Socioeconomic Assessment Guidelines for

Pacific Adaptation to Climate Change (SEA-PACC)

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Socioeconomic Assessment Guidelines for Pacific Adaptation to Climate Change (SEA-PACC)

MODULE 1: Introduction

Aims:	*To familiarize the PACC teams with how and why to use SEA-PACC* *To clarify the purpose for the development of SEA-PACC* *To identify the objectives of using SEA-PACC* *To understand the principles for using SEA-PACC* *To outline the contents SEA-PACC* *To identify the scope and limitations of using SEA-PACC*

The Pacific Adaption to Climate Change (PACC) project aims to improve the effectiveness of the response to climate change in Pacific island countries by supporting demonstrations of climate adaptation projects that can be replicated. Since the impacts of climate change are already creating impacts in the Pacific islands, the development of technical capacity and cost-effective actions to address climate impacts and reduce risks is critical. The three focus areas for the initial projects include: water, coastal management, and food production and security. The primary concern in implementing these adaptation projects is to ensure the safety and well-being, protection of property, and livelihoods of Pacific Islanders. This socioeconomic assessment guideline (SEA-PACC) is intended to help the PACC teams successfully collect socioeconomic data that are useful for coping with and anticipating climate impacts through the development of sustainable community initiatives. SEA-PACC has been developed to aid in the integration of socioeconomic assessments in project planning, implementation, and monitoring that will enable PACC teams to identify impacts and benefits of the projects for participating communities.

Who should use SEA-PACC?

The intended users of SEA-PACC are the PACC teams from each country. SEA-PACC will inform: risk and vulnerability assessments; project plans and implementation; and, project reporting, monitoring, and evaluation.

What are the objectives for using SEA-PACC?

This guideline has the following objectives:

1. To understand links between climate impacts and the way people live, socially, culturally, and economically;
2. To identify most important socioeconomic and cultural vulnerabilities of the community to changing climate;
3. To understand community capacity to cope with climate impacts, e.g., what are their local coping strategies and requirements for successful community resilience?
4. To use the socioeconomic information to help develop appropriate adaptation options and effective activities.

Why should we integrate Socioeconomic Assessments in adaptation planning?

At a basic level, a co-dependency exists between humans and ecological systems, and climate change will affect the interactions and relationships in these systems. To determine the areas that may be most impacted and require attention, vulnerability and adaptation assessments have been conducted. These assessments focus on understanding vulnerabilities in these systems and assessing adaptive capacity to cope with climate change impacts. Many of the early studies have emphasized the biological and physical impacts of climate. By integrating information on socioeconomics, the PACC team members will gain better understanding of the ways that people's livelihoods and sustainable development of communities will be affected by climate change, and the ways that the pilot adaptation projects can target actions that will reduce negative impacts and support sustainable community initiatives.

Identification of impacts requires site-specific knowledge from multiple disciplines. An understanding of bio-physical, ecological, and climate systems provides information on the response of marine life and terrestrial flora and fauna and dynamic coastal and geological processes. The physical infrastructure or built environment and access to public services may be impacted by storms, floods, coastal erosion, and sea level rise. As most of the community's livelihood and socio-cultural development depend on these ecosystems and physical resources, the relationship of the community to these systems has to be appreciated. Such understanding is crucial for assessing risks and vulnerability of the community to climate change. Additionally, knowledge of demographic and other social, cultural, economic, and political characteristics of the community helps determine the community's adaptive capacity and potential resilience and what is required to strengthen it.

Lessons learned from years of natural resource management (Cicin-Sain 1993; Ehler 2005), disaster management (Bettencourt et al. 2006), and early climate adaptation project in the Pacific (Nakalevu/SPREP 2006; SPDRP 2002) demonstrate the need for integrated management. Addressing the array of issues and impacts posed by climate change requires the involvement of multiple segments of society. For example, an engineer working alone on "climate-proofing" a coastal road will not be sufficient to address all of the issues or evaluate consequences from the construction of the road. Therefore, it is necessary to integrate assessments and collaborate with many individuals throughout the design, planning, implementation, and evaluation phases of the project. Each project will contribute to the development of adaptive capacity in local climate adaptation planning, which will support climate adaptation and mainstreaming efforts at all geographic and political levels.

How does use of SEA-PACC enhance climate adaptation planning?

SEA-PACC is a tool to identify key socioeconomic issues and vulnerabilities to be considered in adaptation planning, implementation, monitoring, and evaluation phases. The indicators used in a socioeconomic assessment help to: (1) identify communities and people that have more susceptibility to specific climate-related risks (elements at risks); (2) determine underlying causes of communities and people's vulnerability; (3) aid in developing strategies to address vulnerabilities; (4) determine how these could be incorporated into envisaged adaptation activities (adaptation planning); and, (5) ensure that adaptations projects do not exacerbate vulnerabilities initially identified or created new ones that exceed the community's capacity to cope and adapt.

In addition, SEA-PACC is a tool that enables the identification of local knowledge and capacities for climate adaptation. For example, during the assessment, indicators will identify the economic livelihood

activities in the community, identify the sensitivity of these activities to climate change, consider the alternative livelihoods that might be possible, and identify factors that support or inhibit change to livelihoods. In addition, indigenous and gender-specific knowledge and cultural practices often have developed activities that aid in long-term survival and sustainability, and these processes contribute to community adaptive capacity.

What are the principles for using SEA-PACC?

There are some general principles that frame the approach used in conducting SEA-PACC. These principles help to focus efforts in the targeted communities, expand and maximize local resources and knowledge, and ensure that lessons learned from these communities can be exchanged and adapted for use in other areas.

The principles for using SEA-PACC include:

1) *Participatory methods should be used.*
   Successful planning for climate adaptation and community resilience requires engagement with and by members of vulnerable sectors and communities. The planning to conduct SEA-PACC should involve the local community from the outset of the project. The PACC team should monitor for indicators that communities want and need as well as those identified as important and necessary by the team themselves. Participation fosters feelings of respect for local input, community empowerment through meaningful involvement, trust to the team, and confidence in continuous work. These are important for successful adapting to required change including cooperation when there is a policy change or rules and regulations are developed. In addition, participatory methods ensure that we are working with the community, not just extracting data from them.

2) *Prioritize the use of available resources.*
   The guidelines should be able to be of use by any of the teams regardless of the available resources. Preparing for and conducting a socioeconomic assessment will enable the team to identify gaps in resources, skills, and local knowledge.

3) *Assessments should be planning and action-driven.*
   The intent of the assessment is to ensure that information will be used to guide plans and policies. The results of using SEA-PACC should inform the development of actions to address climate change impacts. Information from the assessments should be used to evaluate the success of the project and improve actions iteratively.

4) *Assessments should link adaptation planning from the community to the national level.*
   The adaptation plans should respond to localized impacts of climate change and reveal impacts on people and their resources at the community levels. SEA-PACC provides a process to identify vulnerabilities and adaptive capacity at the community level. To effectively adapt to climate change will require support from leaders and national levels of government. By strengthening community level adaptive capacity, the national governments will further be able to build resilience to impacts of climate change.

What does SEA-PACC provide in the following modules?

SEA-PACC is divided into four modules:

1) Introduction to SEA-PACC

The first module explains how and why the PACC teams could use socioeconomic assessments to inform their pilot climate adaptation projects.

2) Climate context of adaptation planning

The second module begins with an overview climate change impacts expected in the Pacific island region, with some updates on recent trends and reports. This is followed by an overview of ways to think about the site-specific climate context, which will help to frame the socioeconomic assessments in the three PACC concentration areas: water, coastal management, and food security.

3) SEA-PACC process

The third module outlines the steps that should be taken in conducting a socioeconomic assessment. It includes discussions on what methods and actions should be taken at each step in the process. It also provides different sets of indicators and variables and data collecting methods for the PACC project team to choose from.

4) Integration into climate scenarios for decision-making

The fourth module looks at ways to construct scenarios to aid in decision-making. By taking site-specific information and data gathered from climate studies and vulnerability assessments, it is possible to address uncertainties by posing a range of potential outcomes or expected results. This can aid PACC team members, communities, and organizations in prioritizing actions to address climate impacts.

What are the scope and limitations of SEA-PACC?

SEA-PACC was developed in a short timeframe as a response to the need for socioeconomic information that helps identify the greatest vulnerabilities in communities from climate change impacts. It is meant to be an introductory and simple, not comprehensive, tool to enable PACC teams to consider basic ways to integrate socioeconomic assessments in their pilot projects and adaptation process. The intent of SEA-PACC is to be used by PACC teams to quickly get a sense of how to conduct a socioeconomic assessment and integrate socioeconomic data in the PACC process.

Due to the rapid nature of the assessments, the indicators and data collecting methods in Module 3 are meant to outline important indicators and data collecting methods rather than an exhaustive, detailed description of related variables and how to analyse each of the indicators.

SEA-PACC is intended to help the PACC teams assess climate impacts and vulnerabilities and to ensure that pilot projects integrate essential information about participating communities and their particular vulnerabilities have been considered in adaptation planning and the implementation of pilot projects.

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South Pacific Disaster Reduction Programme (SPDRP). 2002. Gender, households, community, and disaster management: case studies from the Pacific Islands. SOPAC Technical Report 282, 96 pages.

Resources

Pacific Adaptation to Climate Change: Building Resilience to Climate Change in Pacific Communities, http://www.sprep.org/climate_change/PACC/index.asp.

MODULE 2: Climate Context for the Socioeconomic Assessment

Module Aims:	*Provide a brief summary of current and expected climate impacts on small Pacific islands* *Identify climate context for conducting a socioeconomic assessment* *Enable PACC teams to conduct site-specific climate assessments*

In order to properly address risks from climate change in the Pacific Islands, it is important to understand site-specific, climate-related impacts. Each of the bio-physical impacts from climate change will have further repercussions on community livelihoods and local economies, on infrastructure and access to information, and on health and well-being.

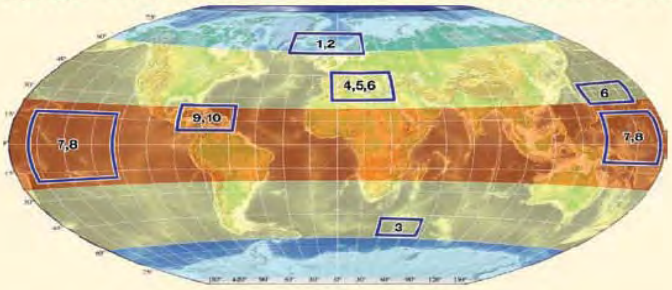
By focusing on specific climate-related concerns for the community, the PACC teams should be able to start identifying the most important indicators that will reveal vulnerabilities and resilience in these communities to address climate risks and adapt to climate change.

What are the expected impacts in Pacific Islands from Climate Change?

The Pacific Islands lie in the heart of the Earth's climate system, and are among the first places in the world to experience severe impacts from climate change. Some of these impacts include sea level rise, erosion, storm surges, flooding, and drought, which further affect water quality and availability, food production and security, and coastal resources management.

The Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report (AR4) released in 2007 identified global physical changes from climate and that the extreme warming of the climate that has exceeded previously identified thresholds for warming is "unequivocally" the result of human activities. The AR4 is divided into three major working groups and analyses: WG1) Physical Science; WG2) Impacts, Adaptation, and Vulnerability; and, WG3) Mitigation of Climate Change. The second working group focuses on regional impacts, with a chapter devoted to understanding impacts of climate on small islands (Mimura et al. 2007). The report used published resources on the types of impacts, as seen in the excerpted figure, Box 16.1, related to the Pacific (Mimura et al 2007, 696).

Box 16.1. Range of future impacts and vulnerabilities in small islands



* Numbers in bold relate to the regions defined on the map

7. Pacific small islands: Coastal erosion, water resources and human settlement	SRES A2 and B2 World Bank (2000)	Changes in temperature and rainfall, and sea-level rise	• Accelerated coastal erosion, saline intrusion into freshwater lenses and increased flooding from the sea cause large effects on human settlements. • Less rainfall coupled with accelerated sea-level rise compound the threat on water resources; a 10% reduction in average rainfall by 2050 is likely to correspond to a 20% reduction in the size of the freshwater lens on Tarawa Atoll, Kiribati.
8. American Samoa; 15 other Pacific islands: Mangroves	Sea-level rise 0.88 m to 2100 Gilman et al. (2006)	Projected rise in sea level	• 50% loss of mangrove area in American Samoa; 12% reduction in mangrove area in 15 other Pacific islands.
9. Caribbean (Bonaire, Netherlands Antilles): Beach erosion and sea turtle nesting habitats	SRES A1, A1FI, B1, A2, B2 Fish et al. (2005)	Projected rise in sea level	• On average, up to 38% (±24% SD) of the total current beach could be lost with a 0.5 m rise in sea level, with lower narrower beaches being the most vulnerable, reducing turtle nesting habitat by one-third.
10. Caribbean (Bonaire, Barbados): Tourism	None Uyarra et al. (2005)	Changes to marine wildlife, health, terrestrial features and sea conditions	• The beach-based tourism industry in Barbados and the marine diving based ecotourism industry in Bonaire are both negatively affected by climate change through beach erosion in Barbados and coral bleaching in Bonaire.

Source: IPCC WGII Chapter 16: Small Islands. Mimura et al. 2007, p. 696.

In the IPCC-AR4, scientists observed the following primary trends of climate change for small islands (Mimura et al 2007, 691-692):

1) ***temperature***- increasing numbers of hot days and warm nights, decreasing numbers of cool days and cool nights (especially in the years after the onset of El Niño).

2) ***precipitation*** – increasing number dry days (drought) and increasing number of heavy rainfall events (flooding).

3) ***tropical and extra-tropical cyclones*** – number of tropical cyclones increases slightly in the Pacific during El Niño years, decreasing slightly during La Niña years because of the association with cyclone formation over warmer sea surface temperatures.

4) ***sea level*** – studies show an average increase in sea level in the Pacific, with ranges varying from 1.0-3.0mm/year , with great variation by location.

In addition, there are other climate impacts, such as ocean acidification, that required more scientific study, but have been included in the scientific assessments. In the next IPCC report, there will be more information on acidification because there are investigations underway on the impact of the climate to nearshore marine habitat and coastal areas.

During periods of extreme climate variability, such as El Niño and La Niña, there have been effects that compound the trends in climate change. As mentioned above, temperature increases and results in a greater number of hotter days during El Niño. El Niño-Southern Oscillation (ENSO) cycles result in a

variety of impacts related to the island's geographic location, the strength of the event, and the timing during the cycle. For example, the Marshall Islands rarely experiences tropical cyclones, but during ENSO events it is more likely in the early stages, followed by a lack of rainfall and localized drought. During La Niña events, oceanic conditions have resulted in unusual high wave or tidal events that wash over low-lying atolls and inundate nearshore coastal areas. Throughout the ENSO cycle, many islands may experience a meter of change in sea level, resulting in nearshore flooding and saltwater intrusion and changes in the freshwater lens of low-lying atolls.

Since the release of the IPCC AR4 in 2007, scientists have continued to study and publish results on climate change. The measurements on rates of increase of carbon in the atmosphere, the number of days of increased temperatures, and the rise of sea levels have exceeded the projected ranges from the IPCC AR4. The sea level rise projections in the IPCC Fourth Assessment Report ranged from 18-59 cm (0.18-0.59m) by 2100 (IPCC 2007); however, more recent studies indicate that trends will be far greater, on the order of 80-200cm (0.8-2.0 m) (Pfeffer et al. 2008) or up to 600 cm (6.0 m) with the contribution from Greenland and Antarctica ice sheets and averages of all projections targeting approximately 1.63 meters by 2100 (Otto-Bliesner et al. 2006; Overpeck et al. 2006; Rahmstorf et al. 2007; Vermeer and Rahmstorf 2009). Each coastline and each island will expect different rates of sea level rise due to the physical geography, geology, and bathymetry of the ocean. The Alliance of Small Island States (AOSIS) is looking at sea levels greater than one meter based on recent science, the continued warming trends, and non-binding agreements to reduce and limit greenhouse gases to well below 350 parts per million (ppm) and limit global average temperature increases to well below 1.5°C above pre-industrial levels (AOSIS 2010). The European Union and the State of California has evaluated sea level risks using estimations of at 1.4m by 2100, although in some places scenarios have been devised at 0.5m, 1m and 1.4m to consider various options and consequences (Heberger et al. 2009).

These ranges vary and since sea level rise is influenced by external global factors, it is important for local PACC teams to have a sense of the rate of sea level rise to set for planning purposes. Since infrastructure and development planning often has 30-50 year projected life, the research suggests that planning should consider at least a meter of rise by mid-century. Not only will plans need to consider sea level rise, but account for the additional saltwater from coastal inundation, high waves, tsunami, and extreme tides.

What are the types of climate impacts affecting islands?

The climate impacts will vary by island and country depending on the size, geography, and location. Some of the climate-related impacts for islands include:

1) *Water impacts* – Drought with limited water availability for drinking, washing, and household needs; implementation of water relief assistance through water distribution programs by truck or by boat to impacted areas of islands; and, severe impacts on water-intensive agriculture. Flooding that causes contamination of freshwater sources, threatens agriculture, and increases landslides and mudslides.

2) *Agricultural impacts* – Erosion, drought, and saltwater inundation impacting health of coconut trees, taro, and cassava. Implementation of feeding assistance relief distribution programs.

3) *Terrestrial Ecological impacts* – In severe drought, rivers dried on high islands or streamflow significantly reduced affecting fish and habitat. Drought, severe storms, and coastal inundation

has affected plant reproduction and viability and contributed to fuel loading for wildfires. Heavy rainfalls result in land and mudslides from denuded hillsides, which may result in sedimentation on coral reefs and impact habitat. Warming water temperatures contribute to coral bleaching, which can affect habitat. Warming land temperatures may increase the threat of invasive species that overtake indigenous plants.

4) *Marine and Fisheries impacts* – Coral bleaching, ocean acidification, sea level rise, and coastal erosion threaten nearshore marine habitat. Nearshore fish spawning cycles shift with changes in temperature. Pelagic fisheries follow warmer water temperatures and have shifted eastward with ENSO, but research is unclear about movement and the ability to catch pelagic fish in the future.

5) *Health impacts* –Storms and drought affect potable water systems and lead to increased waterborne gastrointestinal disease. Wildfires associated with drought increase respiratory illness. Warmer temperatures can cause heat stroke. Skin irritations and rashes occur during drought from lack of freshwater. Malaria and dengue spread with warmer temperatures and have been associated with drought and returning rains. *Leptospirosis* and other diseases appear as threats with extreme temperatures and rainfall.

6) *Infrastructure and physical structure impacts*- Roadways and airport reef runways are affected by sea level rise, high waves, and storm inundation. High winds and storms affect buildings and housing. Storms further affect telecommunications. Sea level rise, flooding, and erosion may impact wastewater treatment plants.

How do we assess the climate risks for our PACC site?

To understand the site-specific climate of the PACC sites, it will be useful to gather information related to the sites and the climate experiences. The site-specific climate information falls into two categories: *exposure* or the types, character, and rate of climate change impacts the community is exposed to and experiences; and *vulnerability* or how strongly the community is affected by the impacts of climate change and variability.

Data can be gathered through existing secondary sources, such as newspapers, scientific research, climate reports, or hazard mitigation plans. Interviews can also be conducted with people who have knowledge of climate events and the impacts of changing climate over the past several decades on the local site and community, including technical experts and climate scientists as well as those who have been involved in, and working with the communities to prepare, respond to and recover from climate disaster events (for example, village leaders, community elders, governmental officials, disaster mitigation officers, and long-term project staff).

To begin, the PACC team should gather available climate information for their sites. Examples of sources of information are listed as follows:

- Historical climate and weather data
    - Data from country meteorological services, such as seasonal to interannual rainfall, frequency of tropical cyclones
    - Interviews with community members will supplement the histories and fill in data gaps

    - Interviews with Elders may provide information about the changes

- Severity of climate-related disasters
    - Data and information from meteorological services disaster management, and regional organizations (e.g., SOPAC), such as emergency declarations, sea level changes, etc.
    - Discussions/interviews with community members
    - Newspaper articles
- Ecological or biophysical impacts
    - Country research projects (Environmental and Resources Management agencies)
    - University research projects

What is the climate context and considerations for the PACC projects?

Establishing the climate context of the site will help to focus the PACC team in choosing socioeconomic assessment methods and in framing the understanding about risks. Even though every community may not have been studied in detail, it is important to gather relevant local climate information and to be aware of what is available for use at the site. These may include resources from national studies or involve data collection from monitoring systems established at the site (i.e, rain gauges to record rainfall data, tidal gauges to record fluctuations in sea levels).

Once the climate context of the site is understood, the PACC teams can begin to ask the questions about the degree of the climate impacts on households, communities, and livelihoods at the pilot project site. The focus of the impacts can be further refined by consideration of the specific PACC areas on water, coastal management, and food production and security.

To further aid in the development of the climate context, climate worksheets have been prepared for use by the PACC teams. The questions focus on ensuring that the PACC teams have a strong understanding of the "best available" climate science. The intent of the ***worksheets***, included in the ***Module 2 Appendix***, is to provide a rapid climate assessment tool that will enable the teams to keep the climate information in mind throughout the planning and implementation of the pilot adaptation projects.

The next chapter focuses on how to conduct a socioeconomic assessment to gather the specific socioeconomic information needed to understand implications of climate change. The more that the team has an understanding of the site-specific context of the community where the project will occur, the better able the teams will be in planning and allocating resources to the project. By focusing on specific climate-related concerns for the community, the PACC teams should be able to identify the most important indicators that will reveal vulnerabilities and resilience in these communities to address climate risks and adapt to climate change.

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Resources

Australia Bureau of Meteorology (BoM):

Pacific Islands – Climate Prediction Project (PI-CPP) – targeted for Papua New Guinea, Solomon Islands, Vanuatu, Kiribati, Tuvalu, Fiji, Tonga, Samoa, Niue, and the Cook Islands
http://www.bom.gov.au/climate/pi-cpp/index.shtml

El Niño and La Niña effects in the Pacific:

Pacific Marine Environmental Laboratory and the TAO array – Describes the ENSO cycles and the TAO buoy array that monitors sea surface temperatures - http://www.pmel.noaa.gov/tao/elnino/el-nino-story.html

Fiji Meteorological Service:

http://www.met.gov.fj/

ENSO Update: http://www.met.gov.fj/aifs_prods/ENSO%20Update.pdf

National Institute of Water and Atmospheric Research (NIWA):

Island Climate Update – provides forecasts of rainfall, sea levels, and tropical storms for the Pacific Islands - http://www.niwa.co.nz/our-science/climate/publications/all/icu

Pacific ENSO Applications Climate Center (PEAC):

Pacific ENSO Update – provides forecasts of rainfall, sea levels, and tropical storms for the Federated States of Micronesia, the Republic of the Marshall Islands, the Republic of Palau, Guam, the Commonwealth of the Northern Mariana Islands, and American Samoa http://www.soest.hawaii.edu/MET/Enso/update.shtml

Pacific Islands Applied Geoscience Commission (SOPAC)

South Pacific Sea Level and Climate Monitoring Project –provides national reports on measurements of sea level, http://www.sopac.org/tiki-index.php?page=South+Pacific+Sea+Level+and+Climate+Monitoring+Project

MODULE 2 APPENDIX: Climate Worksheets

Purpose:	*To determine specific climate impacts on the PACC site* *To identify the biggest threats and most vulnerable by PACC area*
Participants:	*PACC project managers and team*
Materials:	*Pen, access or knowledge of climate data and reports*
Time:	*1 hour*

Worksheet 2.1: Climate Context of the Project Site

1. What are the changes in climate that we observe in the project site?	
Observation (Please check if occurrence has been observed at the project site.)	Please list detailed studies and information, if known.
___ Sea level rise	
___ Coastal erosion	
___ Saltwater intrusion in gardens	
___ Saltwater intrusion in wells	
___ Drought, or less than normal rainfall What months?_____	
___ Flood, or greater than normal rainfall What months?_____	
___ Frequent tropical cyclones, with… Strong winds _____ Heavy rains _____ Storm surge and inundation _____	
___ Landslides or Mudslides	
___ Wildland Fires	
___ Increased temperatures in nearshore water	

What months?_____	
___ Coral bleaching	
___ Increased temperatures on land What months?_____	

2. When have you observed extremes or changes in climate at the project site? (Check all that apply)					
Observation	Seasonal occurrence annually	During El Niño years	During La Niña years	Constant increase of effects (not associated with season)	Not observed
Sea level rise					
Coastal erosion					
Saltwater intrusion in gardens					
Saltwater intrusion in wells					
Drought					
Flood					
Tropical storm					
Storm surge					
Landslides/Mudslides (with heavy rains)					
High wave events					
Wildland fires					
Increased temperatures in nearshore waters					
Coral bleaching					
Increased temperatures on land					

Worksheet 2.2: Climate Impacts by PACC Areas

Instructions: Choose the table for your PACC research area.

Worksheet 2.2a: Climate Impacts on the Water Sector	
Observation (Please check if occurrence has been observed at the project site.)	Please check if you have a detailed study, report, or exact information
How is climate change affecting water resources at the project site?	
___ Saltwater in drinking water	
___ Saltwater affects on agriculture/gardens	
___ Lack of available water for household use, such as drinking, washing, and cooking	
___ Inability to catch and store fresh water during heavy rainfall	
___ Other (please specify)_____	

Worksheet 2.2b: Climate Impacts on Coastal Management	
Observation (Please check if occurrence has been observed at the project site.)	Please check if you have a detailed study, report, or exact information
How is climate change affecting coastal resources and shoreline management at the project site?	
___ Saltwater in nearshore wells and drinking water	
___ Saltwater affects on low-lying, nearshore agriculture/gardens	
___ Increased rates of erosion	
___ Decrease in sand dunes and sandy shorelines or buffers	
___ Increased coral bleaching events	
___ Increased sedimentation on reefs	
___ Decline in nearshore fisheries	
___Threats to coastal housing	
___Threats to coastal infrastructure	
___ Other (Please specify)_____	

Worksheet 2.2c: Climate Impacts on Food Production and Security	
Observation (Please check if occurrence has been observed at the project site.)	Please check if you have a detailed study, report, or exact information
How is climate change affecting food production and security at the project site?	
___ Saltwater in drinking water	
___ Saltwater impairing growth of agriculture/gardens	
___ Lack of available water for household use, such as drinking, washing, and cooking	
___ Declines in crop production	
___ Shifts in seasons of crop yield and harvest	
___ Shifts in spawning cycles and reproduction for marine resources	
___ Other (Please specify)_____	

MODULE 4: Integrating Scenarios to Support Decision-Making in Climate Adaptation

Module Aims:	*To understand reasons and the process for developing scenarios* *To develop scenarios combining climate data and socioeconomic assessment results* *To use scenarios to better inform decision-making to support climate adaptation*

The Pacific islands are already experiencing impacts from climate change, and we understand that there will continue to be changes as the trends for carbon increases in the atmosphere. Trying to understand the ways that people, communities, and nations will deal with localized outcomes of these global phenomena requires that we develop conceptions of the future with plausible scenarios in order to pose possible options under each scenario. By integrating data gathered from bio-physical and social sciences, it will be possible to develop integrated scenarios that support the development of locally appropriate adaptation plans and activities, help evaluate the options and consider ways forward.

What are scenarios and storylines?

A ***scenario*** is defined in this guideline as a coherent and plausible description of a possible future state of a PACC project site and its community in relation to changing climate. It takes into consideration the current and predicted climate data indentified in Module 2, combined with the results of socioeconomic assessment focused on the prioritized climate events and impacts in Module 3.

Scenarios suggested in SEA-PACC should allow the integration of quantitative and qualitative information to think about the local future. A scenario describes a simplified concept of how the future may develop, based on a coherent and internally consistent set of assumptions about driving forces and key relationships. The scenarios describe vulnerabilities, as well as adaptive capacities, of the PACC project sites and their communities, both in their physical as well as socioeconomic aspects. The scenarios developed can be sector-specific scenarios, including discussion and examples for the three PACC sectors, namely water, coastal management, and food production and security. For certain sites, the sectors might be overlapping and developed scenarios may include cross-sector descriptions.

Based on a scenario, alternative storylines are developed that enable us to understand the relationships of the variables included in the scenarios through a narrative description. ***Storylines*** can be defined as a qualitative, coherent picture of the future within which certain trends make logical sense. Storylines describe conditions that might be brought about by human choices concerning economic development, social policy, cultural conditions, and institutional arrangements (adapted from Malone et al. 2008, 8; and Malone and Rovere 2004, 156).

Several resources have emerged to aid governments, resource managers, and decision makers in using scenarios for vulnerability assessments and adaptation planning. Consistent with

principles laid out for conducting socioeconomic assessments, scenario development should be participatory and involve stakeholders at impact levels who will be able to guide the feasibility of the storyline, and then advise on the capacity to engage in proposed options.

Scenarios may be derived from projections, but are often based on additional information from other sources, sometimes combined with a narrative storyline. The storylines are able to integrate findings from socioeconomic assessments and the best available scientific information to present qualitative stories or visions of the future. By integrating the climate scenarios with storylines, the description of possible futures enables policy makers, decision makers, and managers to consider the ways that the impacts from climate change challenge communities and the consequences from a range of suggested alternative actions can be applied to address impacts.

Why develop scenarios?

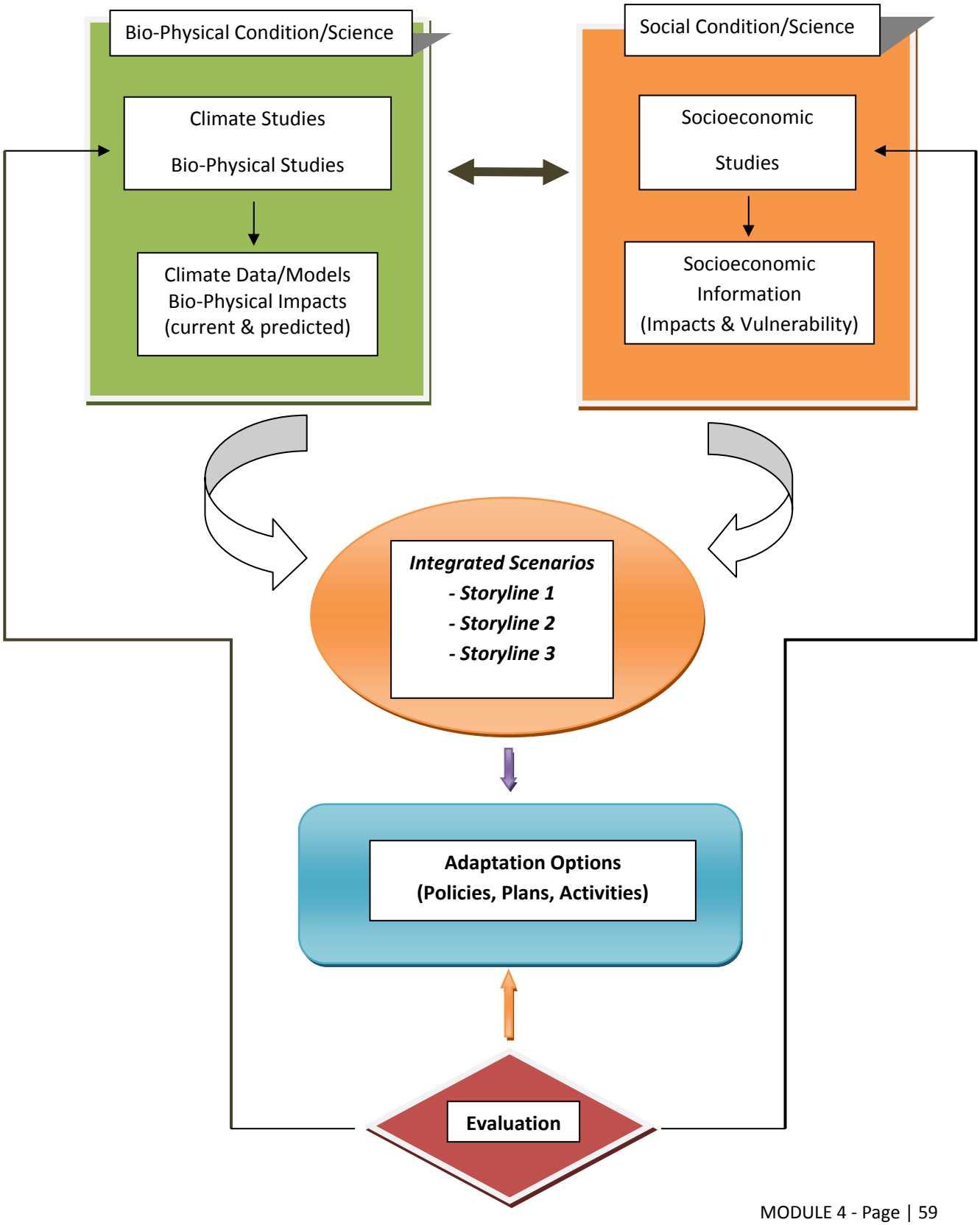
We conduct a socioeconomic assessment primarily to learn and to gain a better understanding of the current and projected socioeconomic conditions of the community, how they are impacted by climate, and the extent of the community's social vulnerability and adaptive capacity. There may be some other specific assessment objectives that the PACC team has formulated and collected data accordingly. Importantly, the socioeconomic assessment provides significant decision-making information. The information helps design and plan adaptation programs and activities that are relevant to the local communities, addressing problem areas and weaknesses and building on local strengths and adaptive possibilities.

Scenarios supplement information in the form of possible outcomes in the absence of certainty. Climate scenarios use biophysical data, output from climate models, and, generally, more quantitative in their construction. The global climate models used for these analyses focus on large areas, and do not capture island-specific details. Scenarios become a means of evaluating changes in local communities.

Although climate scenarios tend to focus on biophysical changes and ecosystem impacts, it is important to consider socioeconomic scenarios to determine actions for adaptation. The socioeconomic information is crucial for developing relevant and meaningful policies and measures that address climate impacts on the well-being of the community. The assessment can also be used to monitor impacts of adaptation interventions and its effectiveness so that improvement can be made. Socioeconomic information is not meant to be used by itself, but to be integrated with other types of information that come from biological, physical, and structural assessments. As socioeconomic conditions change, the pressures of people on the natural environment and the requirements for structural side will be different. Similarly, when the bio-physical and structural conditions change, there will be impacts on the way the community lives. Therefore, it is crucial that individual streams of information are integrated and that multi-disciplinary approaches to climate adaptation are taken.

The process for integrating bio-physical and social science into scenarios to support climate adaptation in Pacific islands has been outlined in Figure 4.1. When the data and information becomes integrated through scenarios, we are better able to develop a narrative storyline that links effects and exposes relationships, such that increased ecosystem sensitivities will result in impacts on food security and livelihoods. By understanding these, it is possible to suggest options to reduce negative impacts and support adaptation actions. These options will be evaluated and further refined.

Figure 4.1: Integration of bio-physical and social sciences in integrated scenarios to support adaptation.



How do we develop integrated scenarios for the PACC projects?

The PACC projects target areas of water, coastal management, and food production and security. There will be differences in the local context, the communities impacted, and the ways the people will respond or adapt for each of the identified projects. The development of scenarios will pose a range of potential outcomes or expected results. These can aid PACC team members, communities, and organizations in prioritizing actions to address climate impacts.

The scenario development process takes both results from Module 2 and Module 3 into consideration. The following outline can be used to develop scenarios specifically for the PACC sectors:

1. Identify key stakeholders who will participate in the process of scenario development

2. Establish baseline site-specific climate information from Module 2 (see worksheets) and identify expected changes in climate

3. Reviewing socioeconomic conditions, including community vulnerability in the results of socioeconomic assessment conducted in Module 3. Identify socioeconomic changes and drivers in communities.

4. Develop the key questions that you need to answer to develop picture of plausible future of the community. These questions will be site-specific and focused. Example of the questions are:
    a. Sea level appears to rise steadily resulting in contaminated water and severe coastal erosion. Will community members need to be relocated for survival? Will gardens and drinking water be sufficient, given trends in population growth?
    b. Persistent drought has threatened the wetland taro crop. Will the crop be able to recover? Will it be sufficient to meet production needs for our community?

5. Set boundaries and scope for the scenario with a clear time frame, e.g. 10, 20, or 50 years from now.

6. Identify the major characteristics and underlying stories in a scenario

7. Identify possible adaptive capacity of the community from the socioeconomic results from Module 3

8. Formulate the long-term adaptation goals, options, and activities of the community where the PACC project occurs. Take into consideration sector-specific challenges and opportunities of planned pilot projects.

How are these scenarios results used in adaptation planning?

The scenarios enable the identification of options that can be incorporated into adaptation planning. As communities propose actions, they can use the stakeholder interactions and expert involvement to determine potential consequences from each proposed option. It is important to consider these consequences before taking action to prevent counterproductive activities. Scenarios provide a glimpse

of what the island community might look like in ten, twenty, or fifty years in the future and enable teams to consider possible outcomes.

Have we evaluated the socioeconomic impacts and benefits of PACC projects throughout the planning cycle?

SEA-PACC was developed to aid PACC teams to include socioeconomic considerations throughout the planning cycle, from the formulation of the plan and design of the pilot projects through implementation and evaluations. At each stage in a project cycle, there are important questions that should be asked. These questions correspond to the "do no harm" and "no regrets" approaches advocated in adaptation planning, in that there are many positive actions that can be taken to reduce disaster risks and to adapt to climate change, but that these actions should not inadvertently result in harm.

In the following table, there are questions posed at each stage of the planning process. These are included to help PACC teams quickly make an assessment about the inclusion of socioeconomic issues. This is not an exhaustive list of questions, and the teams can certainly add their own relevant questions. The table may also assist in reporting at each phase of the pilot project implementation.

Table 4-2: Sample types of socioeconomic questions during the climate adaptation planning process

Climate Adaptation Planning Process Phases	**Questions for Socioeconomic Consideration**
Formulation	Who will this project affect? What are the consequences of the proposed plan of action? Who should be involved to minimize negative impacts?
Coordination	Are the key stakeholders involved? Is the community part of the process? Have we developed protocols and methods that ensure access to the process?
Consultation	Have we used participatory approaches that ensure key groups in the community have access to the planning process? How many meetings/conversations/interactions occurred? What have these groups told us about the ways that the project will affect them? Have we considered positive and negative consequences?
Assessment	Have we used several types of tools and interactions to conduct the assessment? What are the results of the assessment?
Planning	What implications did the assessments have on the adaption projects considered for this community? If there are potentially negative impacts, have we addressed concerned?

	Are we basing plans on Integrated assessments --- knowledge from communities, traditional ecological knowledge, scientific bio-physical studies, engineering analyses, impacts on livelihoods and alternative livelihoods? Will these plans build local capacity and knowledge about ways to address climate risks?
Implementation	Are resources available to implement plans? Does plan implementation take resources from other beneficial community endeavors? Is the project designed sustainably so that it continues with available community resources?
Monitoring & Evaluation	Is there a plan to monitor progress and impacts? Do those engaging in monitoring activities have capacity, knowledge, and resources to carry out the work? Are there unforeseen consequences from implementation that need to be addressed and revised in future years of the project?

It is essential that consideration is made to incorporate findings from socioeconomic assessments and the results from scenarios into the PACC technical reporting and in project evaluation. The lessons from each of the sites will be more adaptable in similar communities, which mean that understanding the local context and needs of the community is critical for transferability. For the PACC teams, the inclusion of socioeconomic information in reports will inform decision makers to ensure that the Pacific have well-documented analyses of the ways that climate change is affecting communities and how community might be able to address the impacts. This further ensures availability of resources to implement adaptation projects that are appropriate for the communities where they are implemented.

References

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MODULE 4 APPENDIX: Scenario Worksheets

Purpose:	*To construct integrated scenarios of climate and socioeconomics* *To look at options for adaptation by PACC sector*
Participants:	*PACC project managers and team*
Materials:	*Pen, access or knowledge of climate data and reports* *Module 3 socioeconomic assessments*
Time:	*3 hours*

Worksheet 4.1: Constructing Scenarios

Example 4-1.

Site-specific climate context (from Mod 2 worksheets)**:**
Trends show increasing saltwater intrusion in nearshore gardens. Occurrence is annually, but seems to be worse during La Niña events. Sea level seems to have risen one centimeter.

Community vulnerability: (indentified in socioeconomic assessment) Taro from these gardens is one of the primary sources of food. The saltwater has impacted some of the taro plants and coconuts. Community has less ability to recover food crops after each event.

Timeline of change: In the last ten years, occurrence is more frequent and saltwater has moved inland one meter over these ten years. For the next ten years, we should consider options for 1) no change; 2) water moving inland another meter, and 3) water moving inland two meters.

Expected change or impact on community: For the next ten years, under current conditions, the food may be sufficient; with another meter movement inland, the saltwater intrusion will make the crops unavaiable and the community will need to find food elsewhere; with another two meters, the saltwater intrusion may also begin to encroach on human settlements. From the socioeconomic assessment, we know that the community relies on subsistence livelihood from gardens. The women are the primary gardeners, and do not have alternative livelihoods.

Local adaptive capacity: The women have traditional knowledge about increasing mulching materials and planting pandanus trees along the shoreline to build up the coastal areas. The community has human resources for labor in the pilot project.

Narrative Storyline: With the expectations of sea level rise and increased saltwater intrusion in the taro gardens, food security is being threatened. In addition, the livelihoods for women are further being threatened. Unless women are included in the development of the options, they will not have alternatives for their livelihood and they will lose their functional roles in their community. Since these women have the greatest knowledge of their local communities, they may know traditional ways to build back and raise the taro gardens. If there are no options taken, then the gardens will be lost and people will have to increasingly rely on relief assistance from governments for food resources. If we engage in options that incorporate the knowledge of women, then the options may be feasible for reducing vulnerability and adapting to impacts of climate change.

Options to reduce vulnerability: 1) No action; 2) Move gardens; 3) Elevate gardens; 4) Diversify inland agriculture to other crops; and, 5) Replant shorelines to build support and protective barriers.

Timeline for implementation: 1) No action; 2) One year to prepare other areas for gardens; 3) One year to elevate gardens naturally, but an additional year for crops to recover; 4) Two years to develop and grow other crops and begin to shift taste preferences to new crops; and 5) One year for planting, three years to see shoreline improvement.

Guiding questions for the PACC-site scenario and Storyline

Site-specific climate context (from Mod 2 worksheets)**:**

Community vulnerability (from socioeconomic assessment in Mod3)**:**

Timeline of change:

Expected change or impact on community:

Local adaptive capacity:

Narrative Storyline:

Options to reduce vulnerability:

Timeline for implementation:

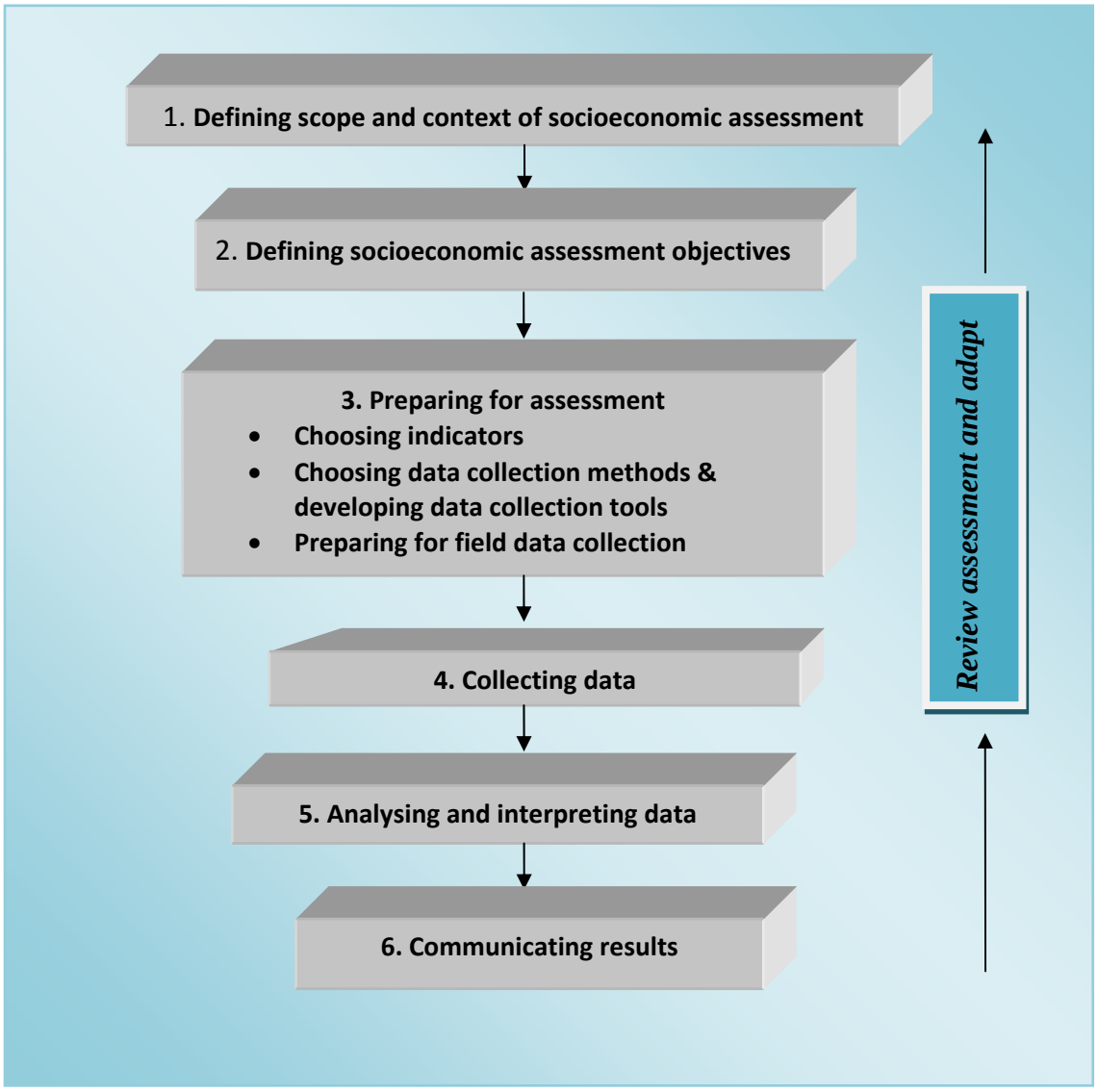
Module 3: Phases of SEA-PACC Socioeconomic Assessment

Module Aims:

- *Understand socioeconomic assessment and its main phases*
- *Prioritize local climate hazards and link them with socioeconomic assessment*
- *Decide on the scope and context of the socioeconomic assessment*
- *Define socioeconomic assessment objectives and consider relevant indicators*
- *Gain basic understanding of different data collecting methods, what they require, how to develop survey questionnaires and interview questions, and principles of how to conduct the different methods.*
- *Better prepare for the assessment and field data collection*
- *Understand the fundamental steps of data analysis and data management*
- *Understand why communicating assessment results is important, how to develop a basic communication plan and options to communicate results*

A ***socioeconomic assessment*** is a way to learn about the social, cultural, economic, political and institutional conditions of individuals, households, groups, communities and organizations. A socioeconomic *assessment* is a one-time data collection effort. Socioeconomic assessments conducted prior to or at the start of a project will generate baseline information on the demographic and important socioeconomic conditions of the community and help identify priorities that should be considered in project management and implementation. This is important for future monitoring to track changes as a result of climate change impacts or adaptation intervention. ***Socioeconomic monitoring*** involves repeated data collection over time, usually at set intervals. Monitoring that follows the initial assessment will measure changes over time and serves as a tool to determine whether management objectives are being met and/or how the socioeconomic conditions have been affected by the project activities. Key findings and lessons learnt from previous assessments are used to guide adaptive responses and to improve next assessments.

Figure 3.1: Phases of socioeconomic assessment



Step 1: Define scope and context of socioeconomic assessment

Purposes: To link the climate hazards identified in Module 2 with the socioeconomic assessment, and, based on current and potential climate hazards, to decide the scope and context of the needs and concerns of the local community and the PACC project team's plans and activities.

Participants: PACC project manager and community representatives. This step requires a facilitator who can be either one of the PACC project managers with good facilitating skills or a facilitator with basic knowledge of the local situation.

Materials: Flip charts and marker pens

Time: 3-4 hours

Activities: Defining scope and context of socioeconomic assessment as follows:

1.1 Take summary notes for all the following activities

1.2 Based on the results of Worksheet in Module 2, PACC project manager summarizes the current and predicted climate hazards for the group. Make clear of the ones the community is most exposed to.

1.3 PACC project manager or facilitator asks the participants to prioritize the types of climate hazards the community would like to focus on in this assessment. The following questions and/or Worksheet 3.1 on the next page can be used to facilitate the process.

- In their own experience, which three climate-related events have impacted communities the most in the past 50 years? In what way (describe the character and severity of the events)?
- Which are the top 3 climate-related threats to your community?

1.4 Taking the summary of current and predicted hazards presented in 1.2 and the hazards prioritized in 1.3, the group decides which climate hazards should be focused on in this assessment. If possible, the results from 1.3 can be compared with scientific reports and official records of climate events in the area from 1.2 to confirm the priorities. This is important as to make sure that some important, predicted events are also taken into consideration.

1.5 In relation to identified hazards in 1.4, participants are to decide what socioeconomic issues to investigate? The main question to ask is: In what ways have the community, households and particular groups of people have been affected or will be threatened by the prioritized hazards?

1.6 Keeping the result of 1.5 in mind, decide where AND who the assessment will cover. Identify the site, boundary and people (communities, stakeholder groups) to be involved. The assessment site could be defined as including actually or potentially impacted communities as well as susceptible natural resources, both in respect of climate hazards and project impacts.

- Who are people most impacted by the prioritized climate hazards?
- Where are they?
- What are natural resources the community depends on, what are important community infrastructure and services, and how are they prone to the prioritized climate hazards?
- Where is the PACC project area, and where are project impacts expected?

1.6 Develop a schedule for the assessment, using Worksheet 3.2 in the Appendix at the end of this Module.

1.7 Discuss how the results of the assessment are expected to be used and by whom.

1.8 Facilitator to go over the summary of all steps above to make sure all participants agree with the notes.

Worksheet 3.1 can be used as a tool to help facilitate prioritizing climate events that will be focused on in the socioeconomic assessment. The following table can be transferred onto a flip chart or shown on a large monitor screen. Each participant is asked to list the types of climate events they have experienced at the potential site, and then, for each of the listed events, to rate their perception of the frequency of such events, the severity of their impacts, and the difficulty of community recovery. All the given scores will be added in the last column. The events that received the top 3 highest scores will be considered as the prioritized climate events on which the related socioeconomic assessment will focus.

Worksheet 3.1: Prioritizing local climate hazards focused on in the socioeconomic assessment

Climate-related events	What types of the following climate events have you experienced in your lifetime **in your community**? (Check all that apply)	A: How would you rank the frequency of their occurrences? 3= high, 2 = medium, 1= low	B: How severely do you think your household has been impacted? 3 = high, 2 = medium, 1= low	C: How would you rate the difficulty of your community to recover from each climate event? 3 = high, 2 = medium, 1 = low	Adding all scores of column A, B and C to prioritize PACC team effort
Sea level rise					
Coastal erosion					
Salt water intrusion in garden					
Salt water intrusion in wells					
Drought					
Flood					
Increased rain or winds with annual monsoons					
Tropical storm					
Storm surge					
Climate-related landslide					
Wildland fire					
Increase water surface temperature					
Coral bleaching					
Increase air temperature					
Other (specify _____)					

Step 2: Define socioeconomic assessment objectives

Purpose: To develop a set of objectives that will guide the desired outcomes of your socioeconomic assessment. The outcome should inform and improve your overall climate adaptation planning and activities.

Participants: PACC project team and local stakeholders, including representatives from impacted community.

Materials: Flip charts and marker pens

Time: 2 hours

Activity: Keeping the scope and context defined in Step 1 in mind, start drafting objectives of your socioeconomic assessment. Objectives are desired results of your assessment. They should be specific and say what you would like to examine or find out. The objectives help guide the PACC team when indicators are chosen, keep the assessment focused, and can be used as evaluation criteria to check whether you have accomplished what you intended.

Examples of general assessment objectives are:

1. To understand how prioritized current and predicted climate impacts affect and/or threaten the community's economic, socio-cultural and governance dimensions? Which group of community members and what socioeconomic activities are most vulnerable and why? The reasons may include the nature of their vulnerabilities and adaptive capacities.
2. To examine the feasibility of planned PACC adaptation options and project activities in the given community under their socioeconomic conditions? This could include, for example, finding out community institutional arrangements that should be involved/lead in adaptation planning and implementation.
3. To examine perceived socioeconomic impacts that result from the PACC adaptation project activities.

Specifically, the PACC project team could develop objectives that are related to ongoing or planned projects.

In example 1: if one of the PACC project team's outcomes is to improve community awareness of climate impacts on coastal erosion and related adaptation activities through effective education and outreach programs, objectives of the assessment may be:

1) To determine the level of community awareness about climate change impacts on their community;
2) To determine the effectiveness of current climate-related educational programs;
3) To learn about the community's awareness and understanding of the importance of climate adaptation to stabilize the shoreline and sustain coastal and nearshore ecosystems; and
4) To gain an understanding of key information sources and media habits of the community.

In example 2: if a PACC project team's objective is to develop an adaptation program to address drought impacts, objectives of the assessment may be:

1) To examine the demographic profiles of the people living in highly drought-prone areas;
2) To learn about water usage and management practices of the community
3) To examine impacts and threats of drought on their livelihood and cultural practices;
4) To gain better understanding of the local and traditional ways of preparing, responding to and recovering from drought;
5) To determine factors that support or prohibit drought management and water conservation in the community; and
6) To investigate the socioeconomic and cultural impacts of planned adaptation options.

Step 3: Preparing the assessment

Once the socioeconomic assessment is placed in the relevant local climate context and the assessment objectives are clearly defined, a number of preparatory steps must be undertaken.

Purpose: To make sure that the implementation of the assessment goes smoothly. Good preparation will increase the likelihood of the assessment successfully generating needed information, will increase the likelihood that the local stakeholders will be cooperative and interested in the results, and will ensure that the information can be used effectively for climate adaptation planning and project implementation.

Participants: PACC team

Materials: Paper and something to write with

Time: depending on the objectives of the assessment , number of people involved and skill levels.

Activities: Main activities in this step include 1) selecting indicators, 2) choosing data collecting methods and developing data collecting tools, and 3) preparing for field data collection. These activities are discussed in more details as follows.

3.1. Selecting indicators

An indicator is a unit of information measured over time that documents changes in a specific condition. A range of indicators should be used to determine how and why changes have occurred. Within a single indicator, there are often different variables that can be measured. A list of possible indicators and variables can be found in Appendix 3a at the end of this Module, and the PACC team should always keep the assessment objectives and the local context in mind as they choose indicators and variables. A minimum number of indicators to meet the objectives is the best in order to save time and lower costs. Well selected indicators will ensure that the data collection process will be focused, and that the assessment will ultimately generate information that is needed and helpful for the PACC project.

In Appendix 3a, the indicators are grouped into a number of different sets. Note that some indicators may fit more than one indicator category and the PACC team is encouraged to use their judgment of what is most appropriate for their site and assessment objectives. The following section will give you an overview of the indicator sets and examples of related questions you might be able to ask in your own assessment. A list of indictors can be found in Appendix 3a at the end of this module. When necessary,

the PACC team should not hesitate to develop indicators or variables that are useful but not included in this guideline.

Indicator Set 1: Community demographics

Demographic data can be considered a crucial part of a socioeconomic assessment. Demographic characteristics of the population in the community provide important baseline information and serve as a reference point for future changes of the population. The demographic indicators include total population numbers, density and number of people in risk zones, portions of population with access to life support infrastructure and services (food, drinking water, shelter, electricity, health care, tools for subsistence, transportation, telecommunication, etc.), vulnerable demographic groups, migration, sex, age, education, literacy, ethnicity, religion, language, occupation, income/material wealth and health. In this guideline, the demographic profiles of a community also include the numbers and profiles of visitors at a site where visitors represent a relatively large temporary population.

Table 3.1: Example of key informant interview questions for demographic indicators

- What percent of the people in the study area are currently age:
  0-18_____; 19-30_____; 31-50_____; over 50_____
- What percentage of the population is male ? _____; female?_____
- What is the average number of year of school education for people over 18 years old in the study area? _____
- What percentage of the population can read and write? _____
- What is the percent of each major ethnic group (clan) in the study area?
  (write-in)_____; (write-in)_____; (write-in)_____
- What is the percent of each major religious group in the study area?
  (write-in)_____; (write-in)_____; (write-in)_____
- What is the percent of each major language spoken in the study area?
  (write-in)_____; (write-in)_____; (write-in)_____
- What is the percent of people involved in each main types of occupation?
  (write-in)_____; (write-in)_____; (write-in)_____

Adapted from: Bunce and Pomeroy. 2003. Socioeconomic Monitoring Guidelines for Coastal Managers in Southeast Asia.

Table 3.2: Example of key informant interview for vulnerable demographic groups

Who are the members of the community most affected by a climate impact (e.g. drought, flooding, storms)? (Please check all that apply.)

___ Elderly ___ Youth ___ Females ___ Males
___ Poor ___ Indigenous Community ___Immigrants ___Non-Native Speakers
___ Fishers ___ Farmers ___Tourism operators
___ People living in (write particular areas)_____
___Others (please specify_____)

What are reasons for these particular groups to be chosen as the most vulnerable?

_____

_____

_____

_____

Table 3.3: Example of household questionnaire question for indicator on lifelines

Does your household have the following?

Lifelines	Yes or no	
1. back-up for electricity		If yes, what is it?
2. back-up for tap water		If yes, what is it?
3. tools to catch or grow your foods		If yes, what are they?
4. boat/canoe		xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
5. vehicle		xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
6. landline telephone		xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
7. mobile phone		xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
8. computer		xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
9. dial up internet access		xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
10. wireless internet access		xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
11. first aid kits		xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
12. access to shelter		xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
13. access to health care		xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

Indicator Set 2: Community assets

Several factors play important roles in determining the extent of the vulnerability of the community to different climate hazards as well as their adaptive capacity. One factor is the existing capital and assets that communities already possess. In this guideline, different types of community assets are taken into consideration, including: local and traditional knowledge of climate hazards and coping mechanisms; climate information sources and media; social networks and associations; community services (health care, educational institutions, banking services, utilities, waste disposal, communications and media); ecological assets, physical capital (e.g. built infrastructure, tools, land); financial capital (savings, credits, loans); and availability of technology.

Table 3.4 Example of key informant interview questions for indicators related to community assets. (Note that the wording may need to be adjusted to make it understandable and locally relevant to the interviewees.)

- What important local and traditional knowledge about the environment that has helped the community cope with climate disasters (e.g. drought, flood, storm surge)? Traditionally, how did the community deal with the climate disaster? Do people still do so today? How well does it work today?

- How do people in this community receive climate information/news?
- Could you identify the types of social networks and local organizations in preparing for, responding to and recovering from climate disasters (e.g. drought, flood, storm surge)?
- What types of community services (such as health care, educational institutions, utilities, waste disposal, transportation, emergency response) are available in this community? Are they accessible to all? Are people satisfied with the services?
- How productive is the local natural environment [or specify the type of environment such as coral reefs, forests, land]? How long did it take for …… [a type of local ecosystem, such as reefs, mangrove forests, etc] to bounce back after a ……. [a type of relevant climate disaster, such as tropical storm, drought, etc] in the past? How well did it recover?
- What types of built infrastructure (e.g. for water, for coastline, access road, shelter) do we have in this community? Do all community members have access to them? How important are they when there is a disaster?
- Are they any financial services in this community? What do people do when they need money to start us a new way of making a living?
- What is considered modern technology in this village? How is it used? Who uses it? Is it helpful for disaster management?

Indicator Set 3: Community economy and livelihood

Changing climate has impacts on many resources that are crucial to a community's means of living and to activities involving the production, distribution and consumption of goods and services. This set of indicators helps us better understand the community's livelihood and household economy, and how the impacts of climate change and variability could affect them.

The indicators include: types and sources of food and drinking water; economic sustainability and diversification; opportunities for alternative and supplementary livelihood; dependency on local resources; gendered roles; perceptions of resource conditions and impacts of climate change and/or variability on main economic sectors; climate and non-climate related threat to the economy; factors that hinder or promote changes in their economic and livelihood development and recovery, rights and rules on resource ownership, use and access. The section also explores the impacts of adaptation intervention on local economy and livelihood.

Table3.5: Example of household survey questions on livelihood activities

What are the main livelihood sources for your household for both cash income generation and household consumption/use?) *{Check all that apply}*

Sources of household livelihood Check all that applies	Household cash income	Household use & consumption
1) Salary from employment		
2) Fishing and harvesting of marine resources		
3) Farming		
4) Hunting edible land animals		
5) Livestock		
6) Remittance (money received from relatives that are not in		

household but not including customary contributions)		
7) Handicrafts		
8) Private business owners, including stores		[redacted]
9) Pension/social security		[redacted]
10) Others, please specify)_____		

Source: Household survey questionnaire from Palau International Coral Reef Center's Ebiil MPA socioeconomic study in Palau, 2010.

What would you consider to be a viable alternative or supplementary way to make a living for your household?

_____

What livelihood skills and knowledge do the elder members in your household pass down to the younger?

_____

_____

Table 3.6: Two examples of how to ask questions for the indicator related to factors that support or inhibit changes in livelihood and the local economy.

Example 1: questions in a key informant interview with fishers:
Could you tell me what types of things help you to sustain your livelihood as a fisher?

_____
_____
_____

What would make you change your livelihood to something else?

_____
_____
_____

What make it difficult for you to change to do something else?

_____
_____
_____

Example 2: in a small group survey targeted at fishers:
Do you strongly agree (5), agree (4), neither agree nor disagree (3), disagree (2), or strongly disagree (1) with the following statements.

_____ I like being a fisher.
_____ I have opportunity in learning new occupation.
_____ I am flexible in changing occupations.
_____ I can access to resources for developing new livelihood (including education, skill training, technology, and capital).
_____ People will think of me negatively if I abandon fishing and do something else.
_____ There are groups and institutions that support other types of jobs.

_____ Climate change is negatively affecting my fishing.
_____ There are better market opportunities for other products that do not come from fishing.
_____ The State has a plan to subsidize the kinds of fish I catch.
_____ I have enough information on how climate affects fishery in this area.

Indicator Set 4: Socio-cultural aspects

Impacts of climate change and variability affect a community socially as well as culturally since they affect the resource bases for many socio-cultural activities and meanings. At the same time, socio-cultural conditions also have impacts on how vulnerable and capable the community is in coping with changing climate. This section examines climate-related beliefs and attitudes; traditional and local value and practices that are sensitive to changing climate; different roles between men and women in their household and community activities; social structure, groups and organizations; social support during climate disasters; community resilience; social conflict that could inhibit adaptation work, and socio-cultural feasibility of climate adaptation projects.

Table: 3.7: Example of statements in household survey on belief and attitudes towards climate change, climate risks impacts, and adaptation is presented as follows:

Do you strongly agree (5), agree (4), neither agree nor disagree (3), disagree (2) or strongly disagree (1) with the following statements.

_____ Climate change is real and already underway.
_____ Climate change does not have impacts on the ocean and marine life.
_____ Climate change will not affect my community.
_____ In the past my household was able to successfully cope with impacts of extreme climate events.
_____ Our household economics is particularly sensitive to climate conditions.
_____ Our household is prepared to respond to a natural disaster.
_____ Our household has the capacity to adapt to climate change impacts.3
_____ I have sufficient information about the impacts of global warming and climate change.
_____ I know what to do to reduce human impacts on climate change.
_____ I want to take action to help reduce climate change impacts.
_____ I would switch to alternative energy sources (such as solar, wind, biomass, or other renewable sources) even when I have to pay more for it.
_____ Our community has the capacity to help one another during disaster.
_____ Addressing climate change should be one of the priorities of our government.

Source: Wongbusarakum. 2010. Climate related Socioeconomic Study in American Samoa

Indicator Set 5: Natural resource governance and disaster management

Natural resource governance and climate-related disaster management are important supporters of climate change mitigation and adaptation as they help sustain environmental services and livelihoods, and reduce hazard risks. Resource governance is the way in which natural resource users are managed by sets of rules, social norms and shared strategies. It can include formal and informal rights and rules related to resource uses, access and ownership; laws and legislations that support these rights and

define how resources can and cannot be used; governing institutions; and enforcement mechanisms. Indicators are included to understand the local decision making process and local participation in managing climate risks; gendered roles in disaster management; the capability of the community to reorganize after climate disaster without outside assistance; access to outside recovery assistance; and factors that help or inhibit rehabilitation.

Table 3.8: Example of key informants' questionnaire related to natural resource governance and disaster management

- What types of traditional, local and formal coastal zone management (water management, or land use planning) are there at the site? How do they contribute to local disaster management?
- How are disasters managed at the site? Who is involved?
- How effective is the current way of disaster management?
- Is the formal way of disaster management compatible with local values and practices?
- What are some of the specific roles and responsibilities carried by men and women in disaster preparedness, response, and recovery efforts?
- What are some factors that help support drought (flood, cyclone) recovery?
- What are some factors that inhibit drought (flood, cyclone) recovery?
- What types and sources of outside assistance are available for climate event recovery?

3.2 Choosing data collecting methods and developing data collecting tools

Data collecting methods can be as simple as a brief summary of expert or key informant opinions, or a time consuming household census. Or they can be as complex as an integrated, multi-disciplinary research program that includes different methods such as desk-top review of secondary data combined with field surveys and interviews. Suggested field data collection methods in these guidelines[1] include secondary data, key informant interview, facilitated focus group discussion, observation, survey of households and small groups, and participatory mapping. The decision of which data collecting methods to use depends on several factors, including the chosen indicators, type, quality and details of data the PACC team would like to have for their decision making, and the available resources (including time, budget, and skills of people in the team). The following checklist provides some common criteria and simple guidance of what methods to use, taking into consideration your PACC team's resources and local situation and community. Using the following criteria, the PACC project team should discuss among themselves and consult with local stakeholders to determine which data collecting criteria they can satisfy and to decide on the most feasible method for collecting data that will help meet the assessment objectives. In case of missing skills, the team should decide whether outside specialists may be contracted, or whether training is feasible.

[1] For detailed information of field data collection methods, see Bunce et al. 2000. Socioeconomic Manual for Coral Reef Management, Chapter 3: Field Data Collection (pages 92-145).

Table 3.9: Criteria for using data collecting methods

Criteria	**Suggested Data Collecting Methods** **Secondary data = S** **Key informant interview = KI** **Focus groups = FG** **Observation = O** **Household survey = HH** **Survey of small groups = SG** **Participatory mapping = M**						
	S	***KI***	***FG***	***O***	***HH***	***SG***	***M***
Time (from defining objectives to interpreting data)							
- less than 2 months	X	X	X	X (or event in that period)	maybe*	X	X
- 2-4 months	X			X	maybe*	X	
- over 4 months	maybe			X	X*		
Cost							
- low	X	X	X	X			X
- medium		X	X		X	X	
- high					X		
Skills							
Data Collecting Skills							
- Ability to compile and summarize secondary data	X						
- Sampling design skills					X	X	
- Survey questionnaire developing skills (most closed ended questions)					X	X	
- Interviewing skills (following questions in questionnaire and recording answers		X	X		X	X	
- Interviewing skills (able to expand from semi-structured questionnaires, able to probe		X	X				
- Taking notes and summarizing interviews or recording observations	X	X	X	X	X	X	X
- Facilitating skills in discussion		X	X				X
- Mapping skills							X
- Display information visually			X				X
Data Analysis Skills							
- Data coding					X	X	
- Data entry					X	X	
- Quantitative data analysis	X				X	X	
- Qualitative data analysis	X	X	X	X			
- Using software program to analyze quantitative data (e.g. Excel, SPSS, SAS, etc)					X	X	
- Spatial Analysis (e.g. GIS)							X

*depending on the number of households in the survey and PACC team resources

A brief summary of each method is described below.

Secondary data (S). Secondary data are those that have already been collected, analyzed, written or published in various forms. These may include

- governmental census and other statistical data,
- reports of previous research, study and projects,
- theses, academic papers and journal articles
- community, provincial, national development plans
- maps, aerial photographs and satellite images
- historical documents and accounts
- websites

The assessment of secondary data involves compiling, evaluating and reviewing the data related to the site, community and climate impacts. It can provide baseline information and needed data, identify gaps in existing knowledge in preparation for field data collection, provide supporting documentation for field data collection, and speed up the collecting process. It also provides a basis for cross-checking information collected during the field data collection.

Key Informant Interview (KI). Key informants are individuals who, because of their experience and/or specialized knowledge can provide insight into and information on particular subject areas, and in relation to the larger population and/or a particular group. For example, a community leader can provide insight into the entire community and a senior fisherman can provide insight into fishermen's activities and changes in fishery resources over the years. Because it is often not possible to speak with everyone in the study area, these individuals with experience and knowledge are often sought out for interview. For example, the team does not need to interview community members to determine whether there is a disaster management plan; instead, the team can ask disaster mitigation officers. When the team decides who to choose for the KI interview, be realistic about what the key informants know and their biases. Good key informants not only are knowledgeable in the subject areas of your interest, but also are willing to share and able to communicate the information. In some situations, key informants may not provide same information and it is the responsibility of the team to verify the contradicting information with other informants to make sure that the information is accurate. In other situations, key informants may not get along with one another and it is important for the PACC project team to not be sided with anyone or create an impression that the team is more connected to particular informants. In the role of a researcher, it is necessary to stay neutral and make sure that your relationship with one person will not decrease possibility of receiving useful information from another.

The semi-structured interview format is often used as it allows the interviewer to deeply explore certain aspects of the topics and allows the informants more freedom to express and present information in their preferred context. This format makes use of open-ended phrasing in questions that require key informants to discuss the response and allows follow-up questions for clarification. Generally, several key informants are interviewed to gain a breadth of perspective. A rule of thumb to determine when enough key informants have been interviewed regarding a particular variable is when the answers to the same questions become repetitive. For example, if the team is asking about the types of alternative livelihood activities in the study area and the informants are all noting the same activities with no new activities coming up, then the team can stop interviewing about this variable.

Tips on designing questions for key informant interview guides

- *For each interview, record name of interviewer; name, sex and role (or status) of interviewee; and date of the interview.*
- *Phrase questions so that they are open-ended, not closed:*
  ~~Do households store rain water to cope with a drought event~~?
  How do household cope with a drought event?
- *Avoid leading questions:*
  ~~What kind of problems are there between coastal managers and users of the marine resources?~~
  What kind of interactions are there between coastal managers and fishers?
- *Use unambiguous questions:*
  ~~Do you go fishing very often?~~ How often do you go fishing?
- *Use indirect questions for sensitive issues such as income or illegal activities:*
  ~~Did you village chief misuse disaster recovery funds?~~
  Do you know if disaster recovery funds have been misused?
- *Use the 6 questions words (what, who, when, where, how, why) as much as possible:*
- *Use questions that encourage informants to compare and contrast as a means of analysis:*
  To what extent seawall construction help mitigate impacts of coastal erosion in comparison with mangroves or Pandanus planting?

(Adapted from source: Bunce et. al. 2000. Socioeconomic Manual for Coral Reef Management. Townsville, Australia: Australian Institute of Marine Science. P. 99)

Survey. A survey involves questionnaires with highly structured, close-ended questions with limited answers (e.g. multiple choice, yes/no) resulting in quantitative data that can be analyzed statistically. The same questionnaires are used to collect data from a population or a sample. Once the survey questionnaires are developed, they should be pre-tested among small groups of people as a way to receive input for drafting the final questionnaires which should be clear and useful for gathering requested information. Surveys are important for understanding individuals' and households' perspectives. In SEAPACC, household survey (HH) is often suggested as a way to collect data related to perception of the people or to give rating to certain aspects of an issue. The household survey is structured with the intention that the respondent, if possible a male or female household leader, speaks on behalf of his or her household (not of himself or herself). For example, if the team wants to understand what people think about the severity of drought or tropical storm impacts on household livelihoods, then it needs to ask a spectrum of households with different socioeconomic status to determine the level. The results, therefore, will be at the household level. In certain cases, the PACC team may be interested in conducting surveys with a small and particular group (SG survey), for example, certain occupational or demographic groups. In such cases, they can modify the questions to ask about the perspective of the people in that group. For example, the target group could be small-scale and subsistence farmers and the questions may be tailored to gather information on drought impacts on their farming occupation. To obtain more depth on some of the variables, it may be useful to include some open-ended, semi-structured questions (keeping in mind that these questions may not be able to be analyzed statistically).

Tips on Designing Household Survey Questionnaires

- *Include name of interviewer, name of household respondent, role (e.g. father, mother, grandfather) in the household and date of the interview.*
- *Use primarily closed-ended questions, including true/false answers, multiple-choice answers, statements for rating*
- *Use unambiguous wording; clear and simple syntax*
- *Avoid leading questions*
  ~~*Women are the most vulnerable group when it come to tropical storms, aren't they?*~~
- *Which group of people do you consider highly vulnerable to tropical storms?*
- *Begin with simple, non-threatening questions that are easy to answer to build trust and confidence.*
- *Arrange questions in a logical order, e.g. by subject, chronological*
- *Put sensitive questions last, e.g. how much money do you make in a month?*
- *Use local vocabulary, including local taxonomies and vernacular terms*
- *Use clear and consistent scale* (e.g., strongly disagree; disagree; neither agree nor disagree; agree; strongly agree)
- *If working in two or more languages or dialects, translate and back-translate from one language to the other until all differences are resolved.*
- *Always pre-test the questionnaire and revise it*

(Adapted from source: Bunce et al. 2000. Socioeconomic Manual for Coral Reef Management. Townsville, Australia: Australian Institute of Marine Science. P. 112.)

Facilitated Focus Group Discussion (FG). Focus group discussions are a type of semi-structured interview involving a selected group of informants (usually 4 to 10) who share a common background or knowledge (e.g. gendered issues, resource use patterns). The facilitated discussions are based on a set of open-ended questions or discussion points, and generate qualitative group level (rather than individual perspective) information. This flexible method allows the facilitator to probe for answers, following up on the original questions and pursuing new lines of questions during the interview. The flexibility and openness of this method encourage two-way interaction, including exchanges of information between the facilitator and the informants.

Observation (O). Observations are qualitative descriptions of what the team member sees, and are obtained by attentively watching and recording. Observation is a useful method because the team learns first hand about complex activities that are usually learned non-verbally by observing and doing, for example local and traditional practices (such as customs and dynamics in a village meeting), or methods of harvesting and producing food (e.g. how men and women harvest marine life, how fresh water is gathered, stored and distributed). Observations are conducted throughout the field data collection, although observations at the start of data collection are particularly useful for preparing interview and survey questions. Opportunities for observation often arise during semi-structured interviews and other time spent in the field as well.

Participatory mapping (M) is a powerful visualization technique (involving stakeholder participation and input, and facilitated discussions aimed at generating information that is visually displayed and can be used for decision-making and planning. It is a facilitated process that actively engages stakeholders in the assessment process. A facilitator works with a small group of people with local spatial knowledge to identify and locate in map form the distribution of resources and people, biophysical features, community activities, and current and predicted climate-related risk areas. Details of levels can vary

depending on the purpose of the mapping process, the data input, and the skills of the team involved. Examples include resource use maps, climate-related impact maps, and historical maps.

3.3 Preparing for field data collection

To conduct the assessment effectively and efficiently, preparation prior to the field data collection is needed. Normally an assessment planning should follow a reconnaissance visit of the site. However, assuming that the PACC project team has been working at the project site with the community, this step is bypassed. The rest of the preparation involves the following steps:

Assemble field assessment team. An ideal socioeconomic assessment team combines PACC project staff with local community members or stakeholder group representatives. A team leader is responsible for planning the assessment, monitoring data collection and analysis, and presenting results. In the event that there are locally missing skills, outside specialists may be recruited or training may be needed. If there is a team of interviewers, provide briefing and training before the interview begins. Make sure that everyone is trained with similar techniques (e.g. in probing or in coding) and will act as a team.

Determine who to interview, who to survey, and sample sizes[2]. The selection of respondents will depend on the indicators guided by a set of assessment objectives. For example, if the goal is to understand fishing, then a sample of fishermen would be surveyed. If the objective is to explore traditional and local knowledge on environment, climate and natural disaster coping mechanisms, then the PACC project team member should interview key knowledge holders, community leaders, senior members of the community, and people who are directly involved in disaster management. If the objective is to examine local beliefs and attitudes towards climate change, climate risks, impacts, and adaptation, a sample of households would be surveyed.

When a survey is conducted, the team will need to determine the size of the sample. In small communities with less than 50 households, when a household survey is conducted, it may be feasible to do a full census of households. However, if the community is large and the PACC team has constraints in terms of resources, a representative sample is usually drawn by a random sampling method to ensure that every possible sample has an equal and independent chance of being selected from the population and that the quantitative data are statistically representative of the whole group.

On the contrary, the key informants for interviews and the participants in focus groups are selected purposefully for their knowledge in the subject areas. They are not taken randomly from a clearly defined group because the information they can provide is not representative of the whole group (i.e., it is information that is not statistically representative). This produces qualitative information that has greater details.

Develop an assessment work plan
The PACC project team should set a timetable and allocate the funds and other resources needed. Basic considerations include when the assessment should take place and for how long (target dates), how

[2] For more information on sampling and statistical significance see Wongbusarakum and Pomeroy. 2008. SEM-Pasifika: Socioeconomic Monitoring Guidelines for Coastal Managers in Pacific Island Countries, Section 4.4: Determining Who to Interview and Sample Sizes (pages 15-19), and Bunce et al. 2000. Socioeconomic Manual for Coral Reef Management, Appendix B: Sampling Approaches (pages 229-234).

much it will cost, and who will be responsible for what tasks, including field teams, training, data collecting, data analysis, result communication, and report writing.

Step 4: Collecting data

Purposes: To gather field data

Participants: SEA-PACC team members

Materials: Data collecting tools, such as survey questionnaires and list of interview questions, pens, recorders for interviews.

Time: varies depending on the data collecting methods and the number of data collecting staff. This could range from a one day focus group discussion to several weeks of household survey.

Activities:
Field data will be collected and the ways they are collected are determined by the methods chosen in Step 3.2.

Guiding principles that should be followed throughout the field data collection[3]

- *Respect the stakeholders and communities. Follow local customs and protocols. Ensure that the time and conditions are comfortable for the people you are collecting data from.*
- *Inform the people you are collecting data from the purpose of the assessment. Avoid making promise the PACC project team cannot keep.*
- *Develop an interactive, two-way communication between the team and the stakeholders.*
- *Use local language and vernacular terms.*
- *Be neutral but pleasant. Be cautious of what and how you are communicating.*
- *Be sensitive and flexible. Recognize limitations of yourself, people you are collecting data from and the situation.*
- *Recognize possible biases, address and minimize them timely. These biases could be related to perceptions of individual informants and assessment team members, gender preference, ease of access to locations of a site, comfort with certain types of informants, language preference, and disciplinary/academic background.*
- *Record data accurately*
- *Cross-check data.*
- *Create opportunities to reflect on learning.*
- *Recognize when to stop by remembering that an assessment will be judged on the relevance of findings, not on the amount of information.*

[3] For details, see Bunce et al. 2000 Socioeconomic Manual for Coral Reef Management, Chapter 3: Field Data Collection (pages 92-145).

Guidelines for Different Data Collecting Methods[4]

Key Informant Interviews

- ***Prepare an agenda and a list of topics. Structure questions in a way that it make effective use of time.***
- ***Respect local cultural practices.***
- ***Arrange for a time and place for the interview where the key informant will feel at ease.***
- ***Introduce yourself, and the background and purpose of the interview. Share with informant how the results will be used.***
- ***Present the general topics or themes to be covered.***
- ***Start with simple questions that require description.***
- ***Move on to more complex questions (saving controversial questions until the end).***
- ***Prompt to make sure information is as complete as possible--use what/anything else?***
- ***Use what, when, why, how, who?***
- ***Make sure information is about the community as a whole, not about individual perspectives.***
- ***Be good listeners, feedback and confirm information regularly, ask for clarification whenever needed.***
- ***Take notes and write up the interview as soon as possible when it is still fresh. If a recorder is needed, ask permission of use from the interviewee first.***
- ***Express thanks.***

Focus Group Discussions

- ***Have a skilled facilitator and ensure that the person has basic knowledge of the local situation and topics of discussion***
- ***Use the same guidelines as for key informant interviews, plus:***
- ***Make sure that everyone speaks***
- ***Be supportive and non-judgmental (no right or wrong things to say)***
- ***Have a note taker and show main points to the group to get their confirmation. Try to minimize differences***

Household Survey

- ***Introduce yourself and the objective of the survey***
- ***Answer any questions of respondent***
- ***Make sure each member of the survey team follows the questionnaire as written without interpreting the questions with their own terms or adding new questions.***
- ***Be neutral but sensitive in the way you ask questions. Make clear that there is no right or wrong answers***

[4] The guidelines for key informant interviews, focus group discussion, and household survey are adapted from Wongbusarakum and Pomeroy. 2008. Socioeconomic Monitoring Guidelines for Coastal Managers in Pacific Island Countries to fit the PACC purposes.

- ***Ensure all questions are answered***
- ***Record responses on questionnaire***
- ***Listen, if there are follow-up responses to questions make notes on side of questionnaire***
- ***Upon completion, go outside and review questionnaire to check all responses***
- ***Write important comments in a notebook and share them with team***

Participatory Mapping

- ***Conduct after rapport with the community has been established***
- ***Have a good facilitator with experience in participatory mapping. Ensure that the person has basic knowledge of the local situation and spatial features***
- ***Have PACC team members be co-facilitators or note takers***
- ***Have a good topographic map of the site as reference and materials for the mapping exercises, including large paper, color pencils, markers, adhesive tapes, post-its, etc.***
- ***Have a checklist of features to be mapped and baseline information of the community***
- ***Start with prominent geographic features and reference points***
- ***Move on with features from the checklist***
- ***Engage all participants to contribute***
- ***Use colors, legends, and labels to simplify the process and the recording***
- ***Allow other community members to validate the maps***

Step 5: Analyzing and Interpreting data

Purposes: To generate useful information based on collected data

Participants: PACC team members or others who have data analysis skills. Depending on the type of data, required skills may include:

- data coding, data entering, use of software packages for quantitative data analysis and statistical analysis of surveys and observations that generate quantitative data;
- qualitative data analysis of interviews, group discussions and observations;
- spatial analysis and GIS for mapping.

Materials: Required materials also depend on the type of data and available resources. To do simple descriptive data analysis, the PACC team may be able to do regular counting, additions, or calculate percentages with a calculator, or pen and paper. With available skills and statistical software programs, they may be able to use a computer with a data analysis software to do more advanced analysis that show relationships of different factors at the same time.

Time: depending on the skill level, types of data analysis tools, and number of people involved.

Activities: Analyse and interpret data

It is important to identify the ways that the collected (raw) data can be analysed before gathering the data because this will determine what will be done with the data and what is

required to best make use of them. Data analysis can begin in the field and can involve local stakeholders. This is particularly applicable for qualitative data where interview results may be discussed, and key results and lessons identified in a workshop format among team members. The primary steps in the field analysis workshops include reviewing notes and interview data.

For a survey, the team may wish to postpone data analysis until the survey is completed since it involves coding and entering of data into electronic datasets. Quantitative data analysis is often facilitated by use of a software program. Statisticians and data analysts are usually available at the national level, and often support for software program use, and analysis can be secured from Statistical Bureaus or GIS land use planning.

There are several critical steps the team should conduct together for the data analysis[5]:

Compile all the data by gathering all the information from different methods, including secondary sources, key informant interviews, household surveys, focus group discussion, observation, and others. If you use a mix of data collecting methods, you will have a combination of qualitative (descriptive) and quantitative (numerical) data.

Prepare the data. For survey quantitative data, this involves developing coding systems to assign numeric equivalents to each question response, coding raw data, setting up a worksheet for data entry, and entering data. An EXCEL spreadsheet is appropriate for entering coded data and allows for easy transfer of electronic data sets to other types of data analysis programs.

Analyse the data. Quantitative data can be entered and analyzed by a software program. The choice of a program should depend on the availability and user skills in relation to various software programs. Some of the data analysis and storing methods include:

- Hard copy paper surveys – It is possible to develop and use good data, even if there are no available computers. Questions can be hand-tabulated to show quantities. Calculators can be used to sum up numbers and find out percentages. This method is more time-consuming, but can yield good quality information for integration into reports.

- Excel program[6] – This software comes with Microsoft Office and is the most commonly used spreadsheet for PCs . Excel is appropriate for simple, descriptive statistics, including frequency, averages, ranges, and percentages. It also allows for relatively easy creation of different types of charts that show the results of the analysis.

- SAS/SPSS/SURVEYPRO/other statistical analysis software – these software packages can manage large quantitative data sets, and are usually more appropriate for large-scale planning efforts and research. These programs enable analyses to show relationships of data and correlations among data sets.

[5] For more details on data management and analysis, see Chapter 5 of the Learning Framework of the Locally Marine Managed Area (LMMA) Network at http://www.lmmanetwork.org/pdfs/LearningFramework.pdf.
[6] There are several guidelines of data analysis using Excel. One of the examples is from National Research Center at http://www.n-r-c.com/excelhandbook.pdf.

- Geographic Information System (GIS) – a tool for integrating spatial data that allows you to look at layers of different sets of data at the same time to see intersections of infrastructure, environment, demographic data, and community profiles. Aerial imagery can also be added. This allows you to look at land use, coastal zones, environmental protection, and future scenarios for planning.

The collected data are transferred to the analysis sheets *or* a summary of findings are written. A couple of analysis sheets are presented below:

Table 3-10: Example of qualitative data analysis sheet for gender roles and responsibilities

Activities	**Conducted by**		**Explanation *(why are activities carried out by ONLY males or females?)***
	Women	**Men**	
Livelihood and economic activities			
Pelagic fishing			
Gathering at low tide			
Post-catch processing, e.g. clearing, drying, salting			
Farming			
Selling things at market			
Household activities			
Food preparation			
Water gathering			
Disaster management activities			
Roof construction/ secured tie-downs			
Food preservation			

Adapted from: Wongbusarakum and Pomeroy. SEM-Pasifika. 2009, p.65.

Use the above table to summarize the information from the key informants and/or focus groups. List activities primarily conducted by women and men. A list of reasons as to why activities are gender-specific should be listed.

Table 3-11: Example of quantitative data analysis sheet for belief and attitudes towards climate change, climate risks impacts, and adaptation

Belief and attitude statements	Percent responses				
	1 = strongly disagree	2 = disagree	3 = neither	4 = agree	5 = strongly agree
Climate change is real and already underway.					
Climate change does not have impacts on the ocean and marine life.					
Climate change will not affect my community.					
In the past my household was able to successfully cope with impacts of extreme climate events.					
Our household economics is particularly sensitive to climate					

conditions.					
Our household is prepared to respond to a natural disaster.					
Our household has the capacity to adapt to climate change impacts					
I have sufficient information about the impacts of global warming and climate change.					
I know what to do to reduce human impacts on climate change.					
I want to take action to help reduce climate change impacts.					
I would switch to alternative energy sources (such as solar, wind, biomass, or other renewable sources) even when I have to pay more for it.					
Our community has the capacity to help one another during disaster.					
Addressing climate change should be one of the priorities of our government.					

Adapted from: Wongbusarakum. 2010. Climate related Socioeconomic Study in American Samoa

Synthesize the data from all the household interviews. For each question, calculate the percent of respondents for each level of agreement and note the percent in the above table. To determine their attitude and belief towards climate change, climate risks impacts, and adaptation, consider to what extent they agreed with the statements. The levels of agreement or disagreement may be combined to simplify the interpretation. For example, if 15% of respondents rate a statement as 'strongly agree' and 25% 'agree', then these could be combined to say, "40% of respondents agree with that statement. This may be easier to understand than listing the percentages for each category.

Interpret the data by systematically reviewing the results from the analysis sheets and summary findings of different methods to identify and organize information most relevant to the originally defined objectives of the socioeconomic assessment. Patterns and trends will emerge as the data are reviewed, allowing the team to identify key findings. Key findings refers to issues identified or lessons learnt by the team that are essential to the objectives of the assessment or are needed to understand community socioeconomic conditions, to explore socioeconomic impacts of climate change and variability, to assess socioeconomic vulnerability, and to explore community and household adaptive capacities. The results are then compiled to identify data that support the key findings. For example, there may be trends toward heavy dependency of local livelihoods (such as near shore fishery and farming) on climate-sensitive natural resources that are degraded; however, people do not seem to perceive the feasibility of alternative or new livelihoods. A key finding may be that there are a series of factors that inhibit community members to develop new livelihood alternatives. This highlights the need to remedy these factors and to strengthen factors that will support sustainable, diversified livelihoods.

Store the data

The team leader should make sure that both the raw and coded data are properly saved and stored for future use. By storing the data safely and making sure that they are protected from being damaged or lost, you will have baseline data that can be used for future analyses and enable evaluation of changes.

Validate the findings by discussing the key findings and lessons with stakeholders including other members of the community. This could be conducted in a form of a presentation featuring preliminary assessment results with time built in at the end to discuss the results and have an opportunity to ask and answer questions.

Step 6. Communicating socioeconomic assessment results

Purposes:
To create understanding of the importance of communicating assessment results
To provide brief information on communication planning and activities

Participants: PACC assessment team members

Materials: Depends on the communication formats. For example, for a report and other published documents, a computer with word processing program. For presentations with officers, the team could use a computer with the Powerpoint program to prepare the presentation slides, and would need a screen or blank wall, and a room that can be darkened and is large enough to accommodate the participants. For presentations with villagers, the team could prepare charts and a comfortable quiet venue to gather the participants and discuss the results.

Time: 2 hours to develop communication plan; a few days for report writing and presentation preparation, and 30 minutes for presenting the assessment results

Activities: Developing communication plan
Working on communication products, such as presentation and reports
Sharing assessment results

From the start of the assessment process, the team should keep in mind who will use the results and how (point 1.7 in Step 1: *Define Scope and Context of Socioeconomic Assessment*). Unless the results are communicated well, it would be difficult to make good use of the information received from the assessment in adaptation considerations. Communicating the results includes sharing the findings, seeking feedback, and discussing appropriate decisions and actions to utilize the results. For example, if the purpose of the socioeconomic monitoring is to understand possible impacts of planned adaptation activities on the people at the site, then information is sought to identify the potentially impacted groups of people how they might be impacted. These may include their demographic and socioeconomic characteristics; experience, knowledge and attitudes related to the impacts; the level of their dependency on impacted resources; their perception and expectation of the planned activities; and ways the activities could be formally and locally managed. Communicating findings will allow the PACC managers and other stakeholders to address the local situation and to be able to strategically plan and develop adaptation activities accordingly and appropriately.

A communications plan contains the following elements:

- Your communication objectives (what you expect the audience to do with the results and information you present to them).

- An audience analysis matrix identifyin[g] the main target audience of the socioeconomic assessment results and their roles (influence and interest) in adaptation planning and implementation. Basic profiles of the audience (such as their spoken language, level of education and literacy, and their occupation and positions) could be useful.
- A strategy for how and where results will be effectively delivered by identifying the main messages, which presentation formats will be used to communicate with different target audiences, the approach and style of delivery to be taken, place and time best for the delivery, language to be used and facilitating visual aids or documents, and existing outreach and educational opportunities.
- Select the priority messages summarizing the results of your socioeconomic assessment and the communication objectives to share with target audiences. A set of key messages with illustrative examples and stories that explain the results and focus the attention of the audiences.
- A timeline of when messages and presentation formats are to be released and delivered to target audiences. This timeline will depend on the type of formats and style in which results are delivered.
- Who will develop communication products and communicate the results? Is it someone in the PACC assessment team? In some cases the ideal presentation format may require assistance from communications specialists such as editors, graphic artists, publication designers, journalists and news agencies, community leaders, professional facilitators.

There are several ways to communicate the results. Some of these are listed as follows:

One-way communications:

- Written materials (reports, papers)
- Visual materials (posters, pictures)
- Oral presentations (in-person)
- Mass media: newspapers, magazines, radio, television, film
- Internet

Two-way communications:

- Group discussion (in-person)
- One-on-one discussion (in-person)
- Remote communications: telephone, video phone, web camera
- Internet: e-mailing and chatting

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MODULE 3 APPENDIX and WORKSHEETS

Appendix 3a: Suggested Indicators, data collecting methods and examples of information

Set 1: Community demographics

Community Demographic	Suggested data collecting methods	Examples of information	Of High Importance for Particular PACC Project Areas		
			Food	Coast	Water
Settlement and migration due to climate events	Secondary, KI (community leaders, elders)	Description of settlement and migration; migration rate in (estimated) %	X	X	X
	HH	# and % of household members who migrated out			
Population and households	Secondary, KI (community leaders)	# of population and households; distribution and density of population in hazard prone areas	X	X	X
Population without access to lifelines	KI (community leaders)	Estimated % of people/household without access to life support infrastructure and services (incl. electricity, potable water, tools for growing/catching foods, transportation, telecommunication, shelter, health care services)	X	X	X
	HH	# and % of households without access			
Vulnerable demographic groups	KI (community leaders) or focus groups	Description of their location, characteristics of the groups and reason for vulnerability	X	X	X
Sex	Secondary, KI (community leaders)	(Estimated) % of males/females			
	HH	# and % of males/females in households			
Age	Secondary, KI (community leaders)	(Estimated) % of age groups (0-18, 19-30, 31-50, over 50			
	HH	# and % of members in following age groups: 0-18, 19-30, 31-50, over 50			
Ethnicity/clan	Secondary, KI (community leaders)	(Estimated) % of people in different clans/ethnic groups			
	HH	# and % of clan/ethnicity of households			
Religion	Secondary, KI (community leaders)	(Estimated) % of people with different religions			
	HH	# and % of households with different religions			
Formal and informal education (Number of years of school education of adult over 18) and informal training	Secondary, KI (community leaders)	(Estimated) % of adults with different school levels; (Estimated) % of people with livelihood skills learned in the family or through experiences	X		
	HH	# and % of adult household members with different school levels and livelihood skills			
Literacy	Secondary, KI (community leaders)	(Estimated) % literate people in community			
	HH	# and % of literate household members			
Main Occupation	Secondary, KI (community leaders)	(Estimated) % of people with different main types of occupation	X		

	HH	# of members with different main types of occupation			
Language	Secondary, KI (community leaders)	(Estimated) % of people with different language spoken at home			
	HH	# of members speaking different languages			
Income/material wealth	Secondary, KI (community leaders)	(Estimated) % of people in different income/material wealth categories. If income not applicable, observed wealth through house materials and ownership of property and/or tools			
	HH	# and % of household with different cash income categories. If income not applicable, find out # and % of households with 1) not enough for bare necessities, 2) enough, 3) have more than needed/can save	**X**		
Main or common health issues	Secondary, KI (public health officers, community leaders, village healers)	Experienced and potential climate-related health issues/concerns (e.g. mal-nutrition, vector-borne diseases, hygiene-related and heat problems)	**X**		**X**
Number and profile of visitors	Secondary, KI (community leaders, tourism-operators)	# of visitors, their demographic characteristics and activities	**X**	**X**	**X**

Indicator Set 2: Community capital and assets

Community capital and assets	Suggested data collecting methods	Examples of information	Of High Importance for Particular PACC Project Areas		
			Food	Coast	Water
Traditional and local knowledge on environment, climate and natural disaster coping mechanisms	KI or FG (key knowledge holders)	Description of local environmental knowledge. Local knowledge on climate disasters and traditional coping mechanisms	**X**	**X**	**X**
Climate information sources and media	KI (community leaders)	List sources and media in community for climate information	**X**	**X**	**X**
	HH	Types of media and/or communication means households use			
Social networks and organizations in preparing for, respond to and recover from climate disasters	KI (community leaders, network and organizations coordi-nators/leaders)	List and description of social networks and organizations for climate disaster management	**X**		
	HH	Level of involvement in existing networks and organizations. Perceived effectiveness in managing climate disasters			
Community services	KI (community leaders, service providers), observation	List and description of community services, incl. (health care, educational institutions, utilities, waste disposal, transportation, emergency response)	**X**	**X**	**X**
	HH	Level of access. Perceived effectiveness in relation to climate disaster management			
Natural assets and ecosystems resilience	KI (regular resource users, community leaders)	Description of extent of productivity of the natural environment and ecosystem resilience after climate impacts in the past	**X**	**X**	**X**

Physical capital	KI (community leaders), observation	List and description of physical capital, incl. (built infrastructure, access roads, shelters, ownership of property and land)	**X**	**X**	**X**
	HH	Level of household use. Perceived effectiveness in relation to climate disaster management			
Financial capital	KI (community leaders)	Availability and % of people with access (savings, credits, loans, banking services disaster trust fund, community fund for disaster). Perceived effectiveness in relation to climate disaster management	**X**	**X**	**X**
	HH	Level of use. Perceived effectiveness in relation to climate disaster management			
Overall level of and access to modern technology and technical expertise	KI (community leaders)	List and description (e.g. early warning systems, climate information)	**X**	**X**	**X**
	HH	Level of household access			

Set 3 Indicators: Community Livelihood and Economy

Community Livelihood and Economy	**Suggested data collecting methods**	**Examples of information**	**Of High Importance for Particular PACC Project Areas**		
			Food	**Coast**	**Water**
Perceived climate impacts on supply of water for drinking and other types of use	KI (community leaders), FG with household leaders	Water sources and % people with access to regular and back-up water for different purposes. Climate impacts on these sources			**X**
	HH	Source of and access to regular and back-up water for different purposes of household use. Rating climate impacts on these sources			
Perceived climate impacts on food production and supply	KI (community leaders), FG with household leaders	Main local foods and sources. Climate impacts of the production and access	**X**		
	HH	Types and sources of main food consumed in HH. Rating climate impacts on these sources			
Economic sustainability and diversification	KI (community leaders, people knowledgeable in production and market)	Types of main livelihood activities for income generation and subsistence, goods and services. How diverse and environmentally sustainable they are. Monetary value and market condition.	**X**	**X**	**X**
	HH	Level of household engagement in different types of livelihood for both cash income generation and self consumption. Perceived sustainability			
Opportunity for supplementary and alternative livelihood activities	KI (community leaders, people knowledgeable in production and market)	Description of types of supplementary and alternative livelihood activities and their characteristics (e.g. seasonal vs. year-round temporary vs. sustainable, existing vs. opportunity)	**X**	**X**	**X**
	HH	List and rating of feasibility for supplementary and alternative livelihoods			

Livelihood dependency on resources vulnerable to climate events	KI (regular users of resources in question, household leaders)	Description of extent to which livelihoods are dependent on climate sensitive resources.	**X**	**X**	**X**
	HH	Level and type of household livelihood dependency on climate sensitive resources			
Perceived current condition of livelihood depending resources and their ability to recover after a climate disaster	KI (regular users of resources in question)	Description of resource condition and their resiliency to climate events	**X**	**X**	**X**
	HH	Rating of the perceived resource condition. Rating of post-climate disaster recovery level			
Perceived climate impacts in main local economic sectors (e.g. agriculture, coastal fishery, and tourism) and related goods and services	KI (community leaders), FG with experts from different economic sectors	List of main economic sectors. % people engaged in those sectors. Description of status of the sectors and vulnerabilities and threshold to climate impacts	**X**	**X**	**X**
	HH	Rating of household livelihood viability in these sectors with increase impacts			
Non-climate threats and opportunities for community livelihood and economy	KI (community leaders), FG with experts from differ-ent economic sectors	List and description of threats and opportunities	**X**	**X**	**X**
Factors that help or inhibit change in livelihood and local economy	KI (community leaders). Focus group with different socio-economic groups (ages, occupations, sexes, wealth status)	Description of factors	**X**	**X**	**X**
	SG	Rating agreement with statements related to factors supporting and inhibiting change in livelihood			
Gendered roles in livelihood and economic activities females	KI (male and female household leaders)	Description of specific gendered roles and responsibilities for livelihood and community economy	**X**	**X**	**X**
Formal and informal rights and rules on resource access, use and ownership	KI (community leaders, elders, natural resource managers)	Description of the rights and rules and links with livelihood support	**X**	**X**	**X**
	HH	Access and ownership of land, property and resources crucial for household livelihood			
Livelihood knowledge and skills	HH	Livelihood knowledge and skills possessed by household members and passed down inter-generationally	**X**	**X**	**X**
Adaptation intervention impacts on local livelihood and economy	KI (community leaders), FG with experts from different economic sectors	Description of experiences with expectation of impacts from the adaptation intervention	**X**	**X**	**X**
	HH	Rating of impacts on household economy			

Indicators Set 4: Socio-Cultural Aspects

Socio-Cultural Aspects	Suggested data collecting methods	Examples of information	Of High Importance for Particular PACC Project Areas		
			Food	Coast	Water
Belief, awareness and attitudes towards climate change, climate risks impacts, and adaptation	HH	Rating of agreement on different aspects related to climate change, its impact, and needs for adaptation	**X**	**X**	**X**
Traditional and local value and cultural practices related to climate sensitive resources and impacted areas and community	KI (community elders and leaders, local cultural practitioners)	Description of how climate affects traditional and local value, beliefs and cultural practices that involve impacted areas or resources.	**X**	**X**	**X**
	HH	Sense of home and attachment to impacted area			
Gendered roles in household and community activities	KI, FG (male and female household leaders)	Description of specific gendered roles and responsibilities in household and community activities	**X**	**X**	**X**
Social structure	KI (community leaders and elders, household leaders)	Kinship system. Intra- and inter-family relationship. Differences in social class. Community structure			
Social organization and institutions	KI (community leaders, group leaders)	Description of members and function of social group, organizations and institutions (e.g. church group, women group, youth group)			
	HH	Participation of household member in social organizations			
Social support to cope with climate disasters	KI (community and household leaders)	Types and nature of support within family and among community members during and after climate disasters	**X**	**X**	**X**
Community self reliance	KI (community, group and household leaders)	The extent to which community members can rely on one another to support themselves and successfully recover from climate disasters	**X**	**X**	**X**
Social conflicts that could inhibit climate adaptation effort	KI (community leaders, group leaders)	Types and nature of social conflicts and possible impacts on adaptation project	**X**	**X**	**X**
Socio-cultural feasibility of adaptation project	KI (community elders and leaders, group leaders, local cultural practitioners)	Extent of compatibility of adaptation project with local cultural values, belief and practices. Support from local leaders and social groups on adaptation project	**X**	**X**	**X**

Indicators Set 5: Resource governance and disaster management

Resource governance and disaster management	Suggested data collecting methods	Examples of information	Particularly Important for PACC Project Areas		
			Food	Coast	Water
Environmental governance or management systems and practices that support climate mitigation and adaptation	KI (local resource managers)	Traditional, local and formal environmental management and governance, incl. integrated water management, integrated coastal management, land-use planning	X	X	X
Climate-related disaster management systems and institutional support	KI (community leaders, disaster management officials/people engaged in disaster management	Involved governmental and non-governmental agencies and stakeholders in preparing, responding and recovering disaster events. Policies, plans and legislation supporting climate adaptation.	X	X	X
Stakeholder participation in decision making and managing climate risks	KI (disaster management officials, community leaders, senior community members, representative of local groups/organisation, NGO staff	List of stakeholder groups involved. Ways and levels of community involvement in decision making, planning, implementation and monitoring	X	X	X
Perceived effectiveness of current disaster management	FG (household leaders)	Extent to which the current management helps the community to prepare for, repond to and recover from disaster events. Compatibility of the management with local values and practices.	X	X	X
	HH	Rating of perceived effectiveness of current disaster management. Rating of perceived credibility and trust			
Gendered roles in disaster management	KI (household leaders, male and females)	Description of specific gendered roles and responsibilities in disaster preparedness, response and recovery efforts	X	X	X
Community capacity to recover without considerable outside assistance	KI (community leaders, disaster management officials/people engaged in disaster management, local group leaders)	Extent and description on threshold of how community copes with, recover from and adjust to the impacts. Description of extent of success of reorganization in previous events. Local norms and practices favorable for collective effort	X	X	X
	HH	Rate different aspects of community recovery without outside assistance			
Types of outside assistance for climate event recovery	KI (community leaders, disaster management officials/people engaged in disaster management)	Description of types and source of outside assistance			
Factors that help or inhibit post-disaster rehabilitation	KI, Focus group	List and description	X	X	X
Corruption	HH	Perception level of corruption in disaster management and results			

Worksheet 3.1: Prioritizing local climate hazards focused on in the socioeconomic assessment (The table can also be found in Step 1 of this Module)

Climate-related events	What types of the following climate events have you experienced in your lifetime **in your community**? (Check all that apply)	A: How would you rank the frequency of their occurrences? 3= high, 2 = medium, 1= low	B: How severely do you think your household has been impacted? 3 = high, 2 = medium, 1= low	C: How would you rate the difficulty of your community to recover from each climate event? 3 = high, 2 = medium, 1 = low	Adding all scores of column A, B and C to prioritize PACC team effort
Sea level rise					
Coastal erosion					
Salt water intrusion in garden					
Salt water intrusion in wells					
Drought					
Flood					
Tropical storm					
Storm surge					
Climate-related landslide					
High wave events					
Wildland fire					
Increase water surface temperature					
Coral bleaching					
Increase air temperature					
Other (specify _____)					

Worksheet 3.2: SEA-PACC Checklist

Steps and Activities	Lead person	Support Members	Aimed completion date	Check when done
Step 1: Define scope and context of socioeconomic assessment				
Step 2: Define socioeconomic assessment objectives				
Step 3: Preparing assessment				
3.1 Selecting indicators				
3.2 Choose data collecting methods				
Develop data collecting tools (interview questions, survey questionnaire)				
Pretest and revise interview questions and survey questionnaire				
Ensure that assessment addresses objectives will be met by the answers to the data collecting tools				
Make copies of final tools				
3.3 Preparing for field data collection				
Assemble field assessment team				
Determine who to interview and survey, and sample sizes				
Develop a detailed assessment work plan				
Brief and train data collecting team on data collection				
Arrange logistics for field data collection				
Make sure all necessary field supplies are available for the team				
Step 4: Collecting data				
Collect and assess secondary data				
Interview key informants				
Conduct surveys				
Facilitate focus groups				
Facilitate participatory mapping				
Observation				
Community mapping				
Step 5: Analysing and interpreting data				
Establish database, data coding system and plan for analysis				

Compile data				
Prepare data (code and enter quantitative data; summarize qualitative/descriptive data				
Analyse data, complete descriptive statistics and other analysis				
Interpret data				
Make sure raw and processed data and analysis are stored safely				
Validate findings with the community				
Step 6: Communicating socioeconomic assessment results				
Develop communication plan				
Select and develop communication means and products				
Share results				

Worksheet 3.3: Defining Assessment Objective, Selecting Indicators and Data Collecting Methods

Use the table below to list your assessment objectives, relevant indicators that could be used for assessment and possible data collecting methods.

Assessment Objectives	**Relevant Indicator** (use Appendix 3a for ideas)	**Possible Data collecting Methods**
1.		
2.		
3.		
4.		
5.		