

Adapting to a Changing Climate Workshop Report

American Samoa
May 14 – 21, 2013



Background

In 2010, The Micronesia Conservation Trust (MCT) supported the development of community based climate change (CC) adaptation tools for the Micronesia region. To design the most appropriate and useable products, consultants reviewed existing CC adaptation materials, spoke with various climate experts, and held a regional workshop with regional natural resource managers, community members, and climate change experts. Based on input at this workshop, the following products were developed:

Adapting to a Changing Climate Outreach Toolkit¹ - which is designed to provide community members and stakeholders with an understanding of climate change concepts and adaptation strategies. This toolkit consists of:

- Large flipcharts visually depicting climate change concepts and actions that can be carried out to prepare and adapt to CC impacts.
- Facilitators guide to accompany the flipcharts, which include page-by-page notes on things to point out on the flipchart and concepts to explain.
- Booklets that provide the same visual content as the flipchart but offer more verbal description and explanations. These are to be used by community members and other stakeholders both during presentation of the flip chart material and afterward as they work on their adaptation projects.

Revised PIMPAC management planning guidance¹, which now includes a climate change lens through:

- Revised steps that ensure important stakeholders are involved and key questions are answered to address climate change in the planning process
- New steps including historical timeline, seasonal calendar, strength/weakness analysis, and vulnerability assessment to help understand the social and biological resource vulnerability to the impacts of climate change.

This workshop focused on training a team of practitioners in American Samoa on the use of these tools so they can subsequently facilitate local communities to understand climate change and to carry out vulnerability assessments and adaptation planning. Funding for the workshop was provided by the Pacific Islands Managed and Protected Area Community (PIMPAC).

¹ Since the completion of the first phase of this project, much of the Outreach tool and the revised PIMPAC management planning guidance have been combined into one streamlined process and further revised in collaboration with Micronesia Conservation Trust and the US Coral Triangle Initiative and is now called the *Adapting To A Changing Climate: Guide To Local Early Action Planning (LEAP) And Management Planning*.

Training Objectives

1. To provide the members from various sectors in American Samoa with the necessary skills to effectively communicate climate change concepts and foster adaptation planning and implementation at the community level.
2. To identify the most appropriate way integrate vulnerability assessments and adaptation actions into existing community based planning processes.
3. To share climate change adaptation training outputs with agency leaders and policy makers to gain support and guidance for further community-based adaptation efforts.
4. To develop a timeline for participants to utilize the skills and tools from the workshop to carry out follow up activities.

Workshop Participation

The training was attended by approximately 27 people (participants and trainers). Trainees were present from various governments agencies within American Samoa. Participants included:

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Edwin Toilolo	Samoan Affairs	
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PIMPAC advisors Meghan Gombos and Scott Atkinson led the training.

Workshop Approach

The workshop utilized a variety of methods including lectures, group discussions, classroom exercises, and fieldwork to help participants understand climate change concepts and practice utilizing the toolkit to carry out vulnerability assessments and adaptation planning. It also focused on reviewing existing community based planning processes being used in American Samoa to determine if and how components of this tool could be incorporated into existing processes. There were two main sessions in the workshop including

1. Session One: Raising Awareness – focused on understanding climate change, the potential impacts and communicating climate concepts as well as reviewing how participants could communicate concepts in Samoan, and incorporate climate change awareness into existing programs.
2. Session Two: Vulnerability Assessment and Adaptation Planning - focused on participatory mapping, vulnerability assessment processes, and development of a threat/action model to develop actions that best help reduce root causes of threats and vulnerabilities. Participants focused on the Faga’alu community to carry out the work in this session.

The rest of this report will capture the main activities and outputs from these sessions.

Session One: Outreach and Communications

As one of the objectives of the workshop was to “To identify the most appropriate way integrate vulnerability assessments and adaptation actions into existing community based planning processes”, the workshop began by reviewing the existing planning processes being used in communities. Three specific planning processes were reviewed and outlined below. ***Steps listed in red below were added throughout the workshop to integrate new steps to the processes that could be used to incorporate climate change adaptation through the use the Adapting to a Changing Climate toolkit.*

Department of Marine and Wildlife Resources - Community Based Fisheries Management Program

1. Village mayor contact at Samoan Affairs
2. First meeting with village council (Agreement)
3. Meeting with three groups (Womens, Untitled men, and Village chiefs) and complete:
 - a. Problem/Solution tree

- b. Historical profile
 - c. Resource mapping
- 4. Fisheries and Management Advisory Committee
 - a. Write management plan
- 5. Monitoring and Enforcement Committee
- 6. Outreach – **** add climate change slides on what is climate change? Why is climate change happening? And what impacts are we likely to see? – add further activities based on interest of the community**
- 7. Monitoring
- 8. Community Visit
- 9. Clean-ups
- 10. Socio-economic surveys
- 11. Trainings
- 12. Workshops

Department of Commerce - American Samoa Coastal Zone Management Program – Wetlands Program

- 1. Initial letter to OSA (informing about the program)
- 2. Contact village mayor → HC/ HTC
- 3. DOC presents to village council
- 4. Outreach & Awareness
- 5. Community Workshop (PLA tools)
- 6. Select village working/planning group
- 7. DOC presents results of the workshop to village working group
- 8. Village working group and DOC partners work together to develop village management plan
- 9. **** historical profile, seasonal calendar, (utilize information from background), and community climate story (past, present, projections)**
- 10. Review plan
- 11. Finalize and Implement plan

Participatory Learning and Action (used in Amouli and Faga’alu to develop Watershed Management Plans and Resiliency Plans)

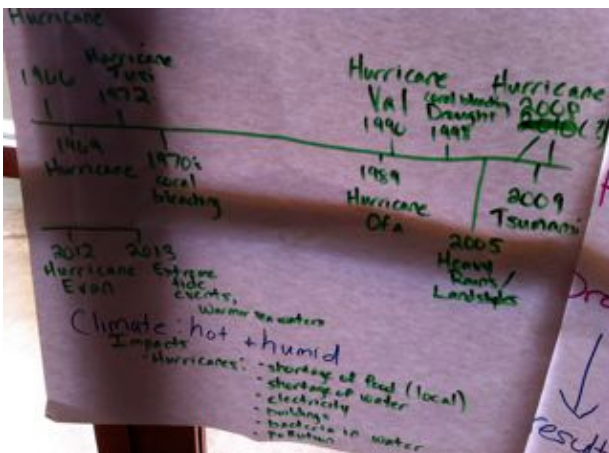
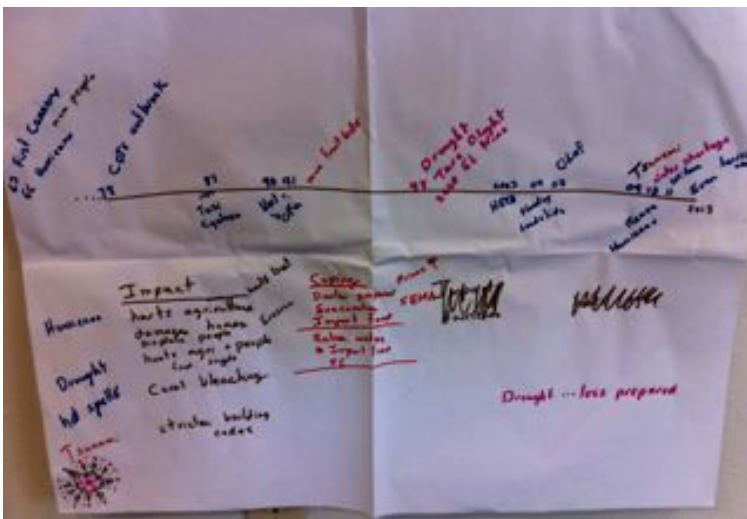
- 1. Follow protocol with Samoan Affairs
 - a. Identify point of contact with villages
- 2. Outreach and Awareness – more than four outreach during the eight month period of this process. Also collaborate efforts by local agencies (DMWR, EPA, DOC, CRAG, NOAA – PIRO)
- 3. Community PLA
 - a. Vision
 - b. Resource mapping
 - c. Historical profile
 - d. ****seasonal calendar**
 - e. ID of problems/issues
 - f. Prioritization
 - g. Formulation adaptation – recommendation
- 4. Presenting Results - **** climate story – use as intro**
- 5. Identify Village working group
- 6. Develop resiliency plan
- 7. Evaluation **** network of champions**

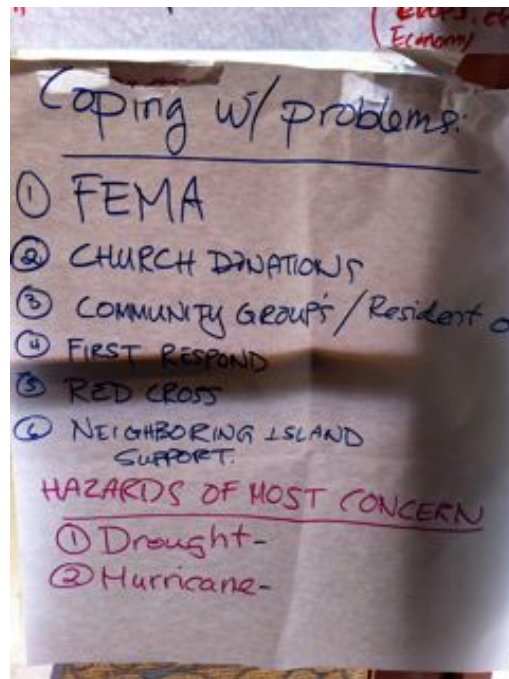
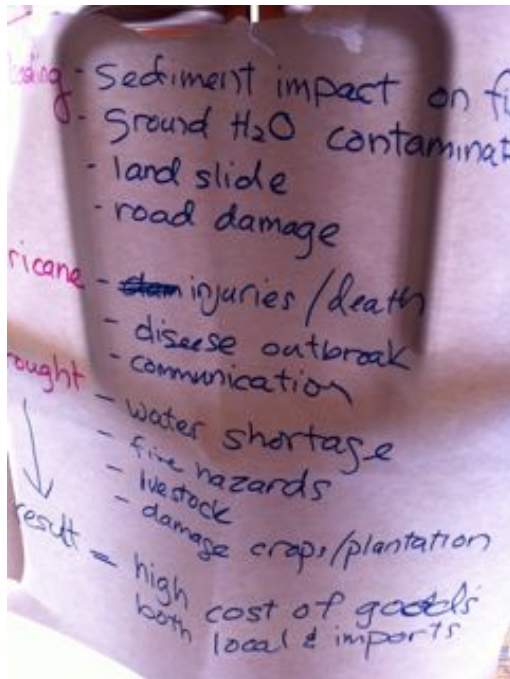
After reviewing the existing community based planning processes the group was ready to begin using the *Adapting To A Changing Climate: Guide To Local Early Action Planning (LEAP) And Management Planning*, to explore how climate change adaptation could be incorporated into existing work. Participants reviewed the new CC outreach materials including the flipchart illustrations and participatory exercises to understand climate change concepts and discuss ways to communicate key messages to communities. To support an understanding of these key concepts, the group carried out several participatory exercises that would help them develop a “local climate story” which explains past, current and projected climate hazards, and impacts the community is most concerned about. To develop the story, participants completed several exercises described further below. The group began by listing factors that contribute to a community being healthy or unhealthy. The focus of this discussion was to demonstrate that several existing local threats are impacting communities and that the status of local natural and social resources will greatly influence how it is impacted by climate change. Resources that are degraded by several existing local threats will likely be more impacted by climate change. The group listed the following factors that contribute to healthy versus unhealthy communities:

Factors that contribute to a Healthy Community	Factors that contribute to an Un-Healthy Community
Abundant natural resources – fish/agriculture	Pollution of ocean, air, drinking water
Health care, exercise, healthy people	overpopulation
Clean and tidy village	Lots of imported food
Village pride, move involved in sports, cultural events	Leadership vacuum, lack of leadership
No fighting in the community	Low education
Good infrastructure, roads, buildings, electricity	Poor infrastructure
Good economy/ business	No planning, e.g. building on wetlands and other unsafe places
Stable hill slopes, no erosion, no sediment problem	Invasive species
Less pesticides, subsistence farming, food security	Greed – short term decision making
Multiple churches	Lack of training/ safety
Good Schools, education, youth programs, education on how to stay healthy	Overuse of resources
MPA, more fish, healthy reefs, more food	Too much planning, lack of implementation
Organized, good leadership	No income
Food – plenty from resources/ plantations	Poor management practices
Forests – wildlife healthy	Lack of resources
Corals healthy	Erosion
Fish abundant	No activities
Stable hillslopes	No leadership/title disputes
Clean streams, lakes, wetlands	
Farming – less pesticides, subsistence, diverse crops	

Historical Timeline

Next the group explored the difference between weather and climate and used a participatory exercise to explore historical natural/weather hazards that have occurred in the past 40 years. The historical timeline was used to identify the main types of events that happened, impacts those events had on the community and ways the community coped with those impacts. The group also focused looking at how some of the past climate events may have been due to natural climate variation, and specifically the influence of El Nino/La Nina impacts to weather patterns in the region. Outputs of this exercise are pasted below.





Regional and Local Climate Hazards

Next the group explored what climate change is, why it is happening, and the main hazards that will occur because of climate change in the Samoa's including 1) increased sea level rise, 2) increased air temperature, 3) increased sea surface temperature, 4) change in weather patterns, and 5) ocean acidification.

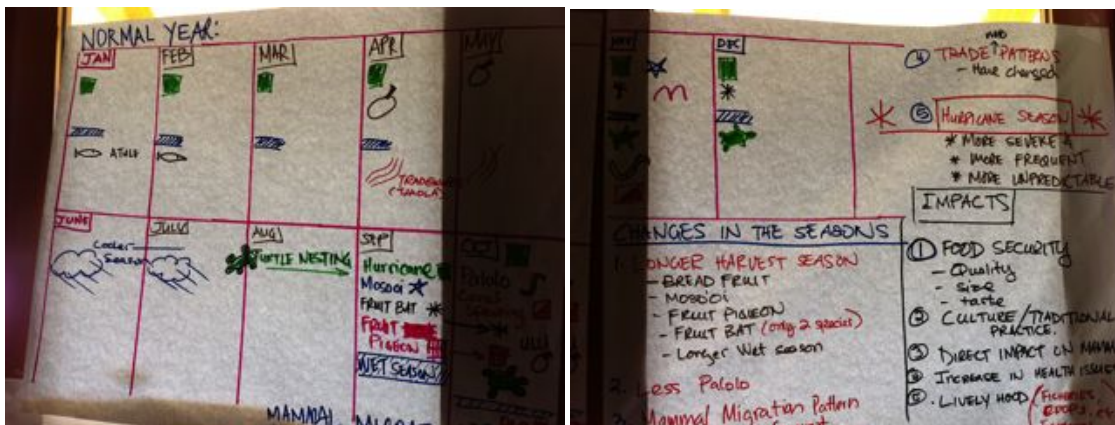
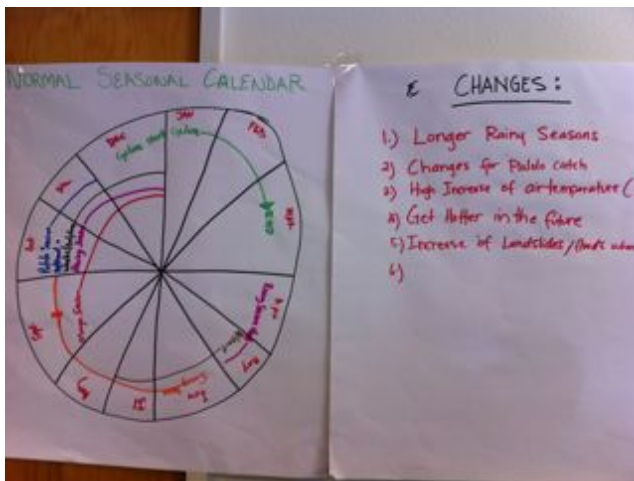
The following projections for Samoa were used for the workshop²:

- Mean sea level rise is projected to increase (very high confidence)
- Ocean acidification is projected to continue to increase (very high confidence)
- Sea surface temperature is projected to continue to increase (high confidence)
- Air Temperature is projected to continue to increase (high confidence)
- Intensity and frequency of extreme heat are projected increase (high confidence)
- Intensity and frequency of extreme rainfall are projected increase (high confidence)
- Wet season rainfall is projected to increase (moderate confidence)
- Annual rainfall is projected to increase (moderate confidence)
- Tropical cyclone numbers are projected to decline (moderate confidence)
- Little change projected to dry season and drought (low confidence)

² Australian Bureau of Meteorology and CSIRO, 2011. Climate Change in the Pacific: Scientific Assessment and New Research. Volume 1: Regional Overview. Volume 2: Country Reports.

Seasonal Calendar

To discuss more local impacts participants carried out a seasonal calendar activity to explore changes they are noticing to normal seasons and associated events. This exercise was used to capture the “normal” seasons and natural and social events that occur within them and to begin identifying how those seasons may be shifting due to climate change and what the impacts may be as a result. Outputs of this exercise are pasted below.



Potential Future Impacts from Climate Change

Next the group reviewed the specific climate change projections and explored how those projections might impact natural and social resources on the island. Specific projections used included:

Projected change in annual and seasonal mean climate based on low (blue), medium (green), and high (purple) emission scenarios³

Variable	Season	2030	2055	2090	Confidence
Surface air temperature (°C)	Annual	+0.6 ± 0.4	+1.0 ± 0.4	+1.4 ± 0.6	Moderate
		+0.8 ± 0.4	+1.4 ± 0.5	+2.2 ± 0.7	
		+0.7 ± 0.3	+1.4 ± 0.4	+2.6 ± 0.7	
Maximum temperature (°C)	1-in-20-year event	N/A	+1.0 ± 0.5	+1.3 ± 0.5	Low
			+1.4 ± 0.6	+2.1 ± 1.0	
			+1.5 ± 0.4	+2.6 ± 1.3	
Minimum temperature (°C)	1-in-20-year event	N/A	+1.2 ± 1.8	+1.5 ± 1.6	Low
			+1.6 ± 1.6	+2.0 ± 2.2	
			+1.5 ± 1.9	+2.3 ± 1.9	
Total rainfall (%)*	Annual	+1 ± 6	+3 ± 9	+3 ± 13	Moderate
		+2 ± 9	+4 ± 15	+5 ± 17	
		+4 ± 11	+5 ± 14	+7 ± 24	
Wet season rainfall (%)*	November-April	+1 ± 8	+4 ± 11	+4 ± 14	Moderate
		+2 ± 10	+5 ± 15	+6 ± 16	
		+3 ± 11	+5 ± 11	+8 ± 22	
Dry season rainfall (%)*	May-October	+2 ± 9	+3 ± 11	+2 ± 14	Low
		+3 ± 15	+4 ± 23	+3 ± 26	
		+4 ± 14	+6 ± 23	+5 ± 36	
Sea-surface temperature (°C)	Annual	+0.6 ± 0.4	+0.9 ± 0.3	+1.3 ± 0.4	High
		+0.7 ± 0.3	+1.2 ± 0.4	+2.0 ± 0.7	
		+0.7 ± 0.4	+1.3 ± 0.5	+2.4 ± 0.8	
Aragonite saturation state (Ωar)	Annual maximum	+3.6 ± 0.1	+3.4 ± 0.1	+3.2 ± 0.2	High
		+3.6 ± 0.2	+3.2 ± 0.2	+2.9 ± 0.2	
		+3.6 ± 0.2	+3.2 ± 0.2	+2.6 ± 0.2	
Mean sea level (cm)	Annual	+10 (5–15)	+18 (10–26)	+31 (17–45)	Moderate
		+10 (6–14)	+21 (11–30)	+38 (20–57)	
		+10 (5–15)	+20 (10–29)	+40 (21–59)	

*The MIROC3.2(medres) and MIROC3.2(hires) models were eliminated in calculating the rainfall projections, due to their inability to accurately simulate present-day activity of the South Pacific Convergence Zone (Volume 1, Section 5.5.1).

1 degree Celcius = 1.8 degree Farenheit

Temperature Increased 1.3 F or .74 Celcius degrees in last 100 years, with about two-thirds of the increase occurring since 1980. Also, the last 100 years has been the fastest rate of change in the last 11,000.

³ Australian Bureau of Meteorology and CSIRO, 2011. Climate Change in the Pacific: Scientific Assessment and New Research. Volume 1: Regional Overview. Volume 2: Country Reports.

Sea Surface Temperature during the 21st century is likely to rise a further 1.1 to 2.9 °C (2 to 5.2 °F) for the lowest **emissions scenario** and 2.4 to 6.4 °C (4.3 to 11.5 °F) for the highest. Average estimate is 2 to 4 degrees Celcius – or about 3 to 7 Farenheit.

Sea level has risen 1.6 mm per year over the last 100 years for a total of 16 centimeters – or six inches in the last 100 years. Predications are that it will rise 1 to 2 meters in the next 100 years.

Upon reviewing the projections, participants divided into four groups and discussed how those climate projections could impact local natural and social systems. The following list describe the outputs of these discussions.

Sea Level Rise

Natural Impacts:

- Coastal erosion
- Low lying islands submerged
- Roads affected by sea level near coast
- Land slides
- Spring and neap tides
- Habitat for marine life
- Predators have access to near shore
- Farming
- Affect wetland habitat

Social Impacts:

- Community relocation
 - Relocate to mountains
- Ocean will be marked as danger zone
- Less beach activities
- Less water activities
- Transportation between interisland
- Mix of saltwater and freshwater near shore
 - Causes disease
 - Affect drinking water
- Change in curriculum in education

Sea Surface Temperature

- Coral bleaching
 - Palolo worms
 - Fish
- Loss of nursery grounds for fish and habitat
 - Less fishing
 - Food security
 - Loss of income
- Increased Hurricane Severity
 - Damaged coral
 - Damaged crops
 - Impacts to the economy, people, property

- Sea level rise
 - Erosion

Air Temperature Increase

Natural Impacts

- High humidity
- Drought
- Damaged crops
- Dry up aquifer
- Airborne diseases

Social Impacts:

- Health issues
- Livelihood: crops, more invasive species, imported goods
- Survival: not enough/ economic impacts
- Increased mortality, poor health, poor sanitation
- Shortage of medicine: increased incubation, increased isolation

Changes in Weather Patterns

1. Intense and frequent rainfall
2. Wet season increased
3. Annual rainfall increased
4. Decline in tropical cyclones/hurricanes
5. Less change in drought/dry season

IMPACTS

	Positive Impacts	Negative Impacts
Environmental	<ul style="list-style-type: none"> • Abundant water supply • Good for crops • Less cyclones 	<ul style="list-style-type: none"> • Soil infiltration resulting erosion • Water contamination (agricultural chemicals and pesticides in the water) • Run-off (coral reefs, fisheries, algae blooms) • Damage everything • Stronger cyclones
Social	<ul style="list-style-type: none"> • Increase drinking water and less ASPA (utility) fee • Free shower • Free water for crops and plants • Improvements for the water company 	<ul style="list-style-type: none"> • Working atmosphere may be impacted due to rain as people may have a harder time working • Damage infrastructure • Interrupt communication and transportation • Flooding

Upon reviewing the list of all the potential impacts the group prioritized what they considered the most critical impacts of concern for American Samoa.

TOP FIVE FUTURE IMPACTS OF MOST CONCERN FOR AMERICAN SAMOA

(by participant votes)

- Health issues – 15 votes
- Impact to the economy - 9 votes
- Damage to marine life habitats (i.e. wetlands, corals) – 6 votes
- Impact to drinking water – 4 votes
- Livelihoods/food security - crops / invasive species – 4 votes

Local Climate Story

Based on the groups review of past, present, and possible future impacts, they were able to draft a “local climate story” to describe the climate hazards and impacts of most concern for Saipan. Three stories are presented below:

Climate Story: Group 1

The diversity of the natural disasters experienced by the people of American Samoa as a result of changes in our climate included a pattern of hurricanes; droughts, heavy rainfall, and coastal erosion have both directly and indirectly impacted our natural resources. The impacts that the people of American Samoa are most concerned about are coping with droughts and hurricanes. The people of American Samoa possessed a knowledge governed by the natural environment that would assist in the way they prepared for and survived these events.

Presently, climate changes experienced is a result of changing weather patterns, air temperature increase, sea surface temperature increase and sea level rise. These changes have produced longer rainy seasons increasing the occurrence of landslides floods, damaged crops, droughts, and airborne diseases threatening our health, food, and economic security.

In the future, these changes are expected to increase. This will result in health issues, damage to marine life and habitat, impacts to drinking water, and impacts to food security. All of this will impact the local economy. The knowledge of the impacts of climate change both historically and currently continue to strengthen the policies, regulations which will guide development and implementation of best practices as better practices are developed to ensure resilient communities in American Samoa.

Climate Story: Group 2

The people of American Samoa have been impacted by natural and social issues due to climate change. Hurricanes, droughts, Crown of thorn outbreaks, coral bleaching, landslides and floods. These issues have impacted our communities economically (decrease of crop sales, fish harvest, infrastructure development) in regards to sustaining livelihood. In addition, cultural values and

practices have been limited due to these issues. Despite all these experiences our communities have managed to adapt and become more resilient to these impacts.

Currently, due to increase affects of climate change in American Samoa our communities have taken a more proactive approach by working with various local and federal agencies(NOAA, DMWR, DOC, CRAG, ASCC) private sectors, NGO's and other communities. These collaborative efforts include outreach, community capacity building workshops, and hands on training. These activities have helped promote and enhance climate resiliency and cultural sustainability.

Envisioning the future, our communities recognize the predictions of climate change impacts. The uncertainties of climate change still leave our communities in a vulnerable state, but with consistent collaboration, knowledge sharing through participatory tools will better equip communities to be more resilient and be able to adapt to climate change impacts.

Climate Story Group 3

Past: American Samoa constant climate had dramatically changed for the past ten years due to climate change. From seasonal cyclones, high humidity, to air temperature, sea level rise have all been unpredictable. The people have made use of the islands resources. The lush rainforest and diverse coral reefs of the territory are part of the islands culture and heritage.

Present: Today, American Samoa is experiencing many changes to weather events and seasons. These changes are impacting our resources. Harvesting of local crops are more abundant with best quality in size and taste.

Future: American Samoa's marine and terrestrial are to be concerned due to population growth, overfishing, deforestation, seasonal cyclone, high humidity, air temperature increase, sea level rise, which will impact our livelihoods, economy, and our culture in the future.

Communicating Climate Change Concepts

After completing the outreach session of the workshop, the group began practicing how to effectively share information about climate change in the Samoan language. They split in three groups and chose specific flipchart illustrations and key messages to practice developing key messages in Samoan. Some of the key messages are included here:



Flipchart: Factors that Contribute to a Healthy vs Unhealthy Community

Target Group: Youth Ages 8-18

O a ni auala e fa'aitiitia ai a'afiaga o le suiga o le tau?

Manatu Autu:

1. Uiga ma a'afiaga ole suiga o le tau
2. Fa'atusatusa nofoaga e lua
3. Fa'aaauau ma fa'amalosia tulagalelei
 - a. Fa'amatalaga #1
 - b. Fa'apupula ma fa'amalamalama ata o nofoaga e lua
 - i. O le a le "resilience" – mafia ona tete'e I a'afiaga
 - ii. O le a le "vulnerability" – auala/ tulaga faigofie ona a'afia
 - c. Vaevae I vaega mo le # 3
 - i. Fa'amatala ma fa'asoa mai lava e le vaega o latou mantu

Flipchart:

O a suiga ma aafiaga o lea vaaia e mafua mai ile suiga o tau?

1. O a suiga ole a tatou vaaia ile fogaele'ele male sami?
 - a. Vevela ole ea
 - b. Vevela ole sami
 - c. Maualuga ole siisii ole sami
 - d. Fesuiaga ole Tau

Aafiaga:

- Lologa e mafua mai ile malosi o matagi po'o afa
- Siitiaga ole sami (?) e afaina ai le vaitaumafa
- Fa'atupulaia lologa I lauelele ae maise gataifale
- Aafiaga o a'uamu – e a'afia ai foi ma nofoaga oi'a
- Oge i le lauelele (mago le lauelele, leai se timu, leai se vai) etc.
- Afaina le soifua maloloina ma le saogalemu o tagata

Session Two: Adaptation Planning

Session Two focused on carrying out a field-based threat and vulnerability assessment, and developing adaptation strategies to address key vulnerabilities. To complete this session, the group focused on the Faga'alu community as a field site to practice the vulnerability assessment and prioritize adaptation actions.

To do this the group first began reviewing the terms and concepts that are being used globally to discuss climate change adaptation and are critical for community facilitators to complete a vulnerability assessments and write reports and grant proposals regarding climate adaptation. These terms include Vulnerability, Sensitivity, Exposure, Potential Impact, Adaptive Capacity, and Resilience. As part of this exercise in understanding these terms, workshop participants

were asked to describe what exposure, sensitivity, adaptive, resilient, and vulnerable meant in an everyday situations rather than climate change.

After the group had a good grasp of the components that make up vulnerability, they began developing a “community profile” for Faga’alu. The profile provides key information about natural resources and socio-economic characteristics of the site that can help support the vulnerability assessment and development of early actions to address vulnerabilities. For example, the main income generating activities are identified and can then be considered when deciding what targets to focus the vulnerability assessment on. For example if fishing or tourism are main income generating activities the threat and vulnerability assessment should include fish and/or coastlines/beaches. The Faga’alu community profile is pasted below.

Community Profile for Faga’alu

Faga’alu is located in central Tutuila Island in the Maoputasi County. There are approximately 1,122 residents. Most residents are employed by the American Samoa Government, some are in the US Army Reserve, a few work at the canneries, and there are a few business owners and farmers. While fishing is not a main source of income it is important for the community for cultural practices. The main stakeholder groups in the community include the Village Council, two church groups, one school, and eight businesses. The main hospital for the island is also located in Faga’alu with several patients and visitors regularly. Village leaders and the village council make decisions in the community. At the family level decisions are made by chiefs. There are two main groups that are active in the community including faith-based organizations who serve religious purposes, and the village council who develop all rules and decisions for the entire community. The village council is made up of sub-groups including chiefs, women’s group, young men and youth church groups.

Faga’alu has several strengths. It is a well organized community with strong people that are very accepting of new programs. It houses the main hospital for the island, and has good elementary school. Historic cannon sites are located in this community. Part of the area is also a national park, and there are recreational areas.

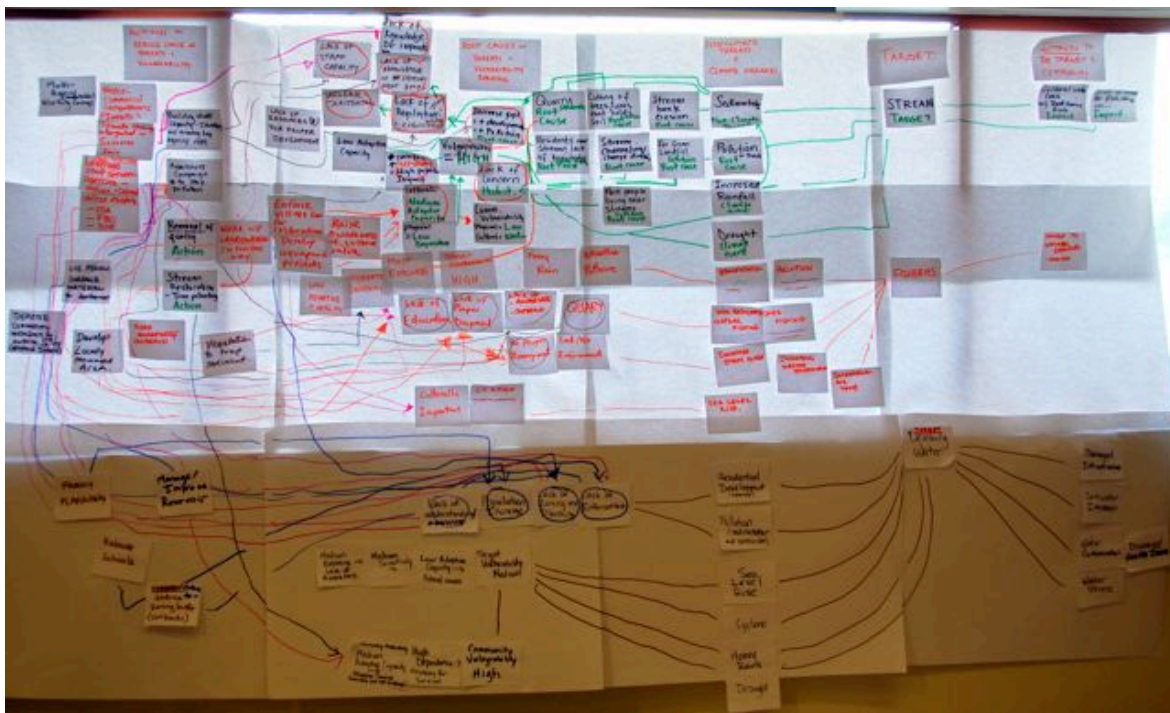
People are very aware of their natural resources. Faga’alu has a healthy watershed and are working to improve it even further through ridge to reef management efforts. They’ve developed a watershed management plan and also have good coral reefs and have recently established a village marine protected area. There are still threats that exist to this area including invasive species, trash, sedimentation from the quarry, flooding, land/mudslides, and hospital waste, and stray dogs.

Existing efforts are underway to improve the community including capacity building efforts where community members work with the National Park Service to remove invasive species, and implement MPA activities. They are also a priority watershed for the NOAA coral reef conservation program so are receiving support from the federal and local agency levels. Finally adaptation planning is now being considered.

1. Non-climate threats and root causes of those threats on the target
2. Existing and potential climate hazards that could impact the target
3. Exposure, Sensitivity, Potential Impact, Adaptive Capacity and Vulnerability of the target to climate hazards
4. Vulnerability of the community to potential changes in the resource (particularly highly vulnerable resources)

The field trip helped participants relate climate change concepts to real examples and gain a better understanding ways to understand vulnerability and therefore meaningful actions that could be taken to reduce vulnerability. Threat and Vulnerability Assessment Matrices are attached in Appendix B.

The last day of the workshop focused on using the results of the threat and vulnerability assessments to develop a conceptual model on the wall, which shows how threats, vulnerabilities, and impacts to targets are all connected. The threat action model also helps participants identify the root causes of the threats and vulnerabilities to best develop the actions. A list of key actions was developed from this model and it was clear that some of the actions would help address multiple root causes of different threats, and vulnerabilities.



Taking the Workshop to the Next Level

To conclude the workshop, participants were asked to develop a set of “next steps” to move climate change working forward through the use of the skills and tools gained in the workshop. The following are actions and needs the participants identified to continue using the skills and tools learned at the workshop:

1. **By the end of summer get strong commitment from agencies for and integrated community based process among all agencies.** There was strong consensus by all the participants on the last day that there should be an agreed upon community consultation process that all agencies use to work with communities to minimize duplication of activities and reduce confusion at the community level when different agencies carry out similar processes for management of different resources. An agreed upon integrated process would maintain agency authority over specific resource management (e.g. marine, wetland, watershed) but would also ensure that existing community contacts, protocol, and activities were utilized in any new processes rather than duplicated. The group felt strongly that this approach would be best for community members and leaders who are involved in different community-based programs as well as support stronger collaboration among agencies. The group agreed that as a start, commitment was needed from Coral Reef Advisory Group (CRAG) agency directors that lead community-based planning processes including Department of Marine and Wildlife Resources (DMWR), Department of Commerce (DOC), American Samoa Environmental Protection Agency (EPA), and American Samoa Community College - Land Grant. However, after agreement from lead agencies they felt it was important to include other agencies in an agreement that could support these processes including; American Samoa Power Authority (ASPA), Department of Health (DOH), Soil and Water Conservation, and the Climate Change Local Action Strategy (LAS) group. The process will be:
 - a. Workshop report will go to directors of agencies requesting commitment for an integrated process
 - b. A CRAG meeting will be held to report out on the workshop outputs and discuss the opportunity for an integrated community based planning process.
 - c. Participants to meet monthly to work on developing and implementing the integrated process

2. **By the end of 2013, Faga’alu is utilized as the first community to pilot the new integrated process.** It was noted that new community based fisheries managed area will be developed in Faga’alu. Faga’alu has also recently undergone some Participatory Learning and Action activities and developed a watershed management plan. As such the group felt this site would be a great pilot to demonstrate how the agencies could use an integrated approach. For example, the existing agreement from Samoan Affairs, planning team, and specific exercises (e.g. historical timeline, problem/solution tree) could be used as a foundation for, and built on for the community based fisheries management program process.

- 3. In 2014 begin working together as a multi-agency group in a new community using the integrated process.** This was aimed at starting efforts in a community as a multi-agency team focused on different resources. Agencies would maintain authority over the specific resources they are focused on but activities that could support multiple agency efforts would be carried out collectively.
- 4. Continue to work together to share information and build on existing process:**
 - a. Specifically ASCMP is interested in working with other agencies to leverage resources
- 5. Participate in a Learning Exchange to explore other islands integrated processes (e.g. Marshall Islands)**
- 6. Have all participants added to the PIMPAC listserve**
- 7. Share information about projects and community work among each other – involved participants in existing community processes**

Contact Information of Facilitators

The facilitators can be contacted with any questions about the tools, process, or any general support needed.

- Meghan Gombos – Meghan.Gombos@gmail.com
- Scott Atkinson - s.atkinson@conservation.org

APPENDIX A Overview Agenda

Friday May 17	
8am – 10am	<ul style="list-style-type: none"> • Morning Session (to be held with agency leaders and workshop participants) <ul style="list-style-type: none"> • Introduction and Opening Remarks by appropriate agency leader(s) • Overview of Climate Change Threats and Potential Impacts to the Region and American Samoa • Background and Overview of Workshop Agenda and Tools • Review of Pacific Island Efforts on Community Based Adaptation • Guidance/Advice from Agency Leaders in preparation for the workshop
10 – 10:15	Break
10:15 - noon	<ul style="list-style-type: none"> • Late-Morning Session (workshop participants only) <ul style="list-style-type: none"> • Reviewing Existing community based planning processes – steps and outputs • Overview of Vulnerability Assessment and Local Early Action Planning (VA-LEAP) Process – steps and outputs • Initial draft of integration of climate change adaptation into existing processes (to be tested revised throughout the week) – note overlaps and differences
12- 1pm	<ul style="list-style-type: none"> • LUNCH
1- 2pm	<ul style="list-style-type: none"> • Telling Your Climate Story –Objective of this communications session <ul style="list-style-type: none"> • Reviewing Factors that Make a Community Healthy or Unhealthy • Understanding weather and climate
2-2:15pm	<ul style="list-style-type: none"> • BREAK
2:15 – 3:30 pm	<ul style="list-style-type: none"> • Historical Timeline Exercise • El Nino/ La Nina
3:30 – 4pm	<ul style="list-style-type: none"> • Understanding Climate Change <ul style="list-style-type: none"> • Causes of CC
Monday May 20	
8- 8:30am	<ul style="list-style-type: none"> • Recap – Day One
8:30 - 9am	<ul style="list-style-type: none"> • Understanding Climate Change (continued) Possible and Existing Impact
9 – 10am	<ul style="list-style-type: none"> • Seasonal Calendar Exercise
10 – 10:15am	<ul style="list-style-type: none"> • Break
10:15 – noon	<ul style="list-style-type: none"> • How will future climate scenarios potentially impact the community and which hazards are we most concerned about? • Drafting a Climate Story
Noon- 1pm	<ul style="list-style-type: none"> • LUNCH

Noon- 1pm	<ul style="list-style-type: none"> • LUNCH
1-2pm	<ul style="list-style-type: none"> • Check-in on integration of process – <ul style="list-style-type: none"> • Review exercises used to develop the climate story • Should / How can these exercises be integrated into existing community processes? Should they be modified/adapted? •
2- 2:15pm	BREAK
2:15 – 3pm	<ul style="list-style-type: none"> • What does Climate Change mean for the community? <ul style="list-style-type: none"> • How will these changes impact a healthy Community? <p>How these change impact a threatened community –Cumulative Impacts</p> <ul style="list-style-type: none"> • Is there anything we can do? <ul style="list-style-type: none"> ○ What are other communities doing
3 – 4pm	<ul style="list-style-type: none"> • Drafting an Communications Language for Climate Change Adaptation in Samoan <ul style="list-style-type: none"> • Key Messages • Methods of Communication - How to integrate Key Messages into existing outreach
Tuesday May 21	
8- 8:30am	<ul style="list-style-type: none"> • Recap – Day two
8:30 – 9:30am	<ul style="list-style-type: none"> • Communications continued – translation of key messages
9:30 – 10:15am	<ul style="list-style-type: none"> • Overview of Threat and Vulnerability Assessment • Review of existing processes and overlaps/differences
10:15 – 10:30am	<ul style="list-style-type: none"> • BREAK
10:30 - noon	<ul style="list-style-type: none"> • Developing a Community Profile (community TBD) <ul style="list-style-type: none"> • Community Background • Prioritize targets – break into groups around targets
noon – 1pm	LUNCH
1 – 2pm	<ul style="list-style-type: none"> • Participatory Mapping • Collecting key information to inform the Assessment
2-2:30pm	<ul style="list-style-type: none"> • Threat and Vulnerability Assessment Field Work Preparation <ul style="list-style-type: none"> • Review Climate Change Concepts and Vocabulary
2:30 – 2:45 pm	<ul style="list-style-type: none"> • BREAK
2:45 – 3:30pm	<ul style="list-style-type: none"> • Threat and Vulnerability Assessment Field Work Preparation (continued) <ul style="list-style-type: none"> • Review worksheets – VA matrix and questions • Review climate Story

3:30 – 4pm	<ul style="list-style-type: none"> Review logistics for next day field trip
Wednesday May 22	
8am-noon	<ul style="list-style-type: none"> FIELD WORK – Completing the Field Based Threat and Vulnerability Assessment <ul style="list-style-type: none"> Small groups for each target resource
Noon – 1pm	<ul style="list-style-type: none"> LUNCH
1-2:30pm	<ul style="list-style-type: none"> CLASSROOM - Development of Threat Action Model
2:30- 2:45pm	<ul style="list-style-type: none"> BREAK
2:45 – 4pm	<ul style="list-style-type: none"> Reviewing threats and vulnerability of targets and community and developing actions to address root causes of threats vulnerability
Thursday May 23	
8-9:30	<ul style="list-style-type: none"> Completing the Threat/Action model (continued) Prioritizing actions
9:30 – 10am	<ul style="list-style-type: none"> Finalizing the LEAP Integrating actions into existing plans and programs
10:10:30	<ul style="list-style-type: none"> BREAK
10:30 - noon	<ul style="list-style-type: none"> Revising /Finalizing integration of climate change adaptation into existing planning processes
Noon – 1pm	<ul style="list-style-type: none"> LUNCH
1-2pm	<ul style="list-style-type: none"> Preparation for Session with Leaders
2-4pm	<ul style="list-style-type: none"> Afternoon Session (to be held with agency leaders and workshop participants) <ul style="list-style-type: none"> Review of weeks efforts and outputs (shared by workshop participants) Input from leadership on ways to move forward/ next steps Wrap up

**APPENDIX B
Vulnerability and Threat Assessment Worksheet (VA-Threat) - (STREAM)**

CURRENT STATUS OF TARGET (natural resource and social)	THREATS (non-climate)	ROOT CAUSES OF NON-CLIMATE THREATS	CLIMATE EVENTS	EXPOSURE	SENSITIVITY
<p>What is the current status of this target? Poor, Fair, Good, Very good</p>	<p>What are the non-climate threats to this target?</p>	<p>Why are the non-climate threats happening? List all of the root causes</p>	<p>Which of the current and likely future climate change events are of most concern for this target and why? List them individually</p>	<p>How much area of this target will sometimes or frequently be exposed to current and future climate hazards? Little/ Some/ Most/ All</p>	<p>How severely will this target be impacted by increased climate hazards and why? Severely/ Moderately/ Hardly</p>
<p>20 years ago: good 10 years ago: fair Now: poor Has it changed and why? Housing development, trash, change in water flow, hospital, quarry</p>	<ul style="list-style-type: none"> • sediment • pollution • change in water flow 	<ul style="list-style-type: none"> • erosion from the quarry • increased population with the hospital • increased housing development 	<ul style="list-style-type: none"> • increase in rainfall • drought 	<p>ALL – the whole stream will be exposed to increased rainfall and drought</p> <p>ALL</p>	<p>SEVERELY - MODERATELY – this stream historically has run all the time even in droughts</p>

POTENTIAL IMPACT	ADAPTIVE CAPACITY	RESOURCE VULNERABILITY	COMMUNITY VULNERABILITY
<p>How would you rate the level of potential impact to this target from future climate hazards? High/ Medium/ Low</p>	<p>Rate the ability of this target to adapt to impacts increased climate hazards High/ Medium/Low</p>	<p>Based on the potential impact and the ability to adapt, rate the vulnerability of this target to future climate hazards High/ Medium/ Low</p>	<p>Based on the potential impact to the community, and the ability of the community to adapt to changes in the target, rate the social vulnerability High/ Medium/ Low</p>
<p>HIGH – heavier rain will increase sedimentation HIGH</p>	<p>LOW - the stream cannot do anything itself to adapt LOW</p>	<p>HIGH HIGH</p>	<p>LOW – from a dependence perspective – there are other sources of water for the community to use MEDIUM from a cultural perspective - loss of fish and habitat that is an important part of past cultural use</p>

Vulnerability and Threat Assessment Worksheet (VA-Threat) - (**DRINKING WATER**)

CURRENT STATUS OF TARGET (natural resource and social)	THREATS (non-climate)	ROOT CAUSES OF NON-CLIMATE THREATS	CLIMATE EVENTS	EXPOSURE	SENSITIVITY
<p>What is the current status of this target?</p> <p>Poor, Fair, Good, Very good</p>	<p>What are the non-climate threats to this target?</p>	<p>Why are the non-climate threats happening? List all of the root causes</p>	<p>Which of the current and likely future climate change events are of most concern for this target and why?</p> <p>List them individually</p>	<p>How much area of this target will sometimes or frequently be exposed to current and future climate hazards?</p> <p>Little/ Some/ Most/ All</p>	<p>How severely will this target be impacted by increased climate hazards and why?</p> <p>Severely/ Moderately/ Hardly</p>
<p>20 years ago: fair</p> <p>10 years ago: fair</p> <p>Now: Good, very good</p> <p>Has it changed and why?</p> <p>More enforcement, less pesticides</p>	<ul style="list-style-type: none"> • Well drying • sedimentation • pesticides • new residential development • population increase • excavation 	<ul style="list-style-type: none"> • lack of enforcement to stop pollution • lack of awareness - improving 	<ul style="list-style-type: none"> • increase in rainfall • drought • cyclones • sea level rise (saltwater intrusion) 	<p>Drought – some/most</p> <p>Cyclone – all</p> <p>Heavy rains – most</p> <p>Sea level rise – Well –some</p> <p>Booster - all</p>	<p>MODERATELY – important source to all, many different impacts. Booster more impacted by SLR than well – current state good</p>

POTENTIAL IMPACT	ADAPTIVE CAPACITY	RESOURCE VULNERABILITY	COMMUNITY VULNERABILITY
<p>How would you rate the level of potential impact to this target from future climate hazards? High/ Medium/ Low</p>	<p>Rate the ability of this target to adapt to impacts increased climate hazards High/ Medium/Low</p>	<p>Based on the potential impact and the ability to adapt, rate the vulnerability of this target to future climate hazards High/ Medium/ Low</p>	<p>Based on the potential impact to the community, and the ability of the community to adapt to changes in the target, rate the social vulnerability High/ Medium/ Low</p>
<p>HIGH – for booster LOW - for well</p>	<p>LOW - the water cannot do anything itself to adapt</p>	<p>MEDIUM</p>	<p>MEDIUM</p>

Vulnerability and Threat Assessment Worksheet (VA-Threat) - (FISHERIES)

CURRENT STATUS OF TARGET (natural resource and social)	THREATS (non-climate)	ROOT CAUSES OF NON-CLIMATE THREATS	CLIMATE EVENTS	EXPOSURE	SENSITIVITY
<p>What is the current status of this target?</p> <p>Poor, Fair, Good, Very good</p>	<p>What are the non-climate threats to this target?</p>	<p>Why are the non-climate threats happening? List all of the root causes</p>	<p>Which of the current and likely future climate change events are of most concern for this target and why? List them individually</p>	<p>How much area of this target will sometimes or frequently be exposed to current and future climate hazards? Little/ Some/ Most/ All</p>	<p>How severely will this target be impacted by increased climate hazards and why? Severely/ Moderately/ Hardly</p>
<p>20 years ago: Very good 10 years ago: Good Now: Fair Has it changed and why?</p>	<ul style="list-style-type: none"> change in habitat sediment from quarry erosion 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> increase in rainfall 	<p>MOST</p>	<p>MODERATELY – fish will adapt to the environment. Good reefs on the other side of the village can supply the poor side without reefs</p>

POTENTIAL IMPACT	ADAPTIVE CAPACITY	RESOURCE VULNERABILITY	COMMUNITY VULNERABILITY
<p>How would you rate the level of potential impact to this target from future climate hazards? High/ Medium/ Low</p>	<p>Rate the ability of this target to adapt to impacts increased climate hazards High/ Medium/Low</p>	<p>Based on the potential impact and the ability to adapt, rate the vulnerability of this target to future climate hazards High/ Medium/ Low</p>	<p>Based on the potential impact to the community, and the ability of the community to adapt to changes in the target, rate the social vulnerability High/ Medium/ Low</p>
<p>HIGH – heavier rain will increase sedimentation</p>	<p>HIGH – fisheries can adapt now but when increase of climate change it will be low adaptive capacity in the future</p>	<p>HIGH</p>	<p>HIGH from a cultural perspective</p>

Vulnerability and Threat Assessment Worksheet (VA-Threat) - (PUBLIC PARK)

CURRENT STATUS OF TARGET (natural resource and social)	THREATS (non-climate)	ROOT CAUSES OF NON-CLIMATE THREATS	CLIMATE EVENTS	EXPOSURE	SENSITIVITY
<p>What is the current status of this target?</p> <p>Poor, Fair, Good, Very good</p>	<p>What are the non-climate threats to this target?</p>	<p>Why are the non-climate threats happening? List all of the root causes</p>	<p>Which of the current and likely future climate change events are of most concern for this target and why?</p> <p>List them individually</p>	<p>How much area of this target will sometimes or frequently be exposed to current and future climate hazards?</p> <p>Little/ Some/ Most/ All</p>	<p>How severely will this target be impacted by increased climate hazards and why?</p> <p>Severely/ Moderately/ Hardly</p>
<p>20 years ago: Very good 10 years ago: Very good Now: Good</p> <p>Has it changed and why? Yes</p> <p>Erosion, more stray dogs, pollution, flooding, drainage outfalls blocked on both sides of park</p>	<ul style="list-style-type: none"> • population increase • pollution • stray dogs 	<ul style="list-style-type: none"> • people • animal neglect • immigrants • lack of family planning 	<ul style="list-style-type: none"> • sea level rise • cyclones • flooding 	<p style="text-align: center;">ALL</p>	<p style="text-align: center;">SEVERELY – coastal erosion is very active</p>

POTENTIAL IMPACT	ADAPTIVE CAPACITY	RESOURCE VULNERABILITY	COMMUNITY VULNERABILITY
<p>How would you rate the level of potential impact to this target from future climate hazards? High/ Medium/ Low</p>	<p>Rate the ability of this target to adapt to impacts increased climate hazards High/ Medium/Low</p>	<p>Based on the potential impact and the ability to adapt, rate the vulnerability of this target to future climate hazards High/ Medium/ Low</p>	<p>Based on the potential impact to the community, and the ability of the community to adapt to changes in the target, rate the social vulnerability High/ Medium/ Low</p>
HIGH	MEDIUM	HIGH	HIGH