Adapting to A Changing Climate Workshop Report

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Pohnpei, FSM
September 6-10, 2010

PIMPAC

MICRONESIA CONSERVATION TRUST

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Appendices

Executive Summary

As part of a larger project to develop guidance materials to support community-based adaptation to climate change in Micronesia, a workshop was held from September 6-10, 2010, in Pohnpei, Federated States of Micronesia, to gather input from various stakeholders. The larger project and this workshop are sponsored and facilitated through the Micronesia Conservation Trust (MCT), The Nature Conservancy (TNC), the Pacific Islands Marine Protected Areas Community (PIMPAC), and a consultant team[1] of Meghan Gombos, Supin Wongbusarakum, and Scott Atkinson.

Twenty four regional representatives were present from around Micronesia including Palau, Kosrae, Pohnpei, Chuuk, Yap, the Republic of the Marshall Islands (RMI), and the Commonwealth of the Northern Mariana Islands (CNMI). This included local community members who joined the workshop from RMI, Palau, and Pohnpei. Additionally, key climate change experts were invited to share up-to-date science about climate change predictions and climate change impacts to the priority target resources in the region. These target resources included: coral resources, coastal lands (i.e. erosion), fisheries, food security (i.e. agriculture), water resources, and hazard management.

The objectives of the week-long workshop were to:

1) Collect input from regional site based managers and climate change experts on key components and content of an ecosystem based community based adaptation guidebook for Micronesian communities.
2) Identify ways to incorporate climate change vulnerability assessment and planning tools into existing community based planning processes.
3) Identify key adaptation strategies and indicators of effectiveness to increase the resilience of communities to the impacts of climate change in Micronesia, and
4) Develop communication tools to share workshop information and support dissemination of the guidance including identification of pilot sites to begin testing guidebook tools and strategies.

To fulfill these objectives the workshop was designed to provide participants with the most up-to-date science about climate change in the region, as well as gather input on realistic ways to develop guidance materials that support community-based adaption in Micronesia. Outputs of the workshop were: stakeholder input on how to revise existing community based planning process steps, a new vulnerability assessment tool to be included in the planning process, a draft list of strategies to address climate impacts to target resources in the region, and draft outreach materials that can be used by facilitators of community planning processes to help explain climate change concepts. Additionally, workshop participants decided that the final project outputs that support community-based planning processes (and will be directly influenced by workshop input) should include:

1) Revisions to the PIMPAC management planning guidebook to incorporate a climate change lens in existing process steps and new steps to understand vulnerability, and
2) A climate change outreach toolkit including one product (in the form of a large laminated flipchart) targeted at community/traditional leaders depicting information about climate change in the context of other threats to natural resources, potential impacts to the community, what they can do, a simplified overview of a vulnerability assessment and adaptation planning process, and possible adaptation strategies. The other piece of the toolkit would be an accompanying smaller document/ booklet that could be left with the community. The booklet will present mostly the same information as the flipchart but with more details.

[1] Workshop report prepared by consultant team of Meghan Gombos, Supin Wongbusarakum, and Scott Atkinson

Background on the Overarching Project

While Pacific Island nations are facing some of the most immediate and devastating impacts from climate change (CC), they often have the least resources (human, technical and financial) to address this looming threat. Additionally, most climate change adaptation tools have focused on providing strategies to national and local governments, and NGO audiences, not local communities. This project is aimed at addressing these challenges by facilitating Micronesian communities and managers who support them through a process that assesses their most pressing needs, provides a suite of tools to address those needs, and prioritizes actions that can be taken at the community level. The result of this project will be guidance documents that provide simple and locally appropriate strategies that can be carried out within the communities while supporting regional resiliency efforts.

Long-term approach: The overall aim of this project is to build off previous and on-going efforts to provide a foundation that will to support Micronesian communities to successfully adapt to CC. As a first step in this long-term approach, this project will develop CC adaptation guidance that can be used by communities and natural resource managers who support them. Future steps will be taken regionally (e.g. through MCT or PIMPAC) and include on-going coordination, training, implementation, monitoring, and evaluation, of the strategies identified in the guidance, over several years. It is likely that these future steps will focus on incorporating CC adaptation strategies into existing community efforts. For example, existing efforts to carry out management planning at the site level, as well as socio-economic & biological monitoring, could be slightly modified to also incorporate indicators useful for CC adaptation. Additionally, new efforts may be developed that could increase the likelihood of success at the community level such as small grants to implement adaptation strategies, as well as support for community based social networks (such as the Babeldaob Watershed Alliance in Palau and the Radio Network in RMI).

Short-term approach: The main approach to carrying out this work is to distill the wide breath of climate change resources relevant to Micronesia into simple, concise, and regionally appropriate guidance for community members and managers to be integrated into existing efforts. This guidance is being developed primary by gathering input and background information from regional community members and practitioners. These materials will be developed through a well-facilitated workshop with regional managers (specifically those assisting LifeWeb[2] supported sites) and key CC experts who can discuss, and decide what the guidance will look like and include. Please note: This is the workshop reported on in this document. The workshop will also highlight existing programs (within Micronesia such as RMI and other Pacific Island countries) that have experience in carrying out CC work and can share lessons learned. As such, the workshop discussions and notes will provide the majority of information that steers the content and format of the guidance.

Additionally, this project begins to explore ways to develop or expand existing community-based social networks (e.g. watershed partnerships, cultural groups, etc) in which members can teach and learn from one another as well as become aware of, and promote how their individual site management contributes to larger climate change adaptation measures and overall resiliency. The interest by communities to reduce the (impacts of and) vulnerability to climate change provides a good point of engagement into larger jurisdictional and regional conservation/resiliency efforts. Guidance materials will include information about developing social networks at the community level to motivate and expand these site-based initiatives into broader resiliency efforts.

The remainder of this document will focus on the CC workshop in Pohnpei and the outputs that will influence further work as stated above for this project.

[2] German "LifeWeb" funds have been received by MCT to implement various protected area management projects in the region.

Adapting to a Changing Climate Workshop, Pohnpei 2010

From September 6-10, 2010, a workshop was held in Pohnpei, Federated States of Micronesia to gather input from various stakeholders on the development of guidance materials for community-based adaptation to climate change.

Workshop Participation

A total of 40 people (participants and facilitators) attended the workshop. Based on the linkage to the Micronesia Challenge efforts and existing climate change adaptation efforts in the region, nominations were sought based on participation in a previous Micronesia Challenge measures workshop in February 2010, climate adaptation workshop in March 2009, and those involved in managing LifeWeb site projects that have been implementing work with a climate change component. Additionally, climate experts were also invited to provide specific input on the most up-to date science about climate change predictions in the region, as well as likely impacts to priority target resources for Micronesian communities.

Workshop Approach

The overarching approach of the workshop was to modify existing community-based management processes and tools as much as possible to incorporate a climate change lens. As such, the facilitators sent out a pre-workshop survey to gather information on existing processes being used to support community based management, and understand priority concerns about climate change impacts. Additionally, the workshop was designed to move through a draft outline of questions that would need to be answered to understand vulnerability of a community and to support community-based climate change adaptation. Those questions are:

1. Why should our community care about climate change? Is there anything we can do?
2. What changes can we expect to see in the region and in our community? How will those changes impact our community?
3. How can we understand what is likely to happen in our community? What can we do in our community to prepare for these changes?
4. How can we know if our actions are building resiliency to current and future climate change impacts?
5. Is there any help for our community to adapt to climate change? Will the work we do in our community be enough to reduce our vulnerability to climate change?

Based on the pre-workshop survey results, the meeting was then designed to answer these questions in two phases: 1) Understanding local perceptions of climate change, climate change predictions and potential impacts (answering questions 1 & 2), and 2) Modifying existing processes to incorporate a climate change lens and developing new guidance to support community based adaptation (answering questions 3, 4, & 5).

Pre-workshop Survey Results

Participants were asked to complete a pre-workshop survey that included several questions to better understand the priority concerns about climate change within the region, and existing processes and strategies being used. The most frequently stated concerns are sea leve rise and inundation, saltwater intrusion, and coastal erosion (see question 1 below). A wide range of strategies are being implemented by the communities to address existing and predicted climate change impacts. These include shoreline protection; diversifying crops; introducing salt-tolerant species; and monitoring of changes in shoreline, reefs and forests (see question 2 below). In terms of the steps the respondents' organization/agency regularly carries out in community based engagement and planning at a site level, the most frequently mentioned steps are identifying and mapping threats, identifying targets, defining objectives, analyzing

problems and stakeholders, and identifying solutions. Biological assessment and monitoring are also quite common. Concerning planning guidance tools used to support community-based engagement and planning at a site level, the PIMPAC management planning guidebook was most frequently mentioned followed by the Conservation Action Planning (CAP) / Miradi and SEM-Pasifika.

Questions and tables presenting responses to these questions are provided below:

Question 1. What are the top 3 concerns you or community members you work with have about climate change impacts in your country?

IMPACT	# of responses	Country
Sea level rise and inundation, Salt water intrusion	5	Palau, Pohnpei, CNMI, Palau, Yap
Coastal erosion	5	Chuuk, Kosrae, RMI, Pohnpei, CNMI
Food Security	3	Chuuk, Kosrae, Palau
Drought – water security	2	RMI, Pohnpei
Coral reef degradation habitat and fisheries loss	2	CNMI, Palau
Increases storms/ severe weather	2	CNMI, Yap
Biodiversity	1	Kosrae
Loss of life, land, livelihood	1	RMI
Adaptation measures and design applications	1	Chuuk

Question 2: What strategies are communities already using to address existing and expected impacts from climate change?

- seeking education and awareness materials.
- building seawalls.
- diversify food crops and establish gene banks
- planting shoreline trees and vines
- wind break and wave break, taro patch elevation, awareness. Planning team to implement adaptation for various agencies
- communities not doing much. Government is changing flood hazard maps to reflect sea level
- government documents current conditions such as shorelines to understand changes
- using leaves and mulch to raise level of taro patches
- use of salt resistant taro
- conservation areas designed to build resiliency
- proposed - sea walls and jetties
- communities are assisting government and NGOs in conducting forest monitoring to document changes more

likely towards forest clearing and degradation.

- 3 MPA communities are exercising coral reef monitoring to gauge MPA management as well as to observe changes in coral reef habitat and fish populations.

Question 3. Please check all of the steps your organization/agency regularly carries out in community based engagement and planning at a site level. (Number of responses following by steps)

__7__Mapping the Threats
__7__Identifying the Threats
__7__Identifying, Prioritizing, and Mapping Natural Resources Targets
__7__Developing Good Goals and SMART Objectives
__7__Providing Awareness on Tropical Marine/Terrestrial Ecology
__6__Prioritizing the Threats
__6__SWOT analysis
__6__Problem/Solution Tree
__6__Analyzing the Root Causes of the Threats (MP)
__6__Developing a Vision
__6__Identifying Possible Solutions
__6__Identifying Management Activities
__6__Identifying Stakeholders/ Stakeholder Analysis
__6__Preparing a Time Line to Guide Development of the Plan
__6__Biological assessment prior to Planning
__6__Biological monitoring to understand management effectiveness
__6__Organizing a management planning team
__5__Mapping the site and surroundings
__5__Developing a Site Description
__5__Prioritizing Management Activities
__5__Develop Zones and Regulations
__5__Socio-economic monitoring to understand management effectiveness
__4__Identifying Long-term, Medium-Term, and Short-term Outcomes
__3__Socio-economic assessments prior to planning
__3__Carrying out Transect line
__2__Developing historical timelines
__2__Reviewing and adaptively managing the plan and the project
__1__Developing Seasonal Calendars

Question 4. Please check all of planning guidance tools you regularly use to support community-based engagement and planning at a site level. (Number of responses followed by tools)

_6__PIMPAC management planning guidebook
_4__Conservation Action Planning (CAP) / Miradi
_4__SEM-Pasifika
_3 _ LMMA Learning Framework or other LMMA planning tool
_3__SPC Participatory Community process tool
_1__Other _USAID Guidebook/ URI Climate Change
_1__Other__Reimaanlok Process

The workshop was designed specifically to discuss and focus on the priority concerns of coastal erosion, sea level rise and saltwater intrusion, water security, coral reef degradation and fisheries loss. It was also designed to modify existing processes being used (e.g. PIMPAC management planning, CAP) to include a climate lens, as well as to build off existing adaptation strategies.

Understanding local perceptions of climate change, climate change predictions and potential impacts

The first two days of the workshop were aimed at learning about climate predictions and potential impacts to the Micronesia region. Additionally, this time was used to discuss climate change concepts and terms so that participants could carry out more meaningful discussions on how best to use these concepts in community processes.

Day One:
As a first step in talking about climate change and potential impacts in the region, the group reviewed the pre-workshop results about the perceived climate change impacts of concern. This was done to gain a collective understanding of the most pressing concerns in the region about climate change.

A presentation was then given by Dr. Mark Lander of University of Guam to provide the most up to date climate predictions for Micronesia including trends in weather patterns and potential future scenarios of rainfall, sea level rise, and climate events. This presentation was followed by an exercise on understanding commonly used climate change concepts (e.g. climate events, exposure, sensitivity, adaptive capacity, vulnerability, cumulative impacts, etc.) The group divided in three small groups around three communities in the region. They were Namdrik Atoll, Republic of the Marshall Islands; Enepein, Pohnpei; and Ngarchelong, Republic of Palau. This set of communities represented both high island communities and low island (atoll) communities. Community leaders and participants who work with these communities presented on characteristics of each community and then small groups were asked to write a statement about the community in reference to each concept. This exercise helped participants understand climate change concepts in context of real communities in the region. Input was provided to facilitators on which concepts were confusing based on existing definitions and/or related to one another. Definitions to be included in the final guidance materials will be revised based on this input.

Day Two:
The second day of the workshop was focused on further examining and understanding the science of climate change impacts to the priority target resources of concern to the region. Presentations were given by climate change experts on: what is certain to happen, what is likely, what is unclear, and how these changes could impact a community. The following is a list of the presenters and associated resource expertise:

1. Britt Parker (NOAA) – corals reef ecosystems
2. Mark Lander (UoG)– Climate change predictions and water resources
3. Emihner Johnson (Island Foods) – food security/ crops
4. Franck Magron (SPC) – Fisheries
5. Bruce Richmond (USGS) - coastal lands (erosion)
6.

Presenters were also asked to provide the group with a 1-2 page “fast fact” sheet about climate change impacts to the target resource of their expertise that included information they discussed (i.e. what is certain to happen, what is likely, what is unclear, and how these changes could impact a community).

As part of this day, the group was also developed a list of “communications materials” that they would draft over the week in small groups and could be used by local resource agencies and NGOs to share information about climate change. The group decided to draft the following materials: a power point presentation, a skit, a fact sheet /poster, an outdoor experience, and a video. The group broke into small groups for each of these tools and worked over the next few days to draft the concepts that would be included in these products.

Modifying existing processes to incorporate a climate change lens and developing new guidance to support community based adaptation

Days Three, Four, and Five:
The remainder of the week was aimed at examining existing processes that are used in the region and deciding on how best to modify those tools to incorporate a climate change lens. It was also used to identify gaps in tools, processes, or materials needed to understand vulnerability and/or support community adaptation planning efforts.

Modifying Existing Processes:

Pre-workshop results showed that most participant's organizations utilize the PIMPAC management planning guide and/or Conservation Action Planning process regularly to carry out community based planning processes. As such, the group worked on modifying the existing steps taken in those processes to incorporate a climate change lens. These steps included:

1) getting organized (developing a planning team)
2) conceptual modeling
3) participatory mapping,
4) socio-economic assessments
5) biological assessments
6) SWOT analysis

Additionally three new steps were added to the planning process that were only being used by a few participant organizations including:

1) transect walk
2) seasonal calendar
3) historical timeline

Small groups worked on these steps to modify them to be able to capture information that will help communities understand the vulnerability of their target resources (social and natural).

The group also heard from the Marshall Island experience in how they have already been modifying these processes to incorporate the climate change lens and how this process is being institutionalized and feeding into capacity building programs for communities and national policy. RMI has been carrying out climate change adaptation work for several years and were able to share their experience on how they have worked through a multi-agency approach to adopt a national process on how to conduct community based planning. This process is outlined in their "Reimaanlok" document. They have also been working closely with the University of Rhode Island and USAID to revise this process to incorporate and institutionalize a climate change lens in natural resource management. Through this effort they have been implementing climate change adaptation strategies in several communities for over a year and have used this process to inform and influence national policy including plans that are needed to receive international donor funds for climate change. Additionally, RMI has been working to build local community capacity to adapt to climate change. They have utilized a "conservation officer training program" at the community college to train community members from outer islands on steps necessary to begin vulnerability and adaptation planning. This program has been successfully attended and there is strong interest by attendees to return each year to learn additional skills. This work was highlighted at the workshop and viewed as an excellent model in moving the region forward on climate change.

Developing new guidance to support community based adaptation:

Upon completing the exercise to revise existing tools for community based planning, the group was asked to review a new tool for carrying out a vulnerability assessment. The group was divided back into the three community teams (one for each RMI, Palau, Pohnpei) and asked to carry out a vulnerability assessment for one or two of their target resources. The vulnerability assessment tool was proposed as an additional step to the existing planning process and the information collected through previous steps could support the vulnerability assessment. The groups provided input to the tool but overall said it was straightforward and fairly easy to carry out. The group thought this step could be added to the existing management planning process. The vulnerability assessment tool can be found in Appendix C.

During this phase of the workshop, the group also reviewed possible adaptation strategies to address impacts to priority target resources. The group first heard from the resource experts about possible strategies that could be used to address climate change impacts to these resources (coral, fisheries, coastal lands, and water resources). They then worked in small groups to review existing strategies and to develop a list of potential strategies that could be used to address climate change impacts to the regional priority target resources (example presented in Appendix E). A list of draft strategies was developed for these target resources. This exercise provided a first cut at developing regional appropriate strategies for addressing climate change impacts. However, there was not adequate time to fully explore all options of both existing and potential new strategies that could be useful in the region. Therefore it is likely that additional input will be sought to develop a list of options that can be represented in the final project outputs. The guidance produced by this project will focus on providing users an approach to develop adaptation strategies and provide examples. However, individual strategies must be developed as appropriate for each site working through the process of a vulnerability assessment and development of adaptation strategies.

Finally, over this portion of the workshop the group was asked to discuss what the final products to be developed from the workshop input over the next several months should look like. Originally, the overall aim of the project was to develop a "guidebook" for communities on climate change adaptation. It was also proposed that the existing guidance also be revised to incorporate climate concepts as most communities are working with local natural resource agencies and NGO's who facilitate community planning processes. Workshop participants fairly quickly agreed that there would be use in modifying the existing PIMPAC management planning guidance (which includes most the CAP planning steps), as they all use the guidance to facilitate planning processes in communities. However, the product for use by the community itself became a topic for long discussion and varied in opinion on what would be best. Some participants thought that products for the community would not be used without outside support, other participants thought that outreach materials that portrayed concepts in an easily understandable way could be useful, still others thought a guidebook could be used by communities if it was developed in a user-friendly manner (especially for communities who do not have access to outside support regularly, like outer islands).

Ultimately, the group decided it would be best for the community leaders participating at the workshop to get together in a small group and propose an idea of what would be most useful for community appropriate products. From this discussion, the small group decided that traditional/community leaders are the ones that facilitators work with initially in the community planning process. They felt that the target audience should be these leaders as they have great influence within their communities. As such, the small group proposed that an outreach piece (in the form of a large laminated flipchart) could be developed depicting information about climate change in the context of other threats to natural resources, potential impacts to the community, what they can do, a simplified overview of a vulnerability and adaptation planning process, and possible adaptation strategies. The group felt that this product would help community leaders to become more informed and therefore more meaningfully engaged in being able to lead the planning process which would greatly help these efforts. Upon presenting this idea to the larger workshop group, there was great support to move forward with this approach. Additionally during the larger group discussion, the group decided that this product could also

be accompanied by a smaller document that presented mostly the same information but with a little more detail and could be left with the community to share information.

Lessons Learned/Next Steps

Lessons Learned:

Throughout the workshop there were some key take home messages that came up by participants and facilitators including:

- Climate change work in Micronesia has to be incorporated into existing planning processes
- Adaptation strategies are mostly about doing more and better management of target resources
- Community leaders should be a target audience for spreading this work in the region
- It is important to link communities together to support one-another through social networking
- Natural resource managers cannot do this alone but need a multi-sectoral approach in working with communities on climate change adaptation.
- Climate vulnerability and adaptation planning at the community level most likely needs support from outside facilitators from local resource agencies/organizations.
- Don't overlook the small things – adaptation strategies can be simple and make a huge difference (e.g. fixing water leaks,).
- Effective catchment of water, storage and distribution can be effective solution to the lack of fresh water in many of Micronesia sites.
- Climate change and adaptation to climate change are not new. Pacific Islanders have been adapting to climate and social change for centuries. Adaptation is culturally relevant and a skill of island communities.
- Some communities in the Pacific are already active in developing and implementing adaptation strategies and can be a source of both inspiration and experience to support other communities to pursue similar efforts.

Next Steps & Recommendations:

A series of next steps will be carried out to move this work forward. Additionally, there were several recommendations that were also captured at the workshop:

- The PIMPAC management planning guidance will be modified using input from the workshop including:
    - A section on the science of climate change and climate change predictions for the region that will be included.
    - Revisions to the following planning steps to incorporate a climate change lens: 1) getting organized (developing a planning team), 2) conceptual modeling, 3) Participatory mapping, 4) socio-economic assessments, 5) biological assessments, 6) and SWOT analysis.
    - Three new planning steps will be added including 1) transect walk, 2) seasonal calendar, and 3) historical timeline.
    - A vulnerability assessment step/tool will be added.
    - A section that outlines possible adaptation strategies that are applicable for addressing climate change threats to target resources in the region.

- A section on the importance of social networking and ways to build off existing social networks in the region will be added.

- Outreach materials (in the form of a large portable laminated flip chart and accompanying smaller booklet) for community/ traditional leaders will be developed to include:
  - Information explaining climate change and important climate change concepts
  - Climate change threats in the context of other threats to natural resources
  - Potential impacts to the community
  - Information on what they can do to plan for known and potential impacts
  - An overview of a basic vulnerability and adaptation planning process
  - A list of possible adaptation strategies that are appropriate for the region

- It was recommended that the next Life-web grant application (and/or other climate funds available) include training on the use of the modified guidance and outreach materials. This national training could include both facilitators of community planning processes and traditional/ community leaders. To prepare for this, each state/country team put together a proposed "pilot site description" to be compiled into a project catalogue for future Micronesia climate change funding proposals. These sites could benefit from these new climate change materials. The site descriptions included: Site Name, Site characteristics, Local partner agencies that could support the proposed work, CC and non-CC threats and impacts the site is facing, Existing strategies being used to address these threats and impacts, Proposed activities for the site, Financial resources needed, Technical resources needed, Likely benefits to the community and natural resources, Potential challenges to implementation, and Indicators of success.

- It was recommended that the project catalogue of pilot sites described above be used to influence national policy on climate change in each country by demonstrating meaningful approaches to vulnerability and adaptation planning and implementation at the community level. The intention is that these efforts can be replicated and supported by national level policy to ensure that community based adaptation efforts are supported in the long run.

- It was recommended that government agencies incorporate climate change principles into existing planning processes to complement the site based work being done through natural resource organizations through the modified PIMPAC guidance.

- It was recommended that a multi-sectoral climate change committee be formed at the jurisdictional level that can coordinate and communicate with community planning facilitators. Committee members representing various sectors (health, hazards, water resources, natural resources, and development) can provide input, guidance, and/or participate throughout the vulnerability and adaptation planning and implementation process.

Appendix A
Adapting to a Changing Climate Workshop Agenda

Workshop Objectives:

Objective 1: Collect input from regional site managers and climate change experts on key components and content of an ecosystem based community based adaptation guidebook for Micronesian communities.

Objective 2: Identify ways to incorporate climate change vulnerability assessment and planning tools into existing community based planning processes.

Objective 3: Identify key adaptation strategies and indicators of effectiveness to increase the resilience of communities to the impacts of climate change in Micronesia.

Objective 4: Develop communication tools to share workshop information and support dissemination of the guidebook including identification of pilot sites to begin testing guidebook tools and strategies.

Time	Agenda Item/ Topic	Goal/ Output
Monday (start 10:30 am)	**Opening** · Welcome/ Intros · Ground rules · Review Agenda	
Monday	**Session One:** ***Why should our community care? Is there anything we can do?*** · Review the big picture of Climate Change · Review the general perceptions of CC impacts being noticed in the region · Define key concepts for Climate change vulnerability and adaptation	***Output:*** List of basic reasons why a community should care and get involved in CC adaptation. ***Output:*** List of key concepts to be used in the guide and simple English and local language definition
	Session Two - *What changes can we expect to see in the region and in our community? How will those changes impact our community?* · Expert presentations and Q&A - What does the science say: what do we know will happen/ what is likely/ and what do we not know/ what is likely to be the biggest impact from these CC threats in this region? (e.g. climate predictions, erosion, food security, marine resources, water resources, etc) · Develop ideas for how to relay science to communities. What communications tools are best (e.g. PP, fact sheets, video, audio)?	***Output:*** fast fact sheets on the science of climate change and predicted impacts to various sectors ***Decision:*** appropriate outreach materials to relay science to communities

Tuesday (start 8:30 am)		
Wednesday	**Session Three - How can we understand what is likely to happen in our community?** · Review existing community based planning processes as a basis for further discussions on integrating CC lens into these processes. · Carrying out a Vulnerability Assessment– what is it? What does it do? What does a community have to do to understand their vulnerability? · Tools for understanding vulnerability - Review purpose and method of each tool. · Review ways to modify existing planning process and tools to capture information on CC vulnerability. · Case Study - Marshall Islands	***Output:*** List of steps used by regional managers to organize and implement community based planning ***Output:*** Series of Steps that communities can use to carry out Vulnerability Assessments in line with their ongoing community-based planning ***Output:*** List of VA tools that are appropriate for the region and should be in the guidebook and/ or incorporated into existing processes. ***Decision:*** How to modify existing planning tools/processes to incorporate a CC lens
Wednesday	**Session Three - How can we understand what is likely to happen in our community?** · Review existing community based planning processes as a basis for further discussions on integrating CC lens into these processes. · Carrying out a Vulnerability Assessment– what is it? What does it do? What does a community have to do to understand their vulnerability? · Tools for understanding vulnerability - Review purpose and method of each tool. · Review ways to modify existing planning process and tools to capture information on CC vulnerability. · Case Study - Marshall Islands	***Output:*** List of steps used by regional managers to organize and implement community based planning ***Output:*** List of VA tools that are appropriate for the region and should be in the guidebook and/ or incorporated into existing processes. ***Decision:*** How to modify existing planning tools/processes to incorporate a CC lens
Wednesday/ **Thursday**	**Session Four - What can we do in our community to prepare for these changes?**	***Output:*** List of the most appropriate strategies for the region to address impacts to natural resources. Basic explanation of strategies developed ***Output:*** A series of Steps that communities can use to develop adaptation strategies that are coordinated with their existing community-based resource management efforts

	· Review existing strategies being used in the region to address impacts to natural resources · Developing objectives and adaptation strategies · Prioritizing objectives and adaptation strategies · Review organizations and agencies that have expertise in the region and could support development of strategies for CC impacts to various planning areas	***Output:*** List of local organizations that have expertise in various CC sectors.
Thursday	**Session Five - How can we know if our actions are building resiliency to current and future climate change impacts?** · How can existing monitoring be used to understand impacts from CC over time (SEM-P and Biological monitoring)? · Review participatory methods to understand perceived adaptation strategy effectiveness? · Finalization of MC indicators for CC	***Decision:*** Appropriate tools and methods for helping communities understand their adaptation strategy effectiveness. ***Output:*** Finalization of MC CC indicators ***Output:*** A suggested methodology for communities to develop and track their own indicators of success
Friday	**Session Six - Will the work we do in our community be enough to stop CC impacts? How can we link to larger efforts to adapt to climate change?** · Understanding the importance of protected area networks · Using community based social networks to build local resilience through lessons learned and information sharing.	***Decision (revised):*** Agreement on best ways to share climate change information and lessons learned with communities
		Output: List of basic concepts and translations into local languages. Communications materials for communicating science to communities. Key messages to instill hope and motivation in communities. Template for communicating a community story. Revised planning tools to incorporate CC lens. Draft strategies for addressing CC impacts. List of agencies/organizations/ policies/ networks that could support local communities in CCA

Friday	**Session Seven: Guidance development** · Direct input or development of specific sections of the guidance · Development of tools to communicate back to island partners about this workshop and guidebook.	***Output:*** Outline of a CBA power point that can be used to share workshop and guidebook information ***Output (revised):*** Pilot project description to be used for future CC project proposals including: Site Name, Site characteristics, Local partner agencies that could support the proposed work, CC and non-CC threats and impacts the site is facing, Existing strategies being used to address these threats and impacts, Proposed activities for the site, Financial resources needed, Technical resources needed, Likely benefits to the community and natural resources, Potential challenges to implementation, and Indicators of success.
Friday	**Closing** · Next Steps · Reminders	

Appendix B
Adapting to A Changing Climate Workshop Contact List

Jurisdiction	Participant	Agency / Organization	Email
FSM			
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Appendix C
Vulnerability Assessment Matrix Tool & Core Questions

VULNERABILITY ASSESSMENT VARIABLE	TARGET RESOURCES	EXPOSURE	IMPACTS	SENSITIVITY	ADAPTIVE CAPACITY (Natural Resources)	ADAPTIVE CAPACITY (Social Capacity)	VULNERABILITY
Questions needed to be answered to understand VA component	What social and natural resource targets are most important to your community?	How much area of your target resource are effected by cliamte change events? (all, most, some, little, none) Specify which events?	What are the current and likley impacts from these event to your target resources and your community?	How severely will your target resources be impacted by increased climate events? And why? (Severly/ moderately/ hardly)	How would you rate the ability of your target resources to cope with impacts climate change events?	How would you rate the ability of your community to cope with impacts to totarget resources and your climate change events?	Rate the vulnerability of each target resources (High/ Medium/ Low)
Tools that can help answer component questions	conceptual model, mapping	conceptual mode, mapping, historical timeline, transect walk, Bio assessment, SEA, hazard and seasonal calendar	SEA (focus groups), Bio assessment, mapping, climate event and seasonal calendar	SEA, conceptual model, mapping,	Bio assessment, mapping, historical timeline, calendar	SEA, mapping, SWOT,	

Vulnerability Assessment Core Questions

EXPOSURE: How much area of your target resource are affected by climate change events? (all, most, some, little, none) Specify which events?

- What climate change events have happened in your area?
- Which of these events affect which resources?
- When did they happen?
- How often have they occurred?
- Are they increasing or decreasing?
- How much area was affected by these events and where?

Tools: conceptual mode, mapping, historical timeline, transect walk, Bio assessment, socio-economic assessment, hazard and seasonal calendar.

SENSITIVITY: How severely will your target resources be impacted by increased climate events? And why? (Severly/ moderately/ hardly)

- What is the current condition of each of your target resources?
- How have the resources changed over time?
- How important are these target resources to your community ***and*** why?
- What other non-climate change threats are impacting these resources? ***And*** how severe are they?

Tools: Biological assessment, Socio-economic Assessment, conceptual model, mapping.

ADAPTIVE CAPICTY:
Social: How would you rate the ability of your target resources to cope with impacts climate change events?

- What would you do if these resources are impacted from increased climate change events?
- What have you done in the past when these impacts occurred? Were your actions successful?
- What is available to your community to help cope with impacts from increased climate events?
- What alternatives are there to the use of target resources?

Tools: SEA, mapping, historical timeline, calendar.

- Natural Resource: How would you rate the ability of your community to cope with impacts to totarget resources and your climate change events?
  - Have you observed recovery or resiliency in your resources to past climate change events and impacts? And why?
  - Are any of your target resources in good enough condition that you feel they will not be severely impacted or they will recover from further climate change impacts?

Tools: Biological-assessment, mapping, SWOT,

Appendix D
Example of Climate Change Strategies
for Coastal Erosion and Drought Impacts on Agriculture (i.e. Sakau)

Coastal Erosion Adaptation Strategies

SEAWALLS; REVETMENTS; GABIONS; HOMES-ON-STILTS; GROINS; MANGROVES; SEAGRASSES; BREAKWATERS; RELOCATION; MIGRATION

RMI Erosion	Hard	Soft/Natural
Description of strategy	Engineered: Seawalls, revetments, gabions, stilts and groins	Natural: Mangroves sea grass
What threats and impact will this strategy address	Loss of land	Loss of land
Existing mechanism	Sea walls and revetment	Sea walls, revetments (planning stage) conservation
Desired outcomes	People and property	Buffer, sediment accumulation, protect homes and lives
Activities necessary to implement this strategy	Engineering designs, importation of materials	Location study, suitable, methodology, seed sources
Technical resources needed (amount and potential sources)	Engineers and specialized equipment	Agronomists, landscapers and ecologists
Financial resources needed	Cost of experts, equipment and materials	Cost of planning, sapling, seeds and experts
Likely benefits to the community and natural resources	Quick, strong if done properly	Natural and looks better
Potential challenges to implement	Source of materials, expense and might impact others	Introduced, invasive specias and might fail
Local agencies that can support	Public works and EPA	R&D, EPA, MICS & Local Government
Indicators of success in the application of this strategy	Erosion stopped	Erosion stopped and plants settled

Adaptation Strategies to Address Impacts of Drought on Agriculture (i.e. Sakau)

- Explore alternatives for irrigation
- Develop cooperative strategies for farmers i.e., lessons learned
- Relocate sakau (i.e., higher/lower)
- Explore different planting methods & practices
- Genetic research – resilience of sakau?
- Agroforestry (i.e., breadfruit)
- Nurseries, greenhouse
- Regulate harvest
- Education on effects of sakau (i.e., doses, limits)
- Regulate to make selling illegal (to reduce demand) to encourage traditional use
- Permitting sakau planting
- Low land marketing of sakau (increase valve to provide alternatives)
- Multicropping???

STRATEGY TEMPLATE:

NAME:	Grow Low Campaign
DESCRIBE:	Encourage planting of high quality sakau in lower altitude areas
WHAT THREATS:	Drought, landslides, erosion, improper practice
IMPACT:	Economy, culture, improves health of sakau
EXISTING STRATEGIES:	Watershed reserve delineation effort
OUTCOMES:	Higher quality sakau = higher value
	Culture/livelihood preservation
	Improved health/family benefits
	Reduce erosion, healthy reefs/watershed
	Increase resilience to climate changes (i.e., drought)
ACTIVITIES:	Alternative livelihood development (i.e., incentives)
	Education in schools and with farmers
	Farmer extension
TECHNICAL RESOURCES:	COM-FSM Land Grant, DLNR-Forestry, NRCS, CSP
FINANCIAL RESOURCE:	100K
BENEFITS:	Healthy communities, economy, watersheds, and reefs
CHALLENGES:	Enforcement, compliance, monitoring
PARTNERS:	Traditional leaders, gov't, Island Food Community
INDICATORS:	Sediment reduction in rivers
	Reduced area of upland clearing (water quality)
	# of low land farmers