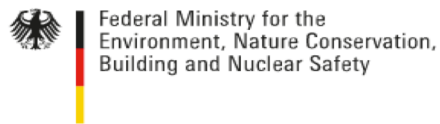


LOCAL EARLY ACTION PLANNING FOR CLIMATE CHANGE

A WORKBOOK TO DEVELOP ACTIONS TO ADDRESS IMPACTS FROM CLIMATE CHANGE



USAID
FROM THE AMERICAN PEOPLE



Nimpal Channel Marine Conservation Area

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Background

This toolkit is based on existing guidance documents developed in Micronesia and the Coral Triangle regions to help communities understand and plan for climate change. The tools are:

- 1) *Adapting to a Changing Climate: Guide to Local Early Action Planning (LEAP) and Management Planning,*
- 2) *Designing Effective Locally Managed Areas (LMAs) in Tropical Marine Environments: Guidance to Help Sustain Community Benefits through Management for Fisheries, Ecosystems, and Climate Change, and*
- 3) *Coastal Change in the Pacific Islands: A Facilitators Guide to Support Community Understanding and Decision Making on Coastal Erosion and Flooding Issues.*

These tools have proven successful in supporting community outreach and planning where there is skilled facilitation support from local conservation organizations. However, many communities, such as outer islands, are not able to participate in these projects. This is due to 1) challenges in remote island travel, 2) limited capacity of local organizations to reach all communities, and 3) complexity of using the tools without having skilled facilitation support.

This toolkit was developed to address these challenges. It provides a simplified outreach and planning approach based on the existing guidance documents listed above. It also includes videos that do not require outside facilitation to be used to provide information and guide community discussions. The result of this planning is a simple Local Early Action Plan or LEAP. A LEAP lists the problems the community is facing, the actions the community wants to take on their own to prepare for climate change, and other actions that they need further support to complete. These plans can guide immediate local actions that communities can take themselves to address climate impacts. They can also help communities to seek outside support through grants and technical assistance.

Introduction

This workbook is part of a toolkit to help communities in Micronesia and the Pacific address impacts to their resources and livelihoods from climate change and other threats. The toolkit includes this workbook, a series of short videos, and related fact sheets that combined help communities develop a local early action plan. An local early action plan or LEAP is a simple document that explains the communities needs, challenges, and actions they want to take.

The videos and fact sheets can be shared directly with communities to raise awareness and guide discussions about local experience. This workbook is designed to be used by a facilitator to capture information from the community. The steps in the workbook are straightforward so if a trained facilitator is not available, one or more motivated community members can use the workbook to guide the community in the planning process. Information from the community will be developed into a LEAP by the facilitator or community members leading the process. The LEAP will be reviewed and approved by the community.

Toolkit Contents

The Workbook

This workbook provides instructions to help a facilitator (or community members) to guide outreach and planning in the community. It includes exercises and questions to ask the community and simple ways to capture important information from their answers. Information from the community can be developed into a Local Early Action Plan. A LEAP template is included in the workbook so facilitators can easily use community information to write a plan.

The Videos

The toolkit includes a series of eight short videos:

1. Climate Change Video – Provides information on climate change and potential impacts to communities.
2. Tutorial Video – Provides guidance on how to review past weather events that impacted your community, and choose resources for planning.
3. Marine Resource Video– Provides outreach about the impacts of climate change on marine resource, and potential actions communities can take. Also a series of planning questions for the community to use to develop actions to reduce impacts

from climate change and other threats to marine resources and the community members dependent on them.

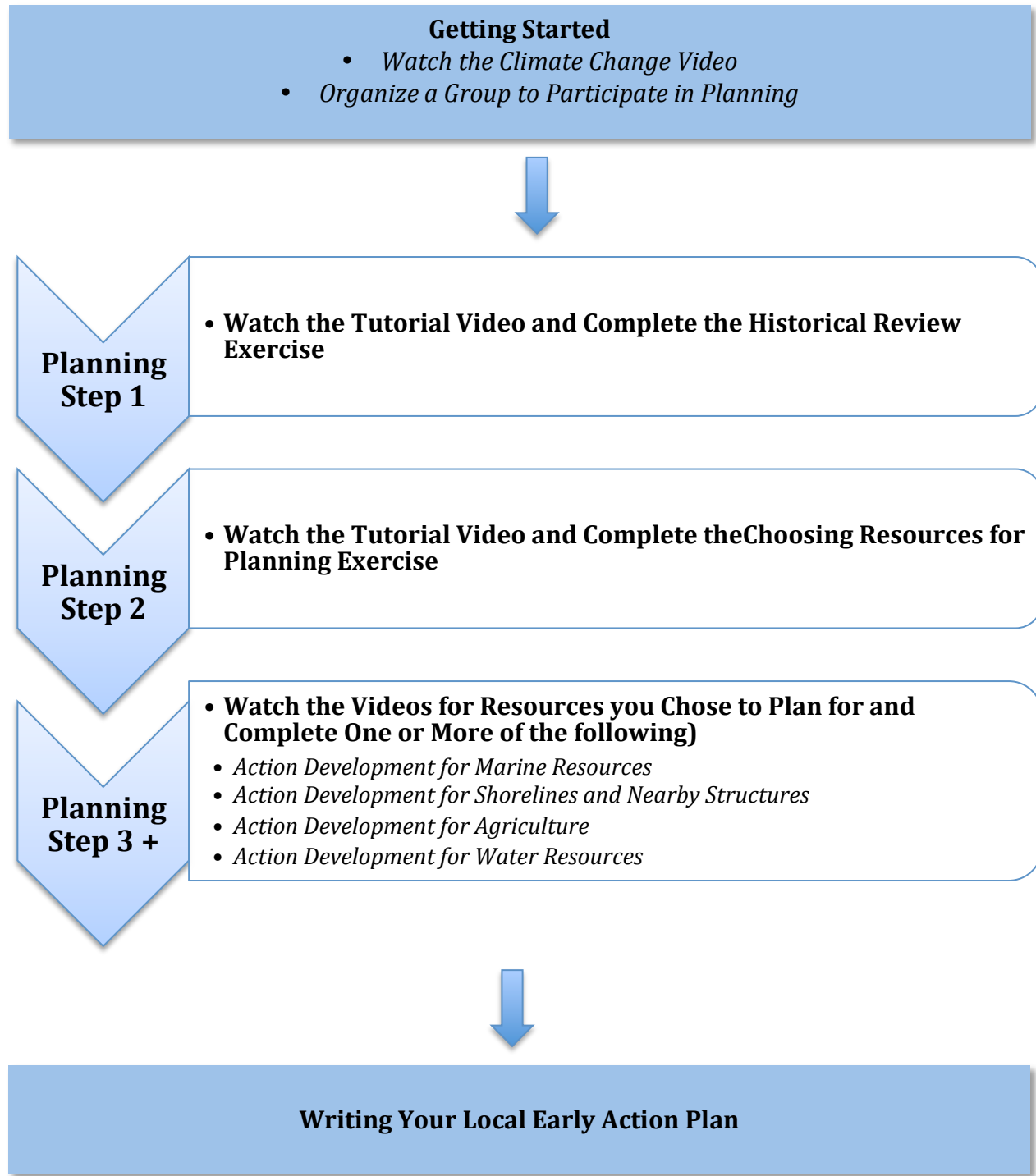
4. Shorelines and Nearby Structures Video- Provides outreach about the impacts of climate change on shorelines and nearby structures, and potential actions communities can take. Also a series of planning questions for the community to use to develop actions to reduce impacts from climate change and other threats to shorelines and nearby structures.
5. Agriculture Video - Provides outreach about the impacts of climate change on agriculture, and potential actions communities can take. Also a series of planning questions for the community to use to develop actions to reduce impacts from climate change and other threats to agriculture.
6. Water Video - Provides outreach about the impacts of climate change on water sources, and potential actions communities can take. Also a series of planning questions for the community to use to develop actions to reduce impacts from climate change and other threats to their water sources.
7. Hatohobei Island and Helen Reef Program Case Study Video – Shares the story of Helen Reef Project in Palau and how the remote community got organized and addressed a major threat to their marine resources from illegal fishing. They are now facing the biggest threat of all with climate change and sea level rise but feel ready to face this challenge as a organized and committed community.
8. Case Study Video- Shares the story of Nimpal Marine Conservation Area in Yap and how two communities came together to take action to improve their decline marine resources inspiring other communities to do the same. They now face new challenges with climate change and are beginning addressing these threats.

The Fact Sheets

The toolkit also includes set of fact sheets that provide a summary of information from the videos. The fact sheets can be used by community members during the planning process as a reminder of information from the videos on potential problems from climate change and potential actions they can take to prepare for these changes. Fact sheets are included for the following videos: climate change, marine resources, shorelines and nearby structures, agriculture, and water.

Steps to Develop a Local Early Action Plan

To complete the process for developing a Local Early Action Plan you will hold a series of community meetings to complete the following: steps:



Suggested Planning Approach

To complete this planning process, you can carry out the following meetings which will each last about two hours. The total number of meetings will depend on how many resources your community wants to include in planning. A suggested approach is:

Meeting One

- Watch the Climate Change Video
 - *Organize a Group for Planning*

Meeting Two

- Watch the Tutorial Video
 - *Complete Step One: Historical Review and capture information in the workbook*
 - *Complete Step Two: Choosing Resources for Planning Exercise and capture information in the workbook. The community may choose one, many, or all resources for planning.*

Meeting Three

- Watch the Video for the resource your community decided to plan for first.
 - *Complete Step Three by answering planning questions in the workbook for that resource and develop actions to address problems. Capture information in the workbook.*

Meeting Four +

- If you choose more than one resource for planning, hold one meeting for each resource your community wants to plan actions for and answer the planning questions in the workbook. Capture information in the workbook for each resource.

Final Meeting

- After you have finished planning for all resources that are important to you, its time to hold your final meeting. In this meeting you will review all actions developed in the previous meetings and develop a workplan to complete your Local Early Action Plan.

Local Early Action Plan Template

Community Name:

Historical Review: *(Completed in Step One)*

Describes extreme weather events the community has experienced in the past 50 years and impacts from the events.

Priority Resources: *(Completed in Step Two)*

Describe which resources the community is most concerned about being impacted by climate change based on historical events and future climate change projections. Describe why the community is most concerned about the top two.

Problems and Actions: *(Completed in Step Three)*

Resource One: (circle one)

Marine Resources Shorelines and Structures Agriculture Water

Condition: Describe the current condition of the resource and changes over time.

<i>Problems:</i> List the problems from climate change and other threats to this resource and the community members who are dependent on them.	<i>Actions:</i> List the action the community will take to address these problems.

Resource Two: (circle one)

Marine Resources Shorelines and Structures Agriculture Water

Condition: Describe the current condition of the resource and changes over time.

<i>Problems:</i> List the problems from climate change and other threats to this resource	<i>Actions:</i> List the action the community will take to address these problems.

and the community members who are dependent on them.	

Workplan (Completed in Step Four)

Describe the actions will the community take within the next 1-2 years.

Resource (Marine resources, Shorelines, Water, Agriculture)	Action	What needs to be done to complete this action?	Who will complete each step and by when?	What resources or support is needed?

Step One: Historical Review

Facilitator Instructions

The purpose of this exercise is to review past natural events that have impacted the community. With Climate Change, it's likely these events will happen again in the future and may be more intense. Reviewing past events can help identify which impacts the community is most concerned about.

Discuss the following questions with your community:

1. **Question One:** Which major weather events has your community experienced in the past 50 years. Check all the events that apply.

Extreme Weather Event	Check all that Apply
Typhoons/ Storms	
Droughts	
King Tides	
Extreme Rains	
High Sea Temperature/ Coral Bleaching	
Other(?)	

2. **Question Two:** How did each event impact your community? Check all the impacts that apply. Be sure to describe any "other" impacts not listed

Extreme Weather Event	Impacts (Check all that apply for each extreme weather event)			
Typhoons/ Storms	Damage to homes and infrastructure		Loss of food sources	
	Coastal Flooding Inland Flooding		Loss of Land	
	Damage to crops		Health Problems / Disease	
	Loss of Income sources		Other:	

	Loss of Water sources		Other:	
Droughts	Damage to homes and infrastructure		Loss of food sources	
	Coastal Flooding Inland Flooding		Loss of Land	
	Damage to crops		Health Problems / Disease	
	Loss of Income sources		Other:	
	Loss of Water sources		Other:	
King Tides	Damage to homes and infrastructure		Loss of food sources	
	Coastal Flooding Inland Flooding		Loss of Land	
	Damage to crops		Health Problems / Disease	
	Loss of Income sources		Other:	
	Loss of Water sources		Other:	
Extreme Rains	Damage to homes and infrastructure		Loss of food sources	
	Coastal Flooding Inland Flooding		Loss of Land	
	Damage to crops		Health Problems / Disease	
	Loss of Income sources		Other:	
	Loss of Water sources		Other:	
High Sea Temperature/ Coral Bleaching	Damage to homes and infrastructure		Loss of food sources	
	Coastal Flooding Inland Flooding		Loss of Land	
	Damage to crops		Health Problems / Disease	
	Loss of Income sources		Other:	
	Loss of Water sources		Other:	

Other(?)	Damage to homes and infrastructure		Loss of food sources	
	Coastal Flooding Inland Flooding		Loss of Land	
	Damage to crops		Health Problems / Disease	
	Loss of Income sources		Other:	
	Loss of Water sources		Other:	

3. **Question Three:** Which of these events have been the hardest to recover from? And Why? Check two.

- Typhoons/ Storms
- Droughts
- King Tides
- Extreme Rains
- High Sea Temperature/ Coral Bleaching
- Other (please explain)

Describe Why:

4. Information captured can be added into your LEAP template.

Step Two: Choosing Resources for Planning

Facilitator Instructions:

The purpose of this exercise is to choose which resources the community is concerned about and will include in planning.

- If appropriate for your community, break into small groups for this exercise - such as a women's group, a men's group, and others.
- On a flipchart paper, write the following resources
 - Marine Resources
 - Shorelines and Nearby Structures
 - Agriculture
 - Water Resources
- Ask each group to decide which resource they are most concerned about and want to plan actions for to address current and future problems. To help decide, they should consider past impacts to the resources that the community discussed in the historical review. Also they should consider possible future problems to resources and the community from climate change as shown in the video.

#1 means they feel it is the most important resource for planning actions that address current and future problems. #4 means they feel it is less important at this time to plan actions for the resources. Your community may decide to plan for one, many, or all resource but this process will help decide which ones to plan for first.

- Ask each group to report back and capture the information in the tables below including their order of importance (1 - 4) and why they chose #1 and #2 they most concerned about.

Women's Group		
Order of importance (1-4)	Resource	Describe why the group chose the #1 & 2 priorities
	Marine Resources	
	Shorelines and Nearby Structures	
	Agriculture	
	Water Resources	

Men's Group		
Order of importance (1-4)	Resource	Describe why the group chose the #1 & 2 priorities
	Marine Resources	
	Shorelines and Nearby Structures	
	Agriculture	
	Water Resources	

Youth Group or Other _____		
Order of importance (1-4)	Resource	Describe why the group chose the #1 & 2 priorities
	Marine Resources	
	Shorelines and Nearby Structures	
	Agriculture	
	Water Resources	

- Have the group decide which resources the community will include in your planning process. **Remember you can always plan for one, many, or all of the resources.** There is a video for each one. Make sure the concerns for men, women, elders, and youth are considered. If you choose more than one, also decide which order you will do your planning.

- ___ Reefs/Fisheries
- ___ Shorelines, Infrastructure, Buildings
- ___ Agriculture
- ___ Water Resources

- Information captured can be added into your LEAP template.
- In the next step you will plan for the resources you selected.

Step Three: Developing Actions

Facilitator Instructions:

The purpose of this exercise is to discuss problems your community faces for the resources you've selected and to develop actions to address those problems.

Start planning by watching the video for the first resource that you chose. Then answer the planning questions for that resource in the workbook. There is a section of the workbook with specific questions for each resource: marine resources, shorelines and nearby structures, water, and agriculture.

Developing Actions for Marine Resources

Facilitator Instructions:

The purpose of this exercise is to discuss the potential problems facing your communities marine resources from climate change and local activities. Also to list actions the community wants to take to reduce these problems.

Video Review: Begin by watching the Marine Resources Video with community members.

Mapping: After the video is complete, get started by drawing a map of your community on a piece of paper. If you have a map already from other planning exercises, you can use that map. Be sure your map shows:

- Coral reefs, seagrass, mangroves, and inland vegetation
- Homes, roads, and community buildings
- Farm lands
- Wells

Using the map, discuss and answer the following questions to develop actions for marine resources. Community members can use the fact sheets to remind them about potential problems and actions discussed in the video.

1. **Question One:** List your top 7-10 most important marine resources:

2. **Question Two:** How has your environment changed over time over the past 20 years? (circle one for each)

• Coral Reefs: Improve Same Decline

• Important Fish:

○ (name)_____ Improve Same Decline

○ (name)_____ Improve Same Decline

○ (name)_____ Improve Same Decline

- (name)_____ Improve Same Decline
- (name)_____ Improve Same Decline
- Important Invertebrates:
 - (name)_____ Improve Same Decline
 - (name)_____ Improve Same Decline
- Seagrass: Improve Same Decline
- Mangroves Improve Same Decline
or Coastal Vegetation
- Forest: Improve Same Decline
- Shorelines Improve Same Decline

Discuss which areas are in which condition on the map.

1. **Question Three:** How has this resource changed in the past 20 years? Circle One:

Improve Same Decline

2. **Question Four:** If the resource has declined, ask the group why? Review the list below and check the 3-5 biggest problems causing the resource to decline. For each problem you check, describe why this problem is happening in the last column.

For example, if clearing of mangroves is one of the biggest problems, it could be because people need the wood to build homes and can't afford other materials, people want to let the wind come through to homes, and people want to build on reclaimed land because there is little other land to build.

Check top 3 -5	Problems	Describe why this problem is occurring
	Lack of awareness	
	Lack of maintenance/ management	
	Little to no enforcement	
	Lack of political will	
	Lack of rules and zones	
	Clearing or filling of mangroves	
	Destruction of Reefs	
	Too much harvesting	
	Poaching	
	Sedimentation from land	
	Pollution (human or animal waste or chemical)	
	Invasive species	
	Destruction of seagrass beds	
	Other: Describe	

3. **Question Five:** What actions the community take to address the problems discussed and/or improve resource health? Review the list of actions below and described in the video and factsheets. Check the ones your community will take.

Include details about who, what, when, and how the action will be done in the last column. Mark any actions that will happen in a specific area on your map.

Check the actions your community will take <i>(one or many)</i>	Actions for Marine Resources	What specifically are you going to do? <i>Also identify actions that have a specific area on your map.</i>
Strengthen Zones and Rules		
	Develop no take zones. In these zones no fishing is allowed for a long time or permanently. It's recommend that communities place as much area as possible in no take zones but at a minimum protect 30% including all important habitats such as coral, sea grass, and mangrove.	
	Protect Reproducing Fish: Stop fishing in specific areas or on certain moon phases when they're reproducing.	
	Take Only Medium Sized Fish: Leave the biggest fish in the water because they reproduce the most, and don't take small fish that haven't had a chance to reproduce yet. But remember, different types of fish reproduce at different sizes. So work with elders or scientists to learn which fish reproduce at which	

	size.	
	Protect Threatened and Wide Ranging Fish: These include bumphead parrotfish, napoleon wrasse, large emperors, snappers, and giant trevally. For example, in Palau it's illegal to fish for napoleon wrasse and bumphead parrotfish.	
	Protect Healthy Habitat: Reduce or stop destructive practices that damage habitat such as dynamite fishing, coral mining, clearing or filling of mangroves, and land activities that cause sediment on the reef.	
	Protect herbivores like parrotfish and surgeonfish help to keep coral reefs healthy.	
Strengthen Management to Address Problems		
	Improve enforcement	
	Raise awareness	
	Work with leadership to raise political will for management	
	Review the problems and reasons for problems listed in question 4 and identify any other actions to solve these problems and causes.	
	Other: Describe	
Develop Alternative Sources of Food and Income		

	Fish more non-reef fish such as tuna or mahi. If possible, develop ways to attract these fish closer to reefs for fishers such as putting in fish aggregation devices.	
	Grow other sources of food such as pigs or chicken that can provide families with food, and use food preservation methods to have food sources in times of low catch.	
	Explore alternate sources of income such as clam farming or tourism	

4. **Question Six:** If you do all of these actions will you address all of the problems identified by the group? Add actions as needed to address all of the problems.
5. The information captured can be added into your Local Early Action Plan template

Developing Actions for Shorelines and Nearby Structures

Facilitator Instructions:

The purpose of this exercise is to look more closely at the potential impacts of climate change and other threats on shorelines and nearby structures, and to identify actions the community wants to take to reduce these impacts.

Video Review: Begin by watching the Shorelines and Nearby Structures Video with community members.

Mapping: After the video is complete, get started by drawing a map of your community on a piece of paper. If you have a map already from other planning exercises, you can use that map. Be sure your map shows:

- Coral reefs, seagrass, mangroves, and inland vegetation
- Homes, roads, and community buildings
- Farm lands
- Wells

Using the map, ask the group to discuss and answer the following questions.

3. **Question One:** How has your environment and shoreline changed over time over the past 20 years? (circle one for each)

- | | | | |
|--------------------------------------|---------|------|---------|
| • Reefs: | Improve | Same | Decline |
| • Seagrass: | Improve | Same | Decline |
| • Mangroves
or Coastal Vegetation | Improve | Same | Decline |
| • Forest: | Improve | Same | Decline |
| • Shorelines | Improve | Same | Decline |

Mark areas that have changed over time on your map.

4. **Question Two:** What areas of the shoreline get flooded in high tides or storms? Mark them on your map. You should expect these areas to flood even more in the future.

5. **Question Three:** What areas of the shoreline that have lost land? Mark them on your map.

6. **Question Four:** What areas have stayed the same over long periods of time? Mark them on your map. These often have the tallest trees showing the areas haven't shifted, and may be safer for building on.

7. **Question Five:** If the shoreline (beaches and mangroves) has declined over time, ask the group why? Review the list below and check the 3-5 biggest problems causing the resource to decline. For each problem you check, describe why this problem is happening in the last column.

Check top 3-5	Problems	Describe why this problem is happening
	Beach mining	
	Clearing or filling mangroves	
	Clearing forest near streams	
	Building seawalls or rock piers that cause changes in natural shoreline movement	
	Damage to coral reefs	
	Builing of structures too close to the shoreline.	
	Lack of awareness	
	Lack of rules to stop practices that damage beaches and	

	mangroves	
	Lack of rules to stop builing in unsafe areas	
	Little to no enforcement of any rules that protect shorelines	
	Lack of political will to protect the shorelines	
	Other: Describe	

6. **Question Six:** What actions will the community take to address the problems discussed and/or improve shoreline health and safety of nearby structures? Review the list of actions below and described in the video and factsheets. Check the ones your community will take.

Include details about who, what, when, and how the action will be done in the last column. Mark any actions that will happen in a specific area on your map.

Check the actions your community will take <i>(one or many)</i>	Actions for Shorelines and Nearby Structures	What specifically are you going to do? <i>Also identify actions that have a specific area on your map.</i>
Plan For the Future		
	Raise awareness of community members so everyone understands the benefits of developing in safe areas that are away from the shoreline, and consider long term sea level rise	
	Work with your community to <i>make plans</i> to keep people and future homes out of harms way	

	from flooding and storm damage.	
Develop Community Agreements, Or Rules That Protect Our Environment		
	<p>Develop community agreements or rules, where needed, to prohibit destructive activities including:</p> <ul style="list-style-type: none"> • beach mining • clearing or filling mangroves • clearing forest near streams • building seawalls or rock piers • any activities that damage coral. 	
	Plant native coastal vegetation (including mangroves) in areas where it historically grew.	
	Protect area landward of mangrove areas to enable them to adapt naturally to sea-level rise.	
	Plant vegetation around rivers and streams.	
Create Community Agreements For Safe Development		
	<p>Develop community agreements on where to build new structures to avoid dangerous areas including</p> <ul style="list-style-type: none"> • close to the shoreline • Close to mangroves • Close to existing seawalls or • Close to streams, rivers, or waterways <p>*these areas will have more flooding and erosion in the</p>	

	future.	
	<p>Plan for natural disasters (like typhoons, droughts, flooding) so community members know what to do to be safe. Consider the following:</p> <ul style="list-style-type: none"> • Storm shelters –a strong, safe structure away from shorelines that has stored water, food, and first aid. All community members should have access to storm shelters • Communication - determine how all community members will be warned when natural hazards are coming. Coordinate with local and national governments to get information about disasters. 	
	<p>Consider moving homes to safer ground over time. On high islands, this usually means upland. On <i>low lying islands</i>, look for areas of stable land. These are usually where the tallest trees are growing. A plan can be made on where people can move over the next few generations.</p>	
	<p>Avoid the use of seawalls and rock piers as they can make erosion of nearby areas creating the need for more seawalls. They are also very expensive to build and maintain.</p> <p>If used, seawalls must be designed by an engineer that understands the local coastal environment or they can make loss of land much worse.</p>	

Strengthen Management to Address Problems		
	Improve enforcement	
	Raise awareness about how healthy environments protect shorelines	
	Work with leadership to raise political will for management	
	Review the problems and reasons for problems listed in question 4 and identify any other actions to solve these problems and causes.	
	Other: Describe	

8. **Question Six:** If you do all of these actions will you address all of the problems identified by the group? Add actions as needed to address all of the problems.
9. The information captured can be added into your Local Early Action Plan template

Developing Actions for Agriculture

Facilitator Instructions:

The purpose of this exercise is to look more closely at the potential impacts of climate change and other threat on agriculture and your community, and to identify actions the community wants to take to reduce these impacts

Video Review: Begin by watching the Agriculture Video with community members. Ask the group to discuss and answer the following questions.

Mapping: After the video is complete, get started by drawing a map of your community on a piece of paper. If you have a map already from other planning exercises, you can use that map. Be sure your map shows:

- Coral reefs, seagrass, mangroves, and inland vegetation
- Homes, roads, and community buildings
- Farm lands
- Wells

Using the map, ask the group to discuss and answer the following questions.

1. **Question One:** What crops are most important for your community? List all important crops.
2. **Question Two:** Have there been any major changes to weather or seasons that are impacting your crops? Describe changes and impacts.
3. **Question Three:** Have any crops been damaged by salt water? Describe which crops and mark them on the map.

4. **Question Four:** If the agriculture has declined over time, ask the group why? Review the list below and check the 3-5 biggest problems causing the resource to decline. For each problem you check, describe why this problem is happening in the last column.

Check top 3-5	Problems	Describe why this problem is happening
	Lack of awareness. (For example of good agriculture practices)	
	Lack of maintenance/management	
	Invasive species	
	Use of destructive or poor farming practices (example: burning, monoculture)	
	Salt water getting into crops	
	Droughts	
	Fire	
	Diseases	
	Poaching	
	Pollution (example: too much fertilizer or pesticides)	
	Strong winds	

	Too much rain	
	Animal disturbance (example: pigs)	
	Other: Describe	

5. **Question Four:** What actions will the community take to address the problems discussed and/or improve agriculture? Review the list of actions below and described in the video and factsheets. Check the ones your community will take.

Include details about who, what, when, and how the action will be done in the last column. Mark any actions that will happen in a specific area on your map. Be as specific as you can for specific crops.

Check the actions your community will take (one or many)	Actions for Agriculture	What specifically are you going to do? <i>Also identify actions that have a specific area on your map.</i>
Prepare for Drought		
	Use fallen banana and coconut leaves to cover the soil around plants to hold moisture and prevent erosion	
	When planting fruit trees on low lying islands, place coconut husk at base of the roots. This can help protect in roots and hold moisture from rain.	
	Prune plants to minimize water needs of plants.	
	Avoid any burning as it	

	destroys soil nutrients, and uses up moisture. Compost fallen leaves and natural debris.	
	Protect forests, trees, and wetlands to help maintain ground water and reduce flooding.	
Prepare for Saltwater Flooding		
	Move or raise low-lying gardens and crops to higher ground, on raised wooden beds, or filled lands to reduce flooding.	
	Build up or fill land around plants & gardens to protect plants from flooding	
	<i>Reach out</i> to organizations in your islands that are studying types of crops that are better able survive extreme weather.	
	Use local crops that survived better in <i>past</i> extreme weather.	
Prepare for Extreme Weather Events		
	Use traditional farming and gardening methods that were designed <i>specifically</i> to prevent damage to crops during extreme weather.	
	Plant a variety of crops that can grow in different areas that are less affected by flooding, or other extreme weather. A variety of crops will also help prevent damage from insects.	
	Tie up or fence in pigs to keep them from damaging important food crops and <i>away</i> from water sources.	

	Use food preservation methods when crops are abundant to plan for times of low harvest.	
Strengthen Management and Address Problems		
	Improve enforcement	
	Raise awareness	
	Work with leadership to raise political will for management	
	Review the problems and reasons for problems listed in question 4 and identify any other actions to solve these problems and causes.	
	Other: Describe	

6. **Question Six:** If you do all of these actions will it be you address the problems identified by the group? Add actions as needed to address all of the problems identified.

7. The information captured can be added into your Action Plan template

Resources:

List local and national agencies and organizations that can provide technical information:

Climate Change Impacts to Specific Crops:
<http://www.spc.int/lrd/cepactacc/index.php>

Local crops that can support healthy eating and cope with extreme weather:
http://www.huffingtonpost.com/entry/how-food-gardens-based-on-traditional-practice-can_us_59259dd4e4b0ed5eed1323d

Developing Actions for Water Resources

Facilitator Instructions:

The purpose of this exercise is to look more closely at the potential impacts of climate change and other threat on water resources and your community, and to identify actions the community wants to take to reduce these impacts

Video Review: Begin by watching the Water Video with community members.

Mapping: After the video is complete, get started by drawing a map of your community on a piece of paper. If you have a map already from other planning exercises, you can use that map. Be sure your map shows:

- Coral reefs, seagrass, mangroves, and inland vegetation
- Homes, roads, and community buildings
- Farm lands
- Wells, streams, rivers, community tanks, and other important water sources

Using the map, ask the group to discuss and answer the following questions.

1. **Question One:** Check your current sources of water.

- ___ Traditional Wells
- ___ Individual Water Tanks
- ___ Community Water Tanks
- ___ Rivers or Streams
- ___ Piped Water from an Aquifer
- ___ Desalination

2. **Question Two:** How is your water supply during times of drought?

More than enough, Enough, Not enough, Very little

3. **Question Three:** How much water do you need each day for your community?

The Water for Life book provides an excellent reference for understanding and calculating water needs. Water is needed for drinking, cooking, bathing and household use like laundry. By using stored water for drinking, cooking, and critical sanitation, water can last longer. Each person needs $\frac{3}{4}$ -1 gallon per day (including water in food). Another gallon or two is needed per person for sanitation and food. Therefore, an estimate of 2.7 – 3.7 gallons per person per day should meet most peoples needs. To calculate water use consider:

- How many people are in your community? _____
- Amount of water needed = # of people x amount of water/person/day

To understand if your water storage facilities are sufficient to take care of your communities water needs during severe drought please see the reference pages from the Water for Life book at the end of this workbook.

4. **Question Four:** If the water resources have declined over time or are not enough during severe drought, ask the group why? Review the list below and check the 3-5 biggest problems causing the resource to decline. For each problem you check, describe why this problem is happening in the last column.

Check top 3-5	Problems	Describe why this problem is happening
	Lack of awareness of how best to conserve and manage water	
	Lack of maintenance/management of water systems	
	Lack of cooperation on water management	
	Lack of rules for water management	
	Lack of storage facilities (insufficient storage for times of drought)	
	Leaking pipes or wasting of water	

	Sedimentation or dirt getting into water supplies	
	Pollution or contamination getting into water supplies (human or animal waste, litter, or chemical pollution)	
	Cutting of upland vegetation in watersheds	
	Salt water seeping into water supplies	
	Other: Describe	

5. **Question Five:** What actions will the community take to address the problems discussed and/or improve water security? Review the list of actions below and described in the video and factsheets. Check the ones your community will take.

Include details about who, what, when, and how the action will be done in the last column. Mark any actions that will happen in a specific area on your map. Be as specific as you can for specific crops.

Check the actions your community will take <i>(one or many)</i>	Actions for Water	What specifically are you going to do? <i>Also identify actions that have a specific area on your map.</i>
Protect Water In Our Natural Environment		
	Protect inland vegetation: It provides shade over the ground, keeping it cooler, helping it to hold water and trap soil.	

	Protect coastal vegetation: This can help to reduce wave energy, which decreases the amount of water that gets into our wells.	
	Restore traditional wells: Traditional wells have always been important for our communities. Damaged wells can be restored to help in times of drought.	
Collect, Store, And Conserve Water		
	Install Water Tanks: Calculate the volume of water needed for each person in the community. Make sure you have enough tanks to provide for everyone in the case of a severe drought.	
	Put up Gutters: Make sure gutters collect water from the entire roof, and use screens to prevent leaves and animal waste from getting into your tanks.	
	Store as much water as possible: Each family should store as much water as they can in drums and containers.	
	Create community storage tanks: Work with neighbors to create larger collection tanks or resevoirs. Be sure to develop community agreements on how the tanks and water will be managed and used.	
	Use low cost desalination kits: there are several inexpensive desalination kits to collect fresh water. Or, you can make your own.	
	Fix leaky pipes and faucets: Don't waste water. Fix pipes and turn off faucets when not using them.	

Keep Your Water Clean		
	Treat and purify water: Use chlorine in appropriate amounts to remove germs from drinking water at least 12 hours before using. One teaspoon of chlorine for every 55 gallons of water will kill germs without causing harm to humans. Or bring water to a rolling boil for at least one minute.	
	Don't pollute: Make sure that trash and waste from humans and animals stays out of our water sources. This can include building stone or cement walls around wells, and keeping them covered to prevent salt water or other waste from getting in.	
	Vegetate areas near streams: Roots from plants will trap dirt and stop it from washing into water.	
	Keep tanks clean: Tanks should be covered, while roofs and gutters should be cleaned before collecting water. Or use a first flush diverter. This stops the first few minutes of rain from entering the tank until the roof or gutter is clean. Also, drain and clean the tank at least every few years.	
Strengthen Management to Address Problems		
	Raise awareness	
	Review the problems and reasons for problems listed in question 4 and identify any other actions to solve these problems and causes.	
	Other: Describe	

10. **Question Six:** If you do all of these actions will it be you address the problems identified by the group? Add actions as needed to address all of the problems identified.

11. The information captured can be added into your Local Early Action Plan template

Resources:

List local and national agencies and organizations that can provide technical information:

Pacific Resources for Education and Learning (PREL) – Water for Life Community Education for Water Conservation in the Pacific Islands. Provides information about building catchments, maintaining safe water, and making solar distillation units.

http://w4l.prel.org/?page_id=104

Step Four: Developing your Workplan

Facilitator Instructions:

The purpose of this exercise is to review all of the actions developed in your planning process and decide which actions your community will take in the next 1-2 years. Also, to describe specifically what needs to be done to complete each action, who will do what, when it will get done, and what resources are needed.

1. To begin, review the work plan table below with your planning team and explain that you will fill out the table for each action your community will take in the next 1-2 years.

Resource <i>(Marine resources, Shorelines, Agriculture, Water)</i>	Action	What needs to be done to complete this action?	Who will complete each task and by when?	What resources or support is needed?

2. Review all of the actions developed in the Step Three for all the resources your community chose to include in planning.
3. Ask the planning team “Which actions are the most important for the community to complete in the next 1-2 years?” List them in the second column of the workplan table and write which resource (marine resources, shorelines, agriculture, or water) each action will help in the first column. Be sure to include all of the actions that the community can take without outside support and begin immediately. Also make sure the interests of men, women, elders, and youth are considered. Other actions that are important but require outside support or that take more time can also be included.
4. For each action, complete the rest of the workplan table.
 - a. In the third column list the specific tasks you need to take to complete that action. For example, if you decide to plant coastal vegetation the tasks might

include 1. Identify areas to plant 2. get seedlings from local agriculture organization, 3. Plant seedlings, 4. Water and maintain seedlings.

- b. In the fourth column, list who will complete each task and by when. Different people may be needed to complete different tasks. For example the mayor may coordinate with local organizations to get seedlings, and the mens group may plant the seedlings, and womens group water and maintain the seedlings. List the week or month that the task will be complete.
 - c. In the last column, list any resources or support needed to complete the action. This could include funding, technical support, or materials. For example, you may need technical support by a local agriculture organization to identify the best types of plants for coastal re-vegetation and also to provide seedlings.
5. Add the workplan into your LEAP template to complete your Local Early Action Plan.
 6. Be sure to review the workplan at least once every six months to track your progress and make any changes that may be needed to complete your actions.