level of dependence on this target?	
What non-climate change threats are impacting your targets? And how severe are they?	
How might the existing non-climate change threats exacerbate or ameliorate climate risks to your target?	
Based on the information collected about current condition of the target and existing non-climate	

threats to it, answer the following to determine sensitivity:	
Core Question 2: How severely will your targets be impacted by increased climate hazards?	Pick one: severely moderately hardly *fill this answer into the VA table

POTENTIAL IMPACT	
First answer the following questions to help your group understand the level of potential impact of climate hazards on the targets. Consider that Exposure + Sensitivity = Impact	
How will your target be impacted by climate change hazards based on the level of exposure and sensitivity?	
How will community members be impacted by changes to this target from climate change/ hazards?	
Based on the information collected about potential impacts to your target and community members who are dependent on them, answer the following to determine sensitivity:	
Core Question 3: How would you rate the level of potential impact to your target and the community members that are dependent on them?	Pick One: Extreme High Medium Low * use the table below to help decide on the answer and fill this answer into the VA table

ADAPTIVE CAPACITY

First answer the following questions to help your group understand the level of adaptive capacity of the targets (social and natural resource) to climate change threats. Information to support answering these questions can be found in results from the following exercises: historical timeline, seasonal calendar, mapping, strength/weakness analysis, threat/action model. It is important specifically to review the information captured in the strength/weakness analysis to answer these questions.

Community: Are there any specific community members or groups (fishers, farmers, paid-employment) who would be impacted by negative changes to this target?	
Community: What would you do if these resources are impacted from increased climate change events?	
Community: Are there traditional management practices or local actions that were carried out to prevent or minimize negative impacts from climate change impacts or hazards? Were your actions successful?	
Community: Do community members understand the potential climate change impacts and hazards and are they prepared to adapt to, or cope with future changes to this target?	
Community: Do your community members have access to information/knowledge to cope with climate change impacts/hazards?	
Community: What is available to help your community cope with impacts to this target from increased climate events and how effective are these resources/institutions?	
Community: What alternatives are there to the use of this target?	
Community: Has your community made changes to successfully prepare for future climate change impacts and hazards, based on past experience? Do they have the skills and willingness to plan further for expected changes to this target?	
Target: Have you observed recovery or resilience in your target to past climate change events and impacts? And why?	

Target: How effectively managed are your current targets?	
Target: Are any of your targets in good enough condition that you feel they are in the best possible condition to be able to cope with and recover from further climate change impacts?	
Based on the information collected in the previous 6 questions, answer the following to determine social adaptive capacity:	
Core Questions 4 (a & b): a) Target: How would you rate the ability of your target to cope with impacts from increased climate change hazards?	A. Pick one: High Medium Low *fill this answer into the VA table
b) Community: How would you rate the ability of your community members who are dependent on this target to cope with impacts from increased climate change hazards?	B. Pick one: High Medium Low *fill this answer into the VA table

VULNERABILITY	
<p>First explain the difference between vulnerability of targets and vulnerability of community members. Use the information about exposure, sensitivity, impact, and adaptive capacity. $Exposure + Sensitivity - Adaptive Capacity = Vulnerability$. The level in which the target will be vulnerable is based on the potential impacts to that resource and its innate ability to cope with those impacts. However, the vulnerability of the community is based on the potential impact to your target and the community's ability to cope with those impacts (or adaptive capacity). Use the "Potential Impact" and "Adaptive Capacity" rankings from the previous tables and the table below to answer the following two questions.</p>	
Core Question 5 (a & b): a) Target: Based on the potential impact of climate change/ hazards on your target and it's ability to adapt to these changes, how vulnerable is the resource?	Pick one: Extreme High Medium Low *use the vulnerability ranking table below to help fill this answer into the VA table
b) Community: Based on the potential climate change/hazard impact on your target and the adaptive capacity of your	Pick one: Extreme High Medium Low

community to cope with those impacts, how vulnerable is the community?

*use the vulnerability ranking table below to help fill this answer into the VA table

Vulnerability Ranking Table: $\text{Vulnerability} = \text{Exposure} + \text{Sensitivity} - \text{Adaptive Capacity}^1$

		ADAPTIVE CAPACITY		
		Low	Medium	High
IMPACT	Extreme	High	High	Medium
	High	High	Medium	Medium
	Medium	Medium	Medium	Low
	Low	Low	Low	Low

¹ Adapted from: Climate Change Risk Management Matrix: A Process for Assessing Impacts, Adaptation, Risk and Vulnerability. (2011) A workbook completed as part of *ClimateQ: toward a greener Queensland* Initiative. Queensland Government, Australia.

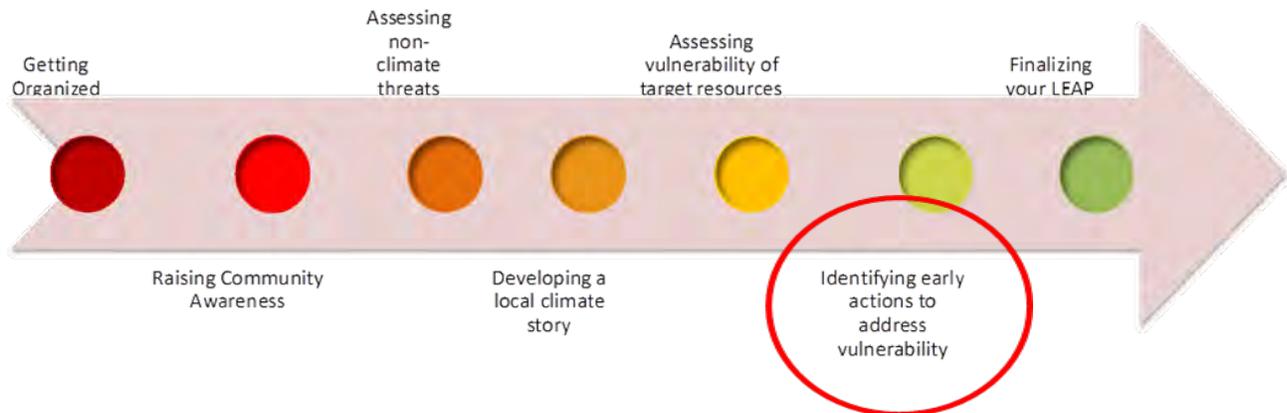
Questions needed to be answered to understand vulnerability:

TARGETS	CURRENT STATUS OF TARGET	THREATS (non-climate)	CLIMATE HAZARDS	EXPOSURE	SENSITIVITY	POTENTIAL IMPACTS	ADAPTIVE CAPACITY (Social and Natural Resources)	VULNERABILITY (Target and Community)
What natural resource and social targets are most important to your community and why?	What is the current status of your targets? (poor, fair, good, very good)	What are the non-climate threats to your priority natural resource and social targets?	Which of the projected climate change hazards are of most concern for this target? How do they impact this target?	How much area of this target will come in contact with climate change hazards? Specify which events? (All/ Most/ Some/ Little/ None)	How severely will your targets be impacted by increased climate hazards? And why? (Severely/ Moderately/ Hardly)	What are the current and likely impacts from these hazards to your targets and your community? (Extreme/ High/ Medium/ Low)	How would you rate the ability of your target to cope with impacts climate change hazards and your community's ability to cope with impacts to this target? (High/ Medium/ Low)	Rate the vulnerability of the target itself and your community in relation to this target (High/ Medium/ Low)
1.							<i>Target</i>	<i>Target</i>
							<i>Community</i>	<i>Community</i>
2.							<i>Target</i>	<i>Target</i>
							<i>Community</i>	<i>Community</i>

This activity completes a “The Assessing Vulnerability of Targets” Step

Upon completing the vulnerability assessment, add the targets that have been identified as highly vulnerable directly to the LEAP Template.

Local Early Action Planning Process - Identifying Early Actions to Address Vulnerability



Refine and Identify Additional Early Actions

Purpose: Now the community has a good understanding of which targets are most vulnerable to current climate hazards and future climate change impacts, and which threats might be most important to address. This step is aimed at identifying or revising actions to reduce vulnerability of key targets.

The Threat/Action model previously developed will be reviewed to revise or develop new actions that will address climate vulnerability. It is important to review how the existing actions developed in the Threat /Action model will already reduce some of the vulnerability of the targets. However, with more information about “why” these targets are vulnerable from the vulnerability assessment matrix, the group can now decide if these actions are sufficient or if there are additional actions they would like to carry out to reduce vulnerability.

It is also important to discuss and consider the impacts of carrying out an action to ensure that any approach taken to does not create new problems or make existing problems worse. For example, if a community was considering clearing an area of mangroves and building a hard structure or seawall along one coastal area to address local erosion and inundation, this may address these issues in the short term. However, when considering the immediate and long-term impacts to natural and social resources from this action, they would understand that:

- I. Removing mangroves means a loss of habitat for important fish species

2. A seawall would require a lot of financial resources over time and need on-going maintenance
3. A seawall may increase erosion to nearby areas

Upon reviewing these other impacts from the original action that they thought was “positive” they may decide it is actually going to cause more harm than good. For this reason, it is important to discuss the associated and long-term impacts of actions before deciding to implement them.

Participants: This activity should also be carried out through a community meeting with representative from various groups.

Materials Needed: You should continue to build on the Threat/Action model. Large flipchart paper, markers, post-it notes or index cards, and tape. It is important to have the original Threat/Action Model and the Vulnerability Assessment Table available at this time. Additionally, best management practices (BMPs) should be reviewed to help your group brainstorm possible actions you can take to reduce vulnerability of your key targets. ² This list should be available for review.

Time Requirement: 2 – 3 hours

² Tool 2: Outreach Toolkit: Adapting to Climate Change provides a list of Best Management Practices. Additionally Tool 5: Quick Reference Guide for Adaptation Options provides a list of adaptation options.

WORKSHEET SIXTEEN: REFINE AND IDENTIFY ADDITIONAL ACTIONS

Instructions: It is important to have the original Threat/Action Model and the Vulnerability Assessment table available at this time. If possible, put both of these on the wall for the community members to look at during this process.

1. As a first step, you should briefly review the following items:
 - Threat/Action Model – review all actions identified and which threats those actions address and which resources they help to protect
 - Vulnerability Assessment Table – **review highly vulnerable resources** and why they are highly vulnerable (e.g., high sensitivity due to many non-climate threats, and low adaptive capacity due to lack awareness)
2. Next, review the list of best management practices/actions to identify which ones may help to reduce vulnerability of your targets.
3. Next, paste a large flipchart on the wall with the table and headings below written on it. Begin to fill in the first column with the targets you determined through the vulnerability assessment. In the second column add the existing actions from the Threat/Action model for this target. As each action is added to the table have the group discuss and decide which targets that action will help protect, and how that action contributes to decreasing vulnerability (that is, reducing exposure, reducing sensitivity, or increasing adaptive capacity). Check the box under each vulnerability component that each action supports.

Highly Vulnerable Targets	Actions from Threat/Action Model	Additional Targets Addressed through this action	Does the Action Reduce Exposure – (will this action move the target away from the threat?)	Does the Action Reduce Sensitivity – (will this action improve the current condition of the targets or reduce the # or severity of threats to the targets?)	Does the Action Increase Adaptive Capacity – (will this action help the target cope with the threats?)	Revisions to Existing Actions or New Actions to address Vulnerability	Existing Development Policies, Plans or Programs to Integrate this Action into – what existing development program or plan can this action be included?

4. It is critical that the group really think through each action and consider any potential negative impacts (immediate or long term) that the action might have to social or natural resources. Some actions can create social problems, and/or threaten other natural resources or areas. Fill in the table below to consider some important questions before deciding if the action provides benefits and sustainability.

Action	If this action was implemented, could there be any negative impacts to natural resources (immediate or long term)?	If this action was implemented, could there be any negative social impacts (immediate or long term)?	Does this action require technical expertise or funding to be implemented properly? If so who will provide this expertise or funding? What are the potential impacts if the action is done without proper expertise or funding?	Are there any stakeholder groups who would not support this action and threaten its success?

Upon completing the table above for the existing actions, the group should take a moment to review the entire list of actions and targets that will be addressed. The facilitator should then ask:

- Are there any targets (specifically those identified as highly vulnerable to climate change in the matrix) that are not being address by these actions? If so you should identify those targets develop further actions to address them.
- Can any of the actions your group previous identified to address non-climate threats be revised to further reduce vulnerability of the targets?
- Can any or all of these actions be integrated into existing and relevant development plans, policies, or programs and do they have the support to be implemented in these programs? For example, environmental management plans, national conservation strategies, disaster preparedness and/or management plans, sustainable development plans for specific sectors (e.g., agriculture, forestry, transportation, fisheries)
- Are any of these actions going to create new social or natural resource problems in your community if they are implemented or not implemented properly

Upon finalizing the table above with your community on flipcharts, the information captured should be added directly to the LEAP Template

Prioritizing Early Actions: Balancing Benefit and Feasibility

Purpose: Given limitations in human and financial resources, it is very valuable to prioritize actions by balancing their benefit and feasibility. This exercise will help your group think of which actions may be important to pursue first or early on and which ones may be pursued later. This exercise will also help your community focus your resources by pursuing management actions that address multiple threats and help to protect highly vulnerable resources.

It is important to review the vulnerability assessment at this point. It can help you to identify which targets are most vulnerable to climate change impacts and identify which actions are most important to increasing resilience. Additionally it can help the group see where multiple threats need to be addressed to increase resilience of priority targets. In many cases, it may only be feasible to address non-climate threats as a strategy build long-term resilience of targets.

Participants: This exercise can be carried out through a community or larger group meeting. In this way, everyone has a chance to provide input.

Materials needed: Flipchart paper, markers, and the vulnerability assessment results.

Time requirement: 2-3 hours

WORKSHEET SEVENTEEN: PRIORITIZING EARLY ACTIONS: BALANCING BENEFIT AND FEASIBILITY

Instructions: Carry out the following steps to identify which actions are highest priority balancing benefit and feasibility.

1. Review the Vulnerability assessment results paying specific attention to those highly vulnerable targets and their threats.
2. Using flipchart paper, create a table with eight columns and a row for each identified management action. At the top of the table, label each column from left to right as follows:

Early Action	Non CC Threats & Climate Change Impacts	Highly Vulnerable Targets	Capacity	Enabling Environment	Funding	Support	Total Score

3. Under “early actions” list all of the management actions you have identified to address non-climate and climate change threats, one management action per row. Use short hand if necessary.
4. Use the following six criteria to determine which management actions are the most important and feasible for you to try and address in the immediate future. As a group, discuss and choose a ranking for the first four criteria. Rank the criteria using the following scales:
 - a) “Threats” – the number of your top five threats/ CC impacts addressed by this action.
 - b) “Targets” - the number of highly vulnerable targets that benefit from this action.
 - c) “Capacity” – the ability of those involved in the management of your site to implement the action now. (Do we have the time, qualified personnel, equipment, and non-monetary resources that will be needed to do this action?)

“Capacity” ranking:

1 = little to no capacity to implement action

2 = some capacity to implement action

3 = fully capable of implementing action

- d) “Enabling environment” – the authority to implement this action and the political will to support it. (Do we have permission to do this action? Does the government or other necessary authority approve? Can this action be integrated into an existing and relevant development policy, plan, or program?)

“Enabling environment” ranking:

- 1 = do not currently have authority to do the action; not approved by government or other authority or not able to be integrated into existing policy, plan, or program
- 2 = have authority to do action; somewhat approved by government or somewhat able to be integrated into existing policy, plan, or program
- 3 = have authority; strong approval and support of government or able to be integrated into existing policy, plan, or program

- e) “Funding” – the potential for funding this action based on both the immediate availability of funds as well as the ability to raise new funds. (Do we have funds to implement this action, or do we need to raise funds? If we need to raise funds, do we have ideas for how we can **quickly** raise funds to support this action?)

“Funding” ranking:

- 1 = little to no funding; little potential to raise funds quickly
- 2 = some funding; existing mechanisms to raise funds quickly
- 3 = funding readily available

- f) “Support” – the amount of public support that exists for this type of management action and the level of conflict that may result among the involved stakeholders. (Will the local community support this action? Will anyone find this action controversial or feel that it threatens their livelihood and/or values?)

“Support” ranking:

- 1 = little to no support; likely to cause conflict
- 2 = some support; not likely to cause conflict
- 3 = good support; little to no conflict

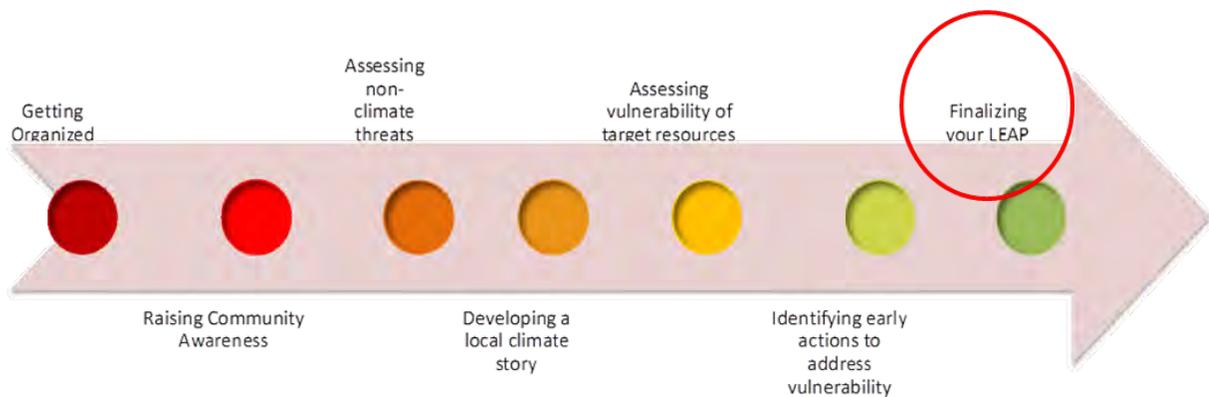
5. Across each action listed, determine the total score of all six criteria by adding up the six numbers listed in that row in the table. Check your math.
6. When all of the total scores have been listed and checked, identify the actions with the highest total scores in the table. Note that more than one action may share the highest score. These highest-scoring actions are the highest priority actions you will want to implement in the immediate future. On a flip chart, list these top priority actions (in order from highest to lowest or alphabetically) and corresponding scores in a table with three columns labeled as follows:

Highest Priority Early Actions	Total Score
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	

This exercise completes the “Identifying Early Actions to Address Vulnerability” Step!

Upon completing this step, add your priority actions into your LEAP Template

Local Early Action Planning Process - Finalizing your Local Early Action Plan for Climate Change Adaptation



Now that all of the information has been gathered from the community, the planning team can finalize the LEAP Template. This step includes:

1. Developing SMART Objectives
2. Developing a Work Plan
3. Finalizing the LEAP Template
4. Integrating LEAP actions into existing plans and program

Developing SMART Objectives

Purpose: This exercise will help you to translate your activities and expected results into measurable objectives. Objectives are practical translations of the medium-term and in some cases short-term results that you wish to achieve. If you achieve your objectives you will overcome your threats. Each result can be translated into an objective by using the table below.

After you have developed all the objectives that you think you need, you should go back and make sure that if you achieve these objectives you will overcome the threats to the resources that you are trying to manage.

NOTE: *If your community is undergoing the planning process for the first time and will only be using this process to decide on some immediate actions to prepare for climate change, then your team can skip this step. In this case, your team can move straight into creating a work plan for the actions only developed in the previous step. However, if the community has undergone a planning process before and will use this document to implement actions over time and raise funds for this work, it is best to include SMART objectives in the work plan.*

Participants: It is typically easier to develop objectives with a small group than with all your stakeholders. As a result, we recommend developing the objectives with your planning team and then holding a review workshop to get feedback from the larger community and key stakeholders.

Materials: Worksheet and pen and paper to capture notes

Time requirement: Approximately 4 to 6 hrs depending on the number of desired results you have identified

WORKSHEET EIGHTEEN: DEVELOPING SMART OBJECTIVES

Instructions:

1. Review your actions and lump the actions together that are aimed at achieving the same result. Develop a list of the results you hope to achieve through all of your actions.
2. Answer the questions in the table for each of the results to develop a SMART objective like the example below.

	Result You are Trying to Achieve	Where?	When?	Target Level of Change	Threat/Problem you are addressing
1.	- Increase abundance of target fish species	- In three villages where there is good fish habitat	In the next three years	Any Increase over baseline level	Overfishing and decline in fish populations
2.	- Reduction in violations of marine resource regulations	- In the waters surrounding our community	In the next year	50%	Illegal fishing and other violations

3. Use the table above to draft an objective and then test it against the SMART criteria below.

Example: OBJECTIVE #1: A 50% reduction in illegal fishing and other violations of marine resource regulations in the waters surrounding our community.

Is it Specific?	Yes	<i>In the waters surrounding our community</i>
Is it Measurable?	Yes	<i>50% Reduction in violations</i>
Is it Achievement or Outcome Oriented?	Yes	<i>Reduction in Violations</i>
Is it Realistic?	Yes	<i>Yes, we have sufficient funding to carry out enforcement</i>
Is it Time Limited?	Yes	<i>In the next year</i>

IT IS A SMART OBJECTIVE!

Developing a Work Plan

Purpose: This exercise will help you to organize management actions from your LEAP to ensure that you achieve your objectives. It will also help you to identify if you need any additional actions to achieve your objectives.

During the development of the LEAP, you identified actions that need to be taken to help achieve your targeted solutions. You also developed results that you want to achieve and finally in the first step of you developed SMART Objectives. Now that you have developed the objectives, you should make sure that you have the right actions to achieve each objective or you should develop new actions.

In this session, we will use a simple Work Plan format to organize and add any actions that must be taken to achieve each objective.

It is not enough, however, to simply list all of the activities that need to be done under a specific objective. To be useful for implementation you also need to identify the following:

- f* Who specifically will be responsible for getting the action done (or making sure that it gets done);
- f* When the action needs to be completed by (due date);
- f* What estimated amount of financial resources, if any, will be needed to complete the action; and
- f* Who (stakeholders, groups) needs to be involved (if anyone).
- f* Status of the actions can be updated periodically through review of the plan.

On a monthly or quarterly basis, you can also use this same work plan to develop tasks that must be undertaken to complete each activity.

Participants: It is typically easier to develop a detailed work plan with a small group than with all your stakeholders. As a result, we recommend developing the work plan with your planning them and then holding a review workshop to get feedback from the larger community and key stakeholders.

Materials: Worksheet and pen and paper to capture notes

Time requirement: Approximately 4 to 8 hrs depending on the number of desired objectives you have developed

WORKSHEET NINETEEN: DEVELOPING A WORK PLAN

Instructions: Write down your objectives and as a group discuss and list all of the associated management actions that need to be taken in order to achieve the selected objective. As you identify each, also fill in the other information under the relevant columns in the table. The Status column can be filled out periodically as a part of monitoring the progress of the implementation of the LEAP.

Objective	Management Action	Who	Due Date	Cost	Tasks to Complete the Action	Status as of _____
Objective One						
	Action One:				1. 2. 3.	
	Action Two:				1. 2. 3.	
Objective Two						
	Activity One:				1. 2. 3.	
	Activity Two:				1. 2. 3.	

Upon completing your Work Plan add it into the LEAP Template

Finalizing the Local Early Action Plan

It is now time to complete your LEAP! Review the template below and ensure that your planning team has filled in each section.

LEAP Template

Community Name:

Community Profile (Worksheet Four):

Target (social and natural), their Existing Condition, Non – Climate Threats and Impacts, and Root Causes of Threats (found in the Threat/Action Model):

Local Climate Story (climate change hazards and potential impacts of most concern to your community): (found in Worksheet Ten)

Describe which Resources that are Highly Vulnerability to Climate Change Impacts and Why: (found in Worksheet Fifteen)

Existing Resilience/Adaptation Strategies & Community Strengths to Maintain or Build upon (found in Worksheet Eleven & Fourteen)

Early Actions to Address Climate Change Impacts and Non-Climate Threats (found in Worksheet Nine & Eighteen):

Objectives and Actions to Address Climate Change Impacts and Non-Climate Threats:

Objective One:						
This objective will:		Reduce Exposure		Reduce Sensitivity		Increase Adaptive Capacity
Management Actions	Who	Due Date	Cost	Indicator	Tasks to Complete the Action	Status as of_(date)_____
Action One:					1. 2.	
Action Two:					1. 2.	
Objective Two:						
This objective will:		Reduce Exposure		Reduce Sensitivity		Increase Adaptive Capacity
Action One:					1. 2.	
Action Two:					1. 2.	

Estimated Cost:

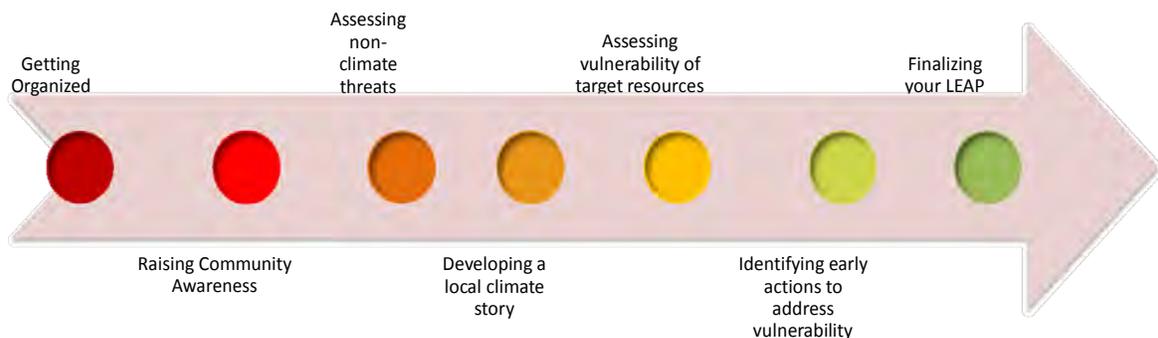
Upon completion of the LEAP, the team can carry out the appropriate protocol for approving the plan and/or incorporating the plan into existing efforts as identified in the “Getting Organized” section. The plan can be used to guide early actions within the community to adapt to climate change and to identify support for implementation.

Your team should also consider adding additional sections to your LEAP depending on the overall purpose. For example, your team might want to include a zoning scheme, rules and regulations, and an enforcement plan if your LEAP is specific to a marine managed area. Additionally most teams should consider including a monitoring plan to collect socioeconomic and biological information that will help measure the progress toward meeting your objectives. There are several monitoring guides available to support the development of a monitoring plan and you can also consult Tool 6: Methods to Monitor Climate Impacts and Effectiveness of Adaptation Actions.

Finally, the action planning team should also decide at this point if there is an interest and/or need to carry out a more technical, science driven quantitative vulnerability assessment. If so, they team should begin to explore resources and partners that may be able to support a more thorough assessment.

Integrating Your LEAP into Existing Plans or Programs

Congratulations, you have completed your LEAP and are on your way to implementing immediate actions to help your community build resilience to climate change impacts! Your last task is to review how best to incorporate these new actions into existing plans or programs to ensure that they are implemented. For example, environmental management plans, national conservation strategies, disaster preparedness and/or management plans, sustainable development plans for specific sectors (e.g., agriculture, forestry, transportation, fisheries). These may include local agency or NGO programs that have a specific focus on an area included in your LEAP, for example food security or water resources. Working with these agencies/organizations from the beginning of the process will help to ensure that the actions developed are “adopted” into their plans and programs. Ideally these actions could be integrated at multiple levels of planning including local, provincial, and national scales. Where possible, your LEAP should be shared with different levels of government agencies to be influence and be “mainstreamed” into larger efforts.



Glossary

Vulnerability: is the degree to which a human or natural system is susceptible to, or unable to cope with, adverse effects of climate change. Vulnerability is a function of exposure, sensitivity to climate impacts and related adaptive capacity.

Exposure: the extent to which a system comes into contact with climate hazards or specific climate impacts.

Sensitivity: the degree to which a built, natural, or human system is negatively affected by changes in climate conditions (e.g. temperature and precipitation) or specific climate change impacts (e.g. sea level rise, increased water temperature).

Potential Impact: Exposure and Sensitivity combined will tell you how big the potential impact might be or to what degree the community could experience negative impacts from climate change. The greater the exposure and/or sensitivity the greater the potential impact may be.

Adaptive capacity: potential, capability, or ability of built, natural, and human systems to adapt to impacts of climate change and variability with minimal potential damage or cost.

Resilience: ecological and social capacity to cope with, adjust to and recover from external stresses and disturbances. It is the flip side of vulnerability. Therefore, if you increase resilience of a community or resources, you will decrease their vulnerability.

Stakeholders are the main groups of people in your area that have who have an interest, or “stake”, in your community and its natural resource

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