



ADAPTING TO A CHANGING CLIMATE

Training Guide

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Conservation International is a non-profit organization founded in 1987 with program offices and partners in over 30 countries. CI's mission: "Building upon a strong foundation of science, partnership and field demonstration, CI empowers societies to responsibly and sustainably care for nature, our global biodiversity, for the well-being of humanity." In 2003, CI established the Indigenous and Traditional Peoples Program to strengthen our commitments to indigenous and traditional peoples and support their vital role in maintaining healthy ecosystems.

ADAPTING TO A CHANGING CLIMATE

Training Guide

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This document is part of a package of tools created to support the development of skilled local trainers on the basics of climate change adaptation. Other components include the Training of Trainers Course Manual and the Training Toolkit. A team of writers and designers contributed to the authorship of the products, supported by reviewers and editors, who are credited in the acknowledgment. The principal authors and contributors are:

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LIST OF ACRONYMS

AOSIS	Alliance of Small Island States
CBD	Convention on Biological Diversity
DRR	Disaster Risk Reduction
EbA	Ecosystem-based Adaptation
FPIC	Free, Prior, and Informed Consent
GEF	Global Environmental Facility
GHG	Greenhouse Gas
ILO	International Labour Organization
IPCC	Intergovernmental Panel on Climate Change
LDCs	Least Developed Countries
LDCF	Least Developed Countries Fund
LMMA	Locally Managed Marine Areas
MPA	Marine Protected Area
NAPA	National Adaptation Programme of Action
NAP	National Adaptation Plan
NGO	Non-governmental Organization
UNDRIP	United Nations Declaration on the Rights of Indigenous Peoples
UNFCCC	United Nations Framework Convention on Climate Change
UNPFII	United Nations Permanent Forum on Indigenous Issues

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CI staff feedback workshop, June 2012

A group of 20 CI staff members from 12 country programs and CI's US headquarters office provided technical advice on the content and structure of the training course, manual and toolkit materials during a product development workshop in June 2012. Based on their expertise in climate adaptation, science, policy and their experience working with local communities, this group provided valuable feedback and recommendations on the training materials and course content. In addition, Angela Andrade, Camila Donatti, Tiene Gunawan, Ricky Nunez, Candido Pastor, and Jeannicq Randrianarisoa provided the final technical review of the course and manual. The contributions of the CI staff technical team were essential to developing a global training tool on climate change adaptation that can be used by local trainers for local communities around the world.

The participants are listed below:*

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*Divisions or field offices listed represent staff affiliations at the time of the workshop, and may have changed since June 2012.

Fiji Field Pilot, February 2013

Following the technical review by CI staff, the Adapting to a Changing Climate Training of Trainers course and materials were piloted in Rakiraki, Fiji, in collaboration with CI's Fiji Program. Loraini Silvo, Marine Project Manager, organized and facilitated the pilot training with the support of CI-Fiji staff Vaseva Cerala, Operations Coordinator, and Nemani Vuniwaqa, Ra Province Field Officer.

A group of 25 local participants which included community representatives, provincial environmental officers, and NGO partners attended the training. These participants applied a wealth of experience from years of working with communities throughout Fiji, in areas that included environmental education, natural resource management, and community development to provide valuable feedback on the course. The group shared many of their own creative suggestions on how they could teach the material to communities in Fiji.

Their feedback was essential for completing the final version of this manual and toolkit, particularly their recommendations on the creation of thoughtful training activities that make new and complex topics understandable in the local context.

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FOREWORD

In a small island developing country where different communal lifestyles and values predominantly characterise a person's identity, we have learnt that it is critical for us to communicate, inform and educate our people about the subject of climate change in the manner they can easily relate to and understand.

We have also learnt that no matter how real climate change is, if we do not translate it well and involve our people and our communities in the formulation of respective national strategies and policies, it will be impossible to effectively address all its adverse impacts.

In this regard, the Ministry of Foreign Affairs and International Cooperation is elated to be part of the formulation of the Training of Trainers Course Manual and the Training Toolkit which addresses basic information on climate change. Importantly, we are happy to endorse the development of the Manual because it essentially represents the views of our people and our communities.

I must say that this is indeed a significant tool and having been mandated to coordinate Climate Change activities in Fiji, the Ministry of Foreign Affairs and International Cooperation recognises the invaluable efforts of Conservation International in linking and translating international and regional climate change instruments to such a user friendly manual and toolkit. I am certain that these documents are imperative in addressing the challenges that we currently face in informing and educating our communities about climate change.

I truly believe this toolkit is a timely and a very useful production.

Congratulations to the Conservation International team and all those who have worked tirelessly to see this project through.

Vinaka Vakalevu

Esala Nayasi

Ministry of Foreign Affairs and International Cooperation

Mr. Esala Nayasi is the Director of the Political and Treaties Division at the Fiji Ministry of Foreign Affairs and International Cooperation, which houses Fiji's Climate Change Unit.

As the climate continues to change, it is becoming increasingly important for communities everywhere to plan and take action for climate change adaptation. It is essential for local communities to have the necessary information to fully and effectively participate in ongoing adaptation planning processes, as well as to be able to bring their knowledge and experience to these processes. Indigenous peoples and local communities have valuable strategies for adapting to changes in climate and other threats, which can contribute to climate change planning. By contributing to planning processes that are taking place at the national and international level, community leaders can identify adaptation actions that can be taken at the community level, as well as how these actions can be linked with efforts taking place at broader scales. It is equally important to recognize the role of healthy ecosystems in reducing communities' vulnerability to climate change, particularly as these ecosystems may be one of their most valuable resources. Because communities rely on different types of livelihoods that are supported by different ecosystems, communities need information on how these ecosystems may be impacted by climate change and what actions need to be taken to maintain ecosystem health.

The *Adapting to a Changing Climate Training of Trainers (ToT)* course is a community adaptation training tool which is designed to address the question: how can communities make the best use of their natural resources in order to reduce their vulnerability to climate change? The course is designed to provide participants with the information necessary to engage in planning for climate change adaptation, as well as the skills and tools to organize, design, and lead their own trainings on these topics. It also aims to highlight some of the various ways that local and traditional knowledge can contribute to communities' adaptation strategies. The six-part training manual is built on a foundation of the importance of natural resource management, and covers the relationship between people and ecosystems, the basics of climate science, international climate policy, key concepts of climate vulnerability and resilience, the ways ecosystems can help to protect human livelihoods from climate change, and planning for adaptation action. The Training of Trainers also includes sessions on training design and facilitation skills. Trainers receive the course manual, a training guide with activities and discussion questions, and a toolkit of training aids.

The course and toolkit are intended to be a global tool, which trainers can adapt for the local context of their country or region. The materials provide a global context for climate change and key issues related to adaptation, while giving trainers the flexibility to incorporate their own knowledge and experience to customize the information for a local audience. The training toolkit offers a variety of methods for presenting the material, including presentations, visual aids, and activities, and gives the trainer the flexibility to choose the learning method that works best for his or her audience. Trainers are encouraged to share local examples of both the challenges and successes that communities have had with climate change adaptation. By asking participants to share their own experiences and expertise, as well as bringing in guests presenters, the trainings can create valuable opportunities to expand local dialogue on climate change adaptation and increase the contribution of local communities to national level processes. Bringing together these multiple sources of information will allow communities to plan for and adapt to climate change in the way that is best suited to support their livelihoods and well-being .

LEARNING OBJECTIVES:

By the end of the session, participants will be able to:

- Understand the diverse relationships between people and their environment
- Understand the different types of ecosystems and the services they provide for human well-being and livelihoods
- Understand the current threats to ecosystems from natural and human impacts
- Understand how governments and communities are working to reduce natural and human impacts and some approaches used to protect ecosystem health and services

TRAINING TOOLS FOR THIS SESSION:

Posters:

- Relationship between people and nature
- Ecosystems
- Ecosystem Services

Activities/Games:

- The Glossary Game (see instructions at the end of this guide)
- The Fishing Game
- Approaches for Managing Impacts on Ecosystems

Supplies:

- Two water glasses
- Chalk or String
- Colored paper and scissors
- Markers
- Paper Tape
- World Map

SESSION 1. KEY POINTS AND TRAINING TIPS

This session will provide an introduction to ecosystems and ecosystem services as basic background for the rest of the sessions.

PART 1: WHAT IS THE RELATIONSHIP BETWEEN PEOPLE AND NATURE?

Human beings have always relied on nature to provide the essentials for life such as water, food, building materials, and medicines.

KEY POINTS

1. Review the relationship between the people and nature using the examples from the manual.

Tip: Ask participants to discuss a specific way they benefited from natural resources today. For example: wood was used to make the tables in the room; water from natural springs may be in the bottled water they are drinking; was there fish for lunch?

2. The impact of these activities on natural resources and nature.

Discuss how ecosystems provide critical services that, if taken care of, can help to reduce the impacts of climate change and help communities maintain the resources they need despite a changing climate.

Tip: Fill two glasses with water. Put a little soil and a few small stones or bits of paper into one glass and leave the other glass full of clean water. Make the comparison between the quality of water in the two glasses. Ask the audience what could have caused the contamination in the glass of dirty water (floods, saltwater getting into the freshwater system, runoff from farms or pollution from factories). Have someone tell a story about what happened. The main idea is to link human actions to impacts in nature and also natural impacts on ecosystem services. What humans do to 'clean up' that contaminated water? (For a more in-depth version of this activity, see page 6.)

PART 2. WHAT ARE ECOSYSTEMS AND WHAT SERVICES DO THEY PROVIDE?

KEY POINTS

1. Understanding the definition of ecosystems and its services.

- a. Review the definition of ecosystem in the manual.

Tip: Use the poster of ecosystems and compare the differences among ecosystems. Use the world map to locate regions around the globe where each ecosystem is characteristic.

- b. Review the definition of **ecosystem services** in the manual. Ask participants to name some examples of the ecosystem services. Name ecosystems that provide or support:

- i. Food, water, timber, and medicines for daily needs;
- ii. Economic development, such as non-timber forest products, logging, fisheries, tourism, and hydropower;
- iii. Control of climate, floods, disease, wastes, and water quality;
- iv. Natural processes such as providing nutrients to soil and water systems and pollination; and
- v. Cultural services that are a source of beliefs, traditions, and also enjoyment.

Tip: If the participants are from different places, ask them to discuss and compare how plants, animals and landscapes are different in many places and what different services ecosystems provide according to the environment of each site. Do non-living things within ecosystems also provide services? Rocks help hold the soil in place on a hillside—is that a service?

Tip: Ask participants what ecosystem services are unique to the area.

2. Ecosystem services as part of conservation

- a. Understand the difference between conserving biodiversity and conserving ecosystems.
- i. Biodiversity conservation's goal is to maintain biodiversity and ensure that no plants or animals disappear or "go extinct."
 - ii. Ecosystem-based conservation aims to conserve all of the elements that make an ecosystem function and able to provide services.
 - iii. Ecosystem services are the resources and processes that nature provides which benefit people and their livelihoods, or means of support and subsistence.
 - iv. Each region of the world has different ecosystems that make them unique and provide distinct services for the communities that live there.

Tip: Discuss with the participants how protecting ecosystem services and biodiversity contributes to human well-being. Some questions to ask:

- What is an important fish or animal species in the area?
- How would the ecosystem in which the fish or animal lives change if that species disappeared?
- How would people's lives be affected?
- Highlight the importance of "balance" in planning to conserve and to use ecosystems, biodiversity and development.



PART 3. WHAT ARE THE IMPACTS AFFECTING ECOSYSTEM SERVICES?

KEY POINTS

1. What are the natural and human-caused impacts that affect ecosystems?

- a. Human Caused Impacts: Any human related activity that damages the ecosystem to the point where it is no longer able to sustain its health and provide services is a harmful impact.

ACTIVITY: FISH FOR DINNER?

Objective: To show how human activities impact ecosystem services

This game is best played outside if space is available. It can also be played inside if furniture can be moved to create a large open space. If space is limited, the game can be played using only part of the group. Decide how many people can play in the space you have and then ask for volunteers. Be sure there are twice as many people in the fish group as there are in the fishermen/women group.

Separate the audience in two groups. Put 1/3 of the participants into one group and the other 2/3 of the participants into the other group. The small group plays the fishermen/women and the large group plays the fish.

Using colored paper, draw and cut out a fish for each member of the 'fish' group. On the back of ½ of the paper fish, write one of the following notes:

- "I ate lead,"
- "I ate pesticides,"
- "I ate plastic,"
- "I ate mercury".

Leave the remaining paper fish have nothing written on them—they are healthy fish. Tape one of the paper fish to the back of the members of the fish group so the notes cannot be seen. Neither the fishermen/women nor the other fish know which ones are healthy.

Assign an area to be the lake, river or sea. The fish must stay in that area. Assign another area to be the fishing boat – big enough to hold the all the players in the game - the fisherman plus extra room for the fish they will catch. Use chalk or rope or branches to outline each area. Fishermen must stay in the boat area until they are given the signal to go fishing.

When they hear the signal, fishermen/women start fishing—they must run after the fish trying to escape being caught. Each fisherman/woman must catch two fish and take them back to the boat. When all the fish are caught and they are in the boat, the fishermen/women look inside the paper fish found on the back of each fish/participant to see if they caught healthy or unhealthy/contaminated fish. Ask the audience who will be eating the fish they caught—or who will be going out to eat!

- b. Naturally caused impacts: Ask for volunteers to describe natural impacts in their countries or communities.

Tip: Ask about recent natural disasters such as hurricanes, landslides, volcanic eruptions, storms and forest fires.

- What was the damage?
- How often do the natural impacts affect their countries or communities?
- Are people prepared for these events?
- Does the country or community have an early warning system?

2. What are some of the issues that contribute to local and regional impacts?

- a. Every area has natural events that can harm ecosystems, such as volcanoes, storms and earthquakes.
- b. Specific economic and social needs in a region can lead to harmful impacts to ecosystems.

Tip: Ask participants to provide examples of using ecosystems in a way that is not sustainable in their region or country—such as high deforestation. What is causing this human pressure on the ecosystem?

PART 4. WHAT ARE SOME APPROACHES AND TOOLS FOR MANAGING ECOSYSTEMS?

1. It is important that communities understand what ecosystems are and what services they provide. Have the participants discuss how communities can manage harmful impacts on ecosystems so they can continue to provide services to fulfill economic and social needs.

Tip: Ask participants if they know different examples of harmful impacts on ecosystems in their countries/communities. What approaches are needed to help protect these ecosystems and their services?

Explain the different management approaches and tools to manage ecosystems described in the manual:

- Community/traditional rules for behavior
- Establishment and management of protected areas
- Decentralized natural resource management: assigning local rights and duties
- Planning laws (set and enforced by governments)
- Development of safeguards (set and monitored by project donors)
- Clear definition of property rights (communal, individual). Sustainability certification which can increase prices for sustainably managed and harvested products

ACTIVITY: WHAT'S IN THE WATER?

Objective: to visually demonstrate the impacts of human activities on ecosystems

Time: 20 minutes

Supplies:

- large plastic water bottle with the top cut off, or other clear container
- sand
- dirt/soil
- soap powder/laundry detergent
- plastic bags
- trash (such as candy wrappers)
- table
- containers for the sand, dirt, soap powder, and trash
- pieces of paper to label each of the characters in the story (optional)

Setting up: Fill the bottle about half-way with water and place it on the table. Ask for five volunteers: the builder, the gardener, the washer, the shopper, and the litterer.

Give the sand to the builder, the soil to the gardener, the soap powder to the washer, the plastic bags to the shopper, and the trash to the litterer.

Directions:

Start by telling the group that this is the river in the village that they all live in. They use the river for their drinking water, water for cooking, washing clothes and dishes, and swimming. Show them the bottle of water. Ask the group, *“Would you like to drink from this river? Would you like to go swimming in this water?”*

Tell the group that the builder is building a concrete house near the river. The builder will come forward to dump some sand into the bottle of water. Then ask the group again, *“Would you like to drink from this river? Would you like to go swimming in this water?”*

Next, tell the group that the gardener is planting a garden near the river. The gardener will come to the table and dump some dirt into the water. Again, ask the group *“Would you like to drink from this river? Would you like to go swimming in this water?”*

Then, tell the group the washer is washing clothes in the river. The washer will pour some of the soap powder into the water. Again, ask the group, *“Would you like to drink from this river? Would you like to go swimming in this water?”*

After that, tell the group that the shopper has gone to town to go shopping. When the shopper comes back, he or she throws the plastic bags into the river. (Have the shopper come forward and put the plastic bags into the bottle.) Again, ask the group, *“Would you like to drink from this river? Would you like to go swimming in this water?”*

Last, tell the group that the litterer is walking along the river, throwing rubbish into it. (The litterer will come forward and put some trash into the bottle of water.) One last time, ask the group, *“Would you like to drink from this river? Would you like to go swimming in this water?”*

After all of the volunteers have added to the bottle of water, ask the group to reflect on how their answers changed throughout the activity. Ask participants to make suggestions for what the characters could do differently to keep the water clean.

The Glossary Game

The Glossary Game is a tool that can be used at any time throughout the training. The training toolkit includes a set of vocabulary cards that includes every term in the glossary at the end of the manual. The term is printed on one side of the card and the definition on the other side. These terms are also introduced at the end of each session as they are used. The Glossary Game helps the participants review and learn the terms. Use this game as an ice breaker, or as a way to take a break from the presentations, or at anytime you wish to reinforce the learning in a fun way.

Ideas for the Glossary Game (If possible have candies or small prizes to reward the correct answers):

1. Term/Definition: Which do you know?

- Put the cards for the day's session on the wall, with some of the cards showing the term and some turned over to show the definition.
- Invite participants to choose a term to define or to choose a definition and name the term.
- Ask the first participant to choose the next one and assign the person a term or definition to solve.

2. Pick a Card—Any Card

- Using the cards from the days Sessions and from Session already completed, have a participant choose a card from the pile or from a few that you hold out for the person. The participant then tries to define the term on the card.
- Variation-have the participant decide if s/he wants to try to define the term (and win the prize), or if they want to choose someone else to do it.
- Use this approach as a way to fill time while a new speaker is getting ready—or as a break or change of pace during the session.

Use your imagination and invent your own ways to play!

IMPORTANT THINGS TO REMEMBER:

- An **ecosystem** is a natural group of plants, animals and microorganisms that lives together in a specific place, dependent on their environment to survive.
 - Ecosystems provide many basic resources and needs to support people's livelihoods.
 - **Ecosystem services** support many aspects of life, including the availability and quality of fresh water, healthy fisheries, sustainable agriculture, and protection from heavy winds, flooding, erosion and drought.
 - Managing ecosystem services requires understanding how ecosystems support livelihoods in a region, who benefits from the ecosystem services, what impacts affect those ecosystems, and the value of the services they provide.
-

KEY TERMS TO REMEMBER:

Ecosystem: a group of plants, animals (including people) and microorganisms that live together in a specific place with a particular environment that enables them to survive.

Ecosystem services: the resources and services provided by natural ecosystems.

Environment: the external surroundings in which a plant or animal lives, such as soil, rocks and water, which provides the means for life and affects behavior.

Livelihood: a person's means of living or earning an income to support themselves, such as fishing, farming and tourism.

Nutrients: a substance that provides nourishment or food, necessary for growth and life.

Pollination: the transfer of pollen from one part of a flower to another part of that same flower or to another flower to enable seed production and plant reproduction. Depending on the plant, insects, birds, bats and even the wind can transfer the pollen and enable the plant to create seeds.

Rural: relating to an area located away from cities and/or associated with farming or subsistence livelihoods.

Urban: relating to a city or town.

LEARNING OBJECTIVES

At the end of the session, participants should be able to:

- Explain the concepts of climate and weather
- Understand what climate change means and why the climate is changing
- Explain the signs of climate change
- Understand and explain the greenhouse effect and identify the main greenhouse gases
- Explain how human activities are causing climate change
- Explain how climate change affects people and nature
- Understand why we should be concerned about climate change

TRAINING TOOLS FOR THIS SESSION**Posters:**

- The Climate Components (with label cards)
- Temperature and Sea Level Graphs
- Sea Level Rise
- Climate Change Impacts
- Human Impacts on the Greenhouse Gas Effect
- What is CO₂
- The Natural Carbon Cycle
- Human Impacts on the Carbon Cycle

Games/Activities:

- The Glossary Game
- The Signs and Effects of Climate Change in My Community
- The Carbon Cycle at Work
- Climate Change and Variability

Supplies:

- World Map
- Flip Chart or Sheets of Paper
- Colored Markers

SESSION 2. KEY POINTS AND TRAINING TIPS

This session will cover some of the basic natural processes that make life on Earth possible, how human behavior is changing these processes, and how that is changing the climate.

PART 1. HOW IS THE EARTH FORMED?

KEY POINTS:

1. The parts of the earth: Review the main parts of the earth as shown in the manual.

a. Under the surface: the inside of the earth has water, oil, rocks and minerals inside

***Tip:** Use an orange to demonstrate the parts of the earth. Before the session starts, cut a section out of the orange or cut it in half. Show how the white edge of the peel represents the surface of the earth, and the core of the orange represents the core of the earth. Just like the orange has different sections inside with juice and fibers, the inside of the earth has water, oil, rocks and minerals inside. There are many layers inside of the earth.*

b. Surface: using the world map, point out how much of the earth's surface is water—over 70%

***Tip:** This is more easily understood by people who live near the ocean. If your audience sometimes goes to an area near an ocean coast, they can see how large the bodies of water are that surround the areas of land on the surface of the earth. If some participants have never seen the ocean, use the map to show how much water covers the earth in relation to the land. Point out a major river people know about—like the Amazon—and compare the size of the river on the map to the size of the oceans. Show on the map where the river flows into the ocean.*

c. Atmosphere: be sure to point out that the atmosphere is made up of many invisible gases. Also tell the group that you will talk more about these gases in the next session. The atmosphere has many layers, but the first layer (10 miles or 16 km) above the earth is the most important for climate. Participants will hear this term often throughout the training.

***Tip:** This part of the earth is harder to talk about because not all of the parts of the atmosphere can be seen. Clouds are easy to see, and you can see rain when it falls, but when the sky is clear it can seem like there is nothing in the atmosphere. Talk about examples such as how the air feels when it is very humid*

and hot. Even though the water in the air may not be visible, the air feels hot and heavy because it is full of moisture.

PART 2. WHAT IS CLIMATE AND WHAT IS WEATHER?

KEY POINTS:

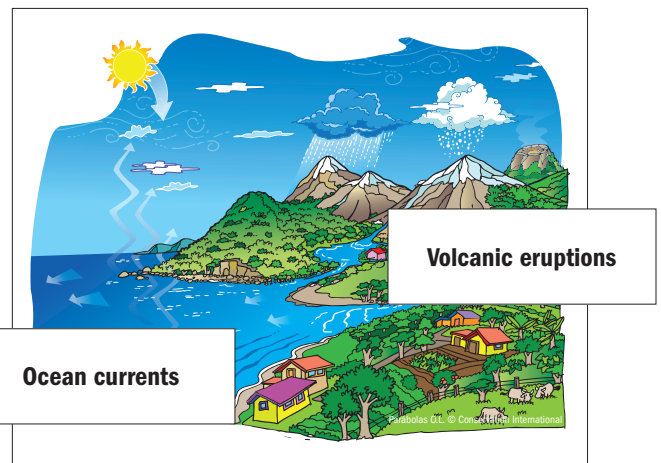
1. The difference between climate and weather. Be sure that participants understand and can talk about the difference.
 - a. Review the definitions of climate and weather in the manual in the manual and also review the examples.
 - b. Ask for volunteers to describe the weather in their area.
 - i. What is the weather like today?
 - ii. What season is this and what is the weather like this season?
 - c. Ask participants to describe the main characteristics of their climate.
 - i. How many seasons are there each year?
 - ii. What is the average temperature in the area?

Tip:

- *There are two main seasons in the tropics—rainy and dry. Other places have four seasons—Winter, Spring, Summer, Fall.*
- *Is it always that simple? If you ask participants how many seasons there are in their area they may say there are five or six (long dry, short dry, long rainy, etc.).*
- *How people describe their weather and climate can be influenced by traditional knowledge systems.*

2. The Climate Process:

- a. Climate is a very complex process.
- b. Participants should understand that climate and weather are affected by how conditions in the atmosphere (the air) and the surface (the land and water) affect each other.
- c. Use the poster with the drawing of the ocean, land, and mountains to talk about the different components of climate. The poster is not labeled, so you can post the names as you talk about the different components. Or, you can ask for volunteers to add the names to the poster.
 - i. Use the labels for each component—shown in the image in the manual; add them one by one to the poster as you describe each component and how it can affect climate.
 - ii. Give the examples from the manual.



- iii. Ask participants to give examples of how conditions in the air and the land might affect their own weather or climate.
- d. Explain the concept of climate variability and clarify that these differences are not always caused by climate change. Use the example of “El Niño and La Niña” from the manual. Make sure participants understand that these cycles are not caused by climate change but due to climate change their impacts can be more severe.

ACTIVITY. CLIMATE CHANGE AND VARIABILITY

This exercise will build on the same community information that was used in the activity in Session 1.

Objective: Consider the difference between climate change and climate variability in a tropical community.

Approach: Divide participants into 4 groups. Provide the groups with some historical climate data for an imaginary community and describe the data in terms of climate change and climate variability. The different sets of data will cover the following contexts that look at annual and monthly rainfall and temperature levels over 6 years:

- Low variability, low change (i.e. temperatures and precipitation are roughly the same throughout the 6 years).
- Low variability, high change. (rainfall and temperature amount have changed significantly but the amount they vary is low)
- High variability, low change. (temperature and precipitation are variable, but the amount of change in rainfall or temperature is low)
- High variability, high change. (temperature and rainfall are changing often and by large amounts)

Following the group/individual work, the facilitator will show slides describing each of the 4 contexts and ask each group to describe the differences in climate change and variability.

Optional:

- Describe how an El Nino event might be the reason for the variation in one of the examples.
- Include a slide with the mean and the standard deviations, if relevant for the participant group.

Timing:

20 minutes (5 minute overview, 10 minutes group/individual work, 5 minutes presentation and discussion).

Materials:

- a. Introductory PowerPoint slide: “Looking at the temperature or rainfall data for your community, what can you say about change and variability in this temperature or precipitation over the last 6 years”

b. full page, color figures of temperature and precipitation data.

c. PowerPoint slides of the data.

Reflection:

- Have people used climate data in their work before and in what capacity?
- What are some of the challenges in obtaining data and in using it?

PART 3. WHAT IS CLIMATE CHANGE AND HOW DO WE KNOW IT IS HAPPENING?

KEY POINTS:

1. Understanding the definition of climate change and global warming.

- Review the definition of climate change in the manual.
- Review the term 'global warming'—be sure participants understand that global warming means the AVERAGE temperature of the earth is increasing, and that this effect is not felt in the same way everywhere—some areas may be having more cold weather in recent years.

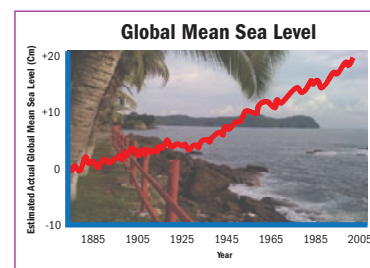
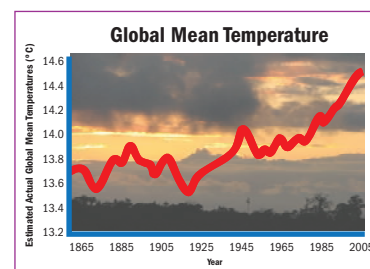
Tip: Many people are familiar with the term 'global warming'. This warming is the main impact of increased GHGs in the atmosphere and in turn is the biggest cause of the other signs of climate change.

2. Major signs of climate change:

- Review the different signs of climate change in the manual.
- Hang the poster with the temperature and sea level graphs to show the amount of change in the past 100 years.

Tip: Be sure to explain how the graph shows information—some participants may not be familiar with graphs.

- Have participants look at the pictures of rising sea levels in the manual. Ask the group to identify some of the changes they see between the top and bottom drawings. What are some of the causes of the increase of the sea level shown in the bottom drawing on the poster?

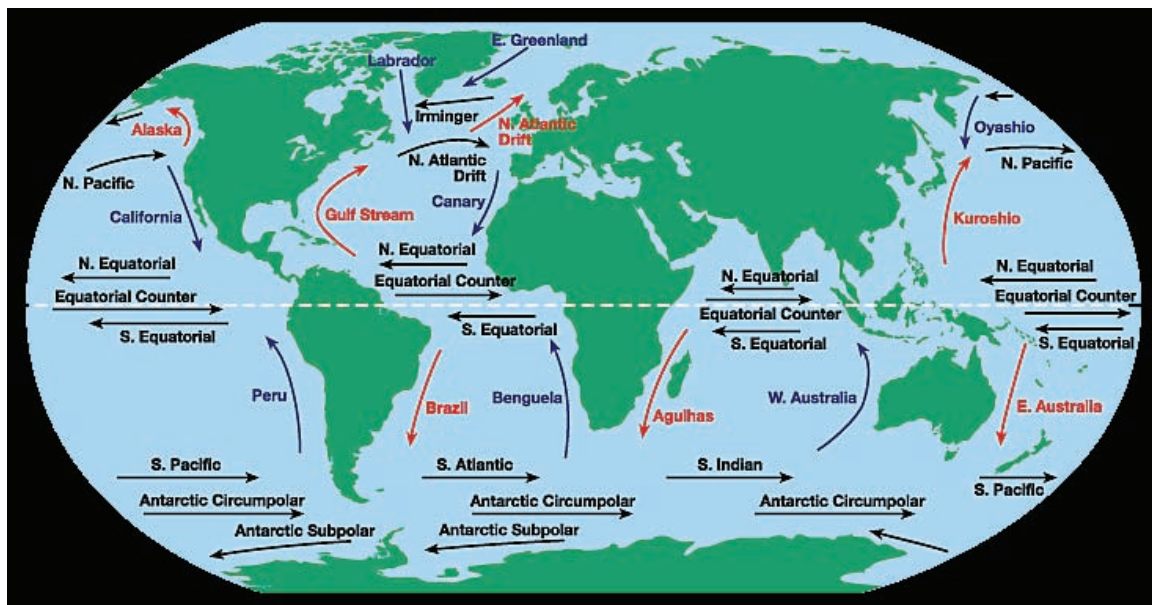


Graph data: IPCC 2007 / Photos: Mario Chasin León



- d. The picture below shows some of the major ocean currents. You can point these out on the world map—some flow north and south—others east to west, etc. The water in the world's oceans is always moving. **Tip:** Many of the signs of climate change are strongest at the earth's poles and in areas in the north where there are glaciers and snow. The amount of change depends on the region of the world and how changes will impact that area. Temperature changes may be felt less in the areas near the equator. Sea level rise will affect island and low-lying countries most.

Training Guide Figure 1. Ocean Currents



<http://www.windows.ucar.edu/>

PART 4. HOW DOES NATURE REGULATE CLIMATE?

KEY POINTS:

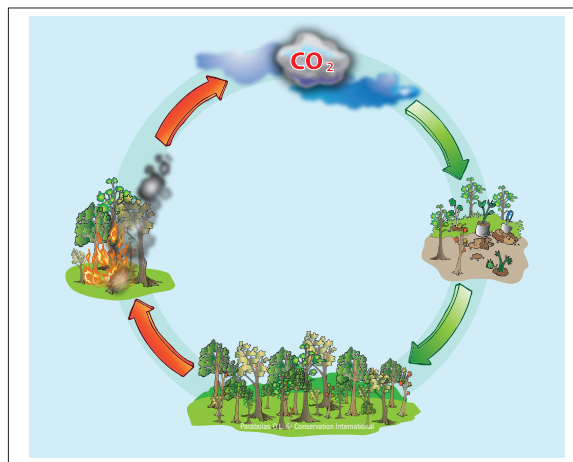
1. The Natural Greenhouse Effect:
 - a. Explain how the greenhouse effect works.
 - b. Use the same analogy in the manual about the blankets on a cold night—or you can make up one that is similar.
2. Human Impacts on the Natural Greenhouse Effect
 - a. Use the figures on page 18 of the manual to show the human impacts on the Natural Greenhouse Effect.
 - b. The main point is that human activities are disturbing the natural cycle.
 - c. Mention that many human activities produce GHGs and that this disturbs the natural process by sending too many GHGs into the atmosphere.

Tip: The type of activities that produce GHGs are discussed in the manual, but for a quick activity, you can ask participants to look at the drawing shown in the figure with human impacts on the greenhouse effect (in the manual) and identify what they see are some of the activities that increase GHGs in the atmosphere.

3. Review the major greenhouse gases, focusing on carbon dioxide and the carbon cycle.

- Review that carbon is one of the most common elements or substances in the universe—it is in all living things.
- Use the box on page 19 of the manual called “what is CO₂?” to explain briefly how carbon and oxygen come together to form the gas CO₂ in the atmosphere.

Tip: The formation of CO₂ can also be demonstrated by using colored balls and sticks or oranges and sticks. Simply write the symbol “C” on the orange and the symbol “O” on two oranges using one color marker for C and another color for O. Then join the oranges together with short sticks (as shown in the poster with “C” in the middle) to form the symbol for CO₂.



- Using the poster called “The Carbon Cycle”, explain briefly carbon flows and carbon reservoirs—this shows how carbon moves in and out of the atmosphere as CO₂ and how it is stored as carbon in living things. Use the poster called “The Natural Carbon Cycle”, explain the different areas where carbon is stored and the sources of carbon flowing in (red arrows) and out (green arrows) of the atmosphere.

PART 5. HOW DO HUMAN ACTIVITIES CAUSE CLIMATE CHANGE?

KEY POINTS:

Use Figure 10, with the human activities that impact the carbon cycle, on page 20 of the manual.

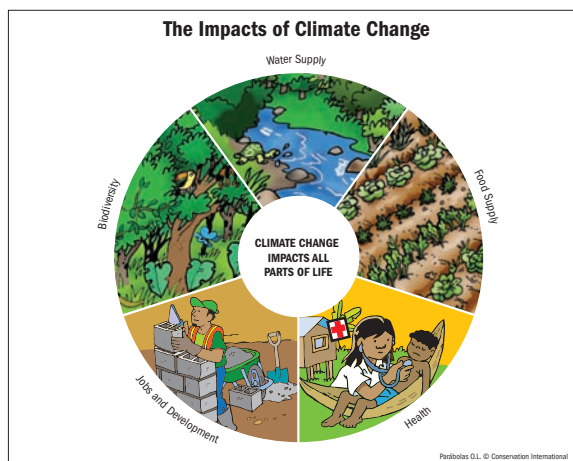
- Repeat that the carbon cycle, greenhouse gases and the greenhouse effect are all important natural processes that support all life on earth.
- It is human activities that are adding more GHGs to the atmosphere and disturbing the natural cycles.
 - This has started happening mainly over the last 150 years, since man started using machines for industry—also known as the Industrial Revolution.

(Ask if anyone in the group knows what happened about 150 years ago that started the increase in GHGs from human activities.)

- Review some of the main activities that increase GHGs: industrial processes, deforestation, changing how land is used. Ask participants to name activities that they think will increase GHGs in the air.

PART 6. HOW DOES CLIMATE CHANGE AFFECT THE EARTH AND OUR LIVES?

- Climate change is affecting all parts of the earth; plants and animals; and all parts of human lives.
 - Put up the poster that shows the different parts of life that are affected by climate change.



- b. Using examples from the chart below, talk about some examples of how these areas of life (or sectors) can be affected. You can also give local examples.

Training Guide Figure 2. Examples of Major Projected Impacts on Selected Sectors

Climate Change	Agriculture, Forestry and Ecosystems	Water Resources	Human Health	Industry, Settlements and Society
Temperature Change Over most land areas, fewer cold days and nights, warmer and more frequent hot days and nights	<ul style="list-style-type: none"> Increased yields in colder environments Decreased yields in warmer environments Increased insect outbreaks 	<ul style="list-style-type: none"> Effects on water resources relying on snow melt 	<ul style="list-style-type: none"> Reduced human mortality from decreased cold exposure 	<ul style="list-style-type: none"> Increased energy demand Declining air quality in cities
Heavy Precipitation Events Heavy rain more often	<ul style="list-style-type: none"> Damage to crops Soil erosion Inability to cultivate land due to waterlogging of soils 	<ul style="list-style-type: none"> Adverse effects on quality of surface and ground water Contamination of water supply 		<ul style="list-style-type: none"> Loss of property
Drought More areas affected by drought	<ul style="list-style-type: none"> Land degradation Crop damage and failure Increased livestock deaths Increased risk of wild fires 	<ul style="list-style-type: none"> Water shortage 	<ul style="list-style-type: none"> Food shortages Increased risk of water- and food-borne diseases 	<ul style="list-style-type: none"> Reduced hydropower generation
Sea Level Rise Increased times of high sea-level	<ul style="list-style-type: none"> Salty irrigation water, estuaries and fresh-water systems 	<ul style="list-style-type: none"> Decreased freshwater availability due to salt-water 	<ul style="list-style-type: none"> Increased risk of deaths and injuries by drowning Migration-related health effects 	<ul style="list-style-type: none"> Potential for movement of populations and infrastructure

Adapted from UNE P/GRID-Arendal 2009

- c. Some changes have already happened so plants, animals and people will need to adapt (find new ways of doing some things).
- d. Countries—especially developed countries—need to stop the activities that are causing climate change so we can stop climate change and its effects.

ACTIVITY: CLIMATE CHANGE IMPACTS EVERYTHING

Objective: To identify how a particular climate event will impact different parts of daily life

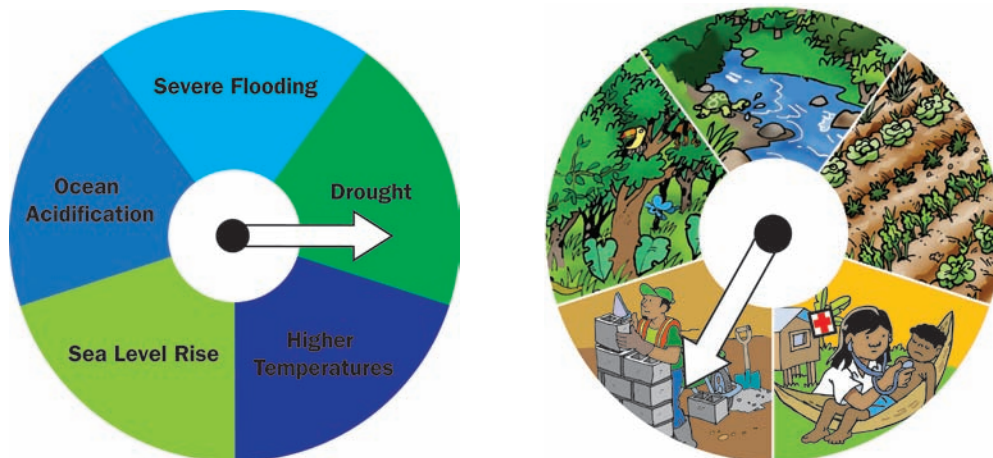
Time: 20 minutes

Supplies:

- “Climate Change Impacts Everything” poster
- Flip chart paper
- Markers
- Metal brad fasteners (optional)
- Poster board or cardstock for spinners (optional)
- Scissors (for poster board spinners)

Setting up: Hang up the poster that says “Climate Change Impacts Everything” on it. On a piece of flip chart paper, draw another wheel with five sections, and write (or draw) an example of a climate event on each one. Suggestions are: Sea level rise, ocean acidification, drought, higher temperatures, and sea level rise.

Directions: Ask a volunteer to spin the spinner (or facilitator’s arm); when they tell him or her to stop, note which sector the climate event the spinner falls on. Then, spin the second wheel, and see what sector falls on. Ask the volunteer to give an example of how the climate event impacts that sector. For example, how does sea level rise affect health? Then, ask other participants for more examples. Repeat until all sectors have been used at least once.



Alternative: Write the different sectors (or draw pictures) on one set of cards, and the different climate events on another set of cards. Lay them on a table face down in two different piles, and ask a volunteer to pull one card from each pile. Ask the volunteer to give an example of how the climate event they chose impacts the sector they chose. Then, ask other participants for more examples.

Adapted from an activity created by Timoci Naivalulevu.

2. Climate change impacts on nature and ecosystems
 - a. Using examples from the manual, explain how climate change impacts different plants and animals in many different ways.
 - b. Explain how climate change impacts the survival or reproduction of certain species. Some species may be able to adapt to changes better than others.
 - c. Review the definition of ocean acidification and explain its relation to climate change and how it impacts marine ecosystems.
3. Discuss how climate change affects seasons and ecosystems
 - a. Ask participants to describe any recent changes in the seasons or weather patterns in the area
 - i. Have you experienced a delay in the rainy season?
 - ii. How many extreme weather events have you experienced recently?
 - b. Explain how climate change affects seasons.
 - c. Review the definition of climate variability and ask participants to provide examples of how it is linked to ecosystems.
4. Climate change impacts people
 - a. Ask participants to provide examples of ecosystem services and how the impacts on ecosystems can affect people.
 - b. Explain the importance of ecosystem services to human well being. Review the examples in the manual.
 - c. Discuss some of the regional impacts of global change forecast by IPCC.
 - d. Ask participants what possible solutions should be considered to avoid these scenarios.

***Tip:** Make sure to connect all the impacts of climate change and climate variability to ecosystems, ecosystem services, and human wellbeing. Ask participants to give local examples that demonstrate these strong connections.*

ACTIVITY: WHAT ARE THE SIGNS AND EFFECTS OF CLIMATE CHANGE IN MY COMMUNITY?

1. Divide the participants into small groups.
2. Provide each group with paper and a marker.
3. Ask participants to:
 - a. Make a list of any signs of climate change or climate variability that they are experiencing their community.
 - b. Describe how these changes are affecting their daily lives.
3. Invite the groups to share the results of their discussions with the large group.
4. Discuss changes and impacts that were mentioned by all the groups.

***Tip:** Keep the flip charts or paper from the discussions. They can be used in an activity in Session 3 on how communities can adapt to these changes.*

IMPORTANT THINGS TO REMEMBER:

- The Earth is a living planet formed by rocks, minerals, soils, water, gases and living organisms.
 - Climate is a complex process that is determined by how the sun, atmosphere, land, water and winds work together.
 - Climate change is the change of normal weather patterns around the world over a long period of time. The average temperature of the Earth is getting warmer.
 - The climate is changing faster than in the past. Climate change is not happening in the same way everywhere.
 - Scientists are observing and measuring climate change, and people are experiencing the effects of climate change now.
 - Climate change impacts all parts of life.
 - Greenhouse gases and the greenhouse effect are both part of natural processes that support life on Earth by keeping it warm.
 - CO₂ is the most important GHG: When there is too much CO₂ in the atmosphere, the Earth gets warmer and the climate changes.
 - Human activities can cause climate change by adding too much CO₂ to the atmosphere and upsetting the natural carbon cycle.
-

KEY TERMS TO REMEMBER:

Atmosphere: The atmosphere is the part of Earth that begins at the surface and extends upward into outer space in many layers. It is composed of a mixture of gases. Most processes that affect life on Earth happen in the lowest layer of the atmosphere, nearest to the Earth's surface.

Carbon: One of the most common elements in the universe, found in all living things.

Climate: The “average weather” or weather conditions that happen over a long period of time.

Climate change: The change of the normal weather patterns around the world over a long period of time.

Climate variability: Natural changes within the climate system that often occur in cycles or in particular areas over seasonal or longer time periods.

Earth's poles: Areas at the far north and far south of the Earth. Also called the “polar regions.”

Evaporation: The process in which water is heated and changes from a liquid into a gas. The sun heats water in lakes, rivers or oceans, causing it to evaporate or turn into a gas called water vapor.

Fossil fuel: Fuel such as oil or coal that is formed inside the earth from decaying plants and other organisms over a long time.

Glacier: Layers of permanent ice found in very cold areas, either on land (i.e. in the polar regions) or on mountains at high elevations. Sometimes glaciers extend into the ocean.

Global warming: The increase in the average temperature of the Earth's atmosphere.

Greenhouse effect: The process of how the atmosphere keeps the Earth warm.

Greenhouse gases: The gases that help regulate the Earth's temperature, keeping it warm.

Land-use change: Changes in the way a land area is used, for example, changing a forest to a farm, or changing farms to pasture, or returning pasture to forest by re-planting trees.

Ocean currents: Movement of the ocean's surface water. Water is moved mainly by wind in regular, consistent patterns.

Ocean acidification: The change to the ocean water caused when increasing amounts of carbon dioxide (CO₂) are absorbed from the atmosphere. This combines with the water (H₂O) and increases the amount of carbonic acid in the ocean.

Photosynthesis: Natural process in which plants take in the light and heat from the sun and carbon dioxide from the air, and release oxygen to make plants grow and keep our air clean.

Precipitation: Rain, snow, or hail (ice) that forms from the moisture in the atmosphere and falls to the ground.

Sea level: The height of the ocean's surface

Volcanic eruptions: Volcanoes are mountains formed over openings in the Earth's surface by melted rock that flows out of the Earth's surface and hardens. When a volcano erupts, melted rock, called lava, flows out of the mountain, and ash and gases are forced into the atmosphere.

Weather: The temperature, rainfall, or storms in a specific place on a specific day or over a very short period of time, like one season.



TRAINING GUIDE

SESSION 3. CLIMATE CHANGE POLICIES AND ACTION: WORKING TO SOLVE THE PROBLEM OF CLIMATE CHANGE

LEARNING OBJECTIVES

At the end of the session, participants should be able to:

- Understand how international agreements on climate can support local efforts to adapt to climate change
- Understand how countries are working together to make policies and take action on climate change at the United Nations Framework Convention on Climate Change (UNFCCC)
- Understand some of the ways indigenous, international and local organizations are working on climate change
- Define mitigation and describe some of the ways climate change can be slowed
- Define adaptation and describe some of the ways communities are adapting to the impacts of climate change
- Understand how funding to help communities adapt to climate change is being distributed by international organizations

TRAINING TOOLS FOR THIS SESSION:

Posters:

- Climate Policy Timeline
- The UNFCCC

Activities/Games:

- The Glossary game
- Guest Presentation
- Living Timeline

- Funding for Climate Change Adaptation

SESSION 3. KEY POINTS AND TRAINING TIPS

This session will cover some of the ways countries are working together in international organizations to solve the problem of climate change.

PART 1. CLIMATE CHANGE POLICIES: WHAT IS THE INTERNATIONAL COMMUNITY DOING TO SOLVE THE PROBLEM OF CLIMATE CHANGE?

Tip: Before starting this part, ask who has heard of the UN before—then ask the same about the UNFCCC—some may be familiar with the UN—most may not be familiar with the UNFCCC—explain that the UNFCCC is like a very large committee or agency of the UN—like the Forestry Commission or Ministry is an agency of the government.

KEY POINTS:

1. The most important point of this topic is to give an overview of the international policy process so participants understand how decisions are made at the global level.
 - a. Review the purpose of the UNFCCC that is outlined in the box in the manual.
 - b. Review this important point: many people attend the UNFCCC representing different organizations as ‘observers’—including indigenous peoples’ organizations—but only the government delegations can make decisions.
 - c. It is important to understand that the most important actions that the UNFCCC is working on right now are policies to assist countries to try to stop or lessen climate change and to adjust to the effects of climate change that are already happening and are likely to happen in the future.

Tip: Policies are made at all levels of government—even in the smallest community. Remember: ‘a policy is a plan of action to guide decisions and achieve results’. Even a family makes policies—any group of people working together to achieve something is making policies and decisions. Ask participants how policies are made in their community or in their country. Is this training part of a policy or plan of action?
2. Explain the role and contribution of “observers” at the international policy processes. Provide examples of how observers can provide ideas and information to help government representatives make decisions. Clarify that observers do not make the decisions at the UNFCCC - only government delegations can do this.
3. This session also introduces the term mitigation (stopping or lessening climate change) and adaptation (adjusting to change already here or that will happen because of climate change). It is important that the group understands these terms because they will be used in the remaining sections of the training. Mitigation and adaptation are the key focus of the policies and decisions being made at the UNFCCC.
 - a. Review the definitions of mitigation and adaptation with the vocabulary cards.
 - b. Ask participants to provide examples for each concept.

Tip: If the vocabulary cards are not already posted, put up the ones for mitigation and adaptation. Ask

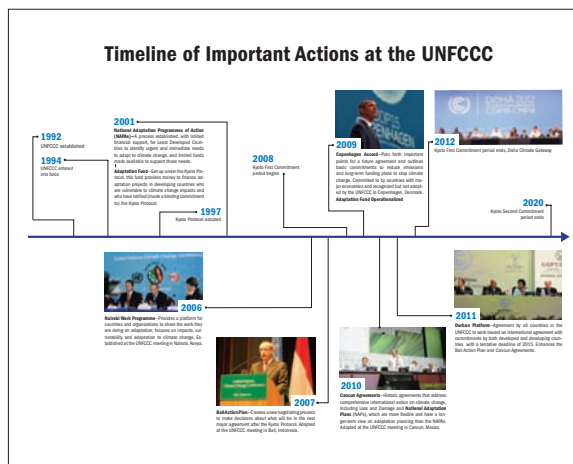
participants if they have any questions. Since this may be new information for many participants, it may be helpful to put all the glossary cards related to this section on the wall or board as you discuss them. Review each one with the group and have them ask questions to be sure they understand the meaning of the terms.

WHAT PROGRESS HAS BEEN MADE IN THE INTERNATIONAL NEGOTIATIONS?

4. Using the Timeline Poster, review some of the key events about the UNFCCC and its work—particularly the Kyoto Protocol (the events on the timeline about adaptation will be discussed later).

- A key point here is that 37 developed countries have made commitments to reduce GHG emissions and to assist developing countries with technology and funds to help them mitigate climate change in their countries.
- Also important is the need for developing countries to develop in ways that do not increase GHGs and for developed countries to keep their promise to reduce GHGs.

Use the timeline poster to explain the first commitment period of the Kyoto Protocol was from 2008 to 2012, and that a second commitment period is from 2013 to 2020. Make sure all participants understand the key areas under discussion at the UNFCCC (see manual).



ACTIVITY: LIVING TIMELINE

Objective: to ensure that participants are aware of key dates in climate policy

Time: about 30 minutes, depending on the length of the Session 3 presentation

Supplies:

- Colored paper to form the timeline arrow
- Tape
- Scissors
- Additional paper with key dates written on them
- Markers or pens
- World map and stickers (optional)

Setting up: Find a blank wall and tape several pieces of colored paper on the wall to form the timeline. (To make it look like an arrow, cut the last piece into a triangle.) Write each key date on a different piece of paper. Before starting the Session 3 presentation, hand out each piece of paper to a different participant.

Directions:

As the participants listen for the date on their piece of paper as the key climate policy dates are discussed. When they hear their dates, they should write the event that happened on that date on their piece of paper, and place it on the timeline on the wall. At the end of the session, all of the key dates will be on the wall, in order!

Alternative: If there is not a blank wall available, or the training is taking place outside, participants can stand in chronological order and hold their dates for everyone to see.

Optional: If you have a world map, hang that on the wall near the timeline, and when participants come to place their date on the timeline, ask them to place a sticker on the world map to show where that key event took place. It can be good to have a trainer near the map to help people identify hard to find places!

COUNTRIES WITH COMMON INTERESTS WORKING TOGETHER ON CLIMATE CHANGE:

1. Explain that countries often work together in groups according to similar interests, views and priorities (see box in manual).
2. Review other important actions on climate change that have been taken at UNFCCC meetings and are relevant to adaptation such as: Marrakech in 2001, Nairobi in 2006, and Cancun in 2010.

HOW DO NATIONAL GOVERNMENTS ENGAGE IN INTERNATIONAL CLIMATE POLICY?

1. Explain how National Governments engage in international climate policy and how decision making in the UNFCCC works.
 - a. Make sure participants understand that in UNFCCC, every country must agree in order for a decision to be made.
2. Provide example of countries usually sharing similar concerns and compare how the priorities of developed countries priorities differ from those of developing countries.
3. It is very important that participants understand that the UNFCCC process has contributed to a continual dialogue and general acknowledgement to work harder to come to an agreement.

WHAT ARE GOVERNMENTS DOING IN THEIR OWN COUNTRIES?

1. It is very important for communities to understand how their country and their interests are represented at the UNFCCC.
2. If possible, invite a member of your country's delegation to the training and have them give a presentation about your country's participation in the UNFCCC negotiations and how policy discussions could affect your country and your local community.
3. Be sure that you know who is on the delegation of your country—frequently there are members of indigenous peoples' or other local organizations appointed to the official delegation.
4. Review how international organizations and organizations in your country are participating in the UNFCCC meetings.

Tip: The workshop organizers should be responsible for making contact with delegation members, or other

persons involved in climate change policy-making and arranging for a guest speaker for the training, or they may be able to research the information and make a presentation about your country's participation.

HOW ARE INDIGENOUS PEOPLES CONTRIBUTING TO INTERNATIONAL POLICY ON CLIMATE CHANGE?

1. Explain the UN Declaration on the Rights of Indigenous Peoples (UNDRIP) and why is important to the UNFCCC.
2. Highlight the importance of indigenous peoples' representation and participation at UNFCCC negotiations. Mention the importance of their traditional knowledge on forest management, fisheries and other natural resources and ecosystems.

***Tip:** Have indigenous leaders/representatives attended the UNFCCC, either as part of your country's government delegation or as members of an indigenous organization attending as observers? If so, consider inviting one of them as a guest speaker to share their experience.*

WHAT OTHER INTERNATIONAL POLICY EFFORTS ARE IMPORTANT FOR CLIMATE CHANGE ADAPTATION?

1. Review the additional international policy efforts relevant to climate change adaptation such as CBD, CCD, Ramsar and GFDRR.
 - a. Ask if any of the participants know any of these conventions and if anyone has experience attending the meetings.
 - b. Make sure participants have a general understanding of the purpose of each convention and its importance.

ACTIVITY: GUEST PRESENTATION

Presentation about your country delegation to the UNFCCC

Ask if any participant has participated in the UNFCCC negotiations. Allow the time for someone to present about the experience of the country delegation at climate negotiations.

- Who is on the delegation?
 - What are some of the key interests and priorities your country promotes at the negotiations?
-

PART 2. MITIGATION AND ADAPTATION ACTION: HOW CAN INTERNATIONAL POLICY HELP TO REDUCE CLIMATE CHANGE?

KEY POINTS:

1. Review the definition of mitigation. A key point is that actions to stop climate change must come from all parts or sectors of a country's activities: transportation, agriculture, energy production, industry, and forest management.
 - a. Review the photos in the manual and ask participants if they can think of examples of other activities that are important (such as mining).

2. Review the definition of adaptation. A key point is that plants and animals and people have adapted to change in the past—but now they will have to adapt more quickly. Plants and animals will not have time to adapt naturally if climate change continues. Already some species and some ways of living are threatened by climate change.

- a. Review the photos in the manual and ask participants if they can think of examples of other activities that are important.

Tip: People who live in colder climates often depend on the snow and ice for transportation. Their lifestyles are based on cold winters and ice. Warming temperatures and melting ice are making traditional ways of living difficult. Indigenous peoples in the northern part of the world and the animals they depend on are threatened by these changes.

2. At the UNFCCC, governments are discussing how to help countries adapt to climate change at the UNFCCC. Some countries are making national adaptation plans.

Tip: Is your country making an adaptation plan? If so, ask the organizers to bring information about how your country is working on adaptation and share this with the participants, or if you have a speaker from the UNFCCC delegation, ask them to talk about your country's adaptation actions.

PART 3. WHAT RESOURCES ARE AVAILABLE FROM THE INTERNATIONAL COMMUNITY TO SUPPORT ADAPTATION?

KEY POINTS

1. Explain that the Global Environmental Facility (GEF) is an independent financial organization and partnership that works with to address global environmental issues including climate change.

- a. Make sure participants understand that GEF is the official financial mechanism that supports implementation of actions decided on or recommended by the UNFCCC.
- b. Developed countries give money to the GEF and the GEF transfers the money to support activities in developing countries

2. Use the timeline poster again to highlight the creation of the Adaptation Fund in 2001. Mention additional funds that support adaptation in developing countries such as the Least Developed Countries Fund and the Special Climate Change Fund.

- a. Explain that these funds are given as grants to developing countries for adaptation projects.
- b. Explain that “implementing entities” are usually the national, regional and multilateral institutions (an institution formed by three or more countries that works on common issues—such as the World Bank) accredited to receive direct financial transfers from the Fund in order to carry out projects and programmes.
- c. Highlight that some funds are available directly to developing country governments, universities, non-profits, local government, and community groups.
- d. Make sure participants understand the importance of contacting and working with their national government focal point. This is a key step for communities to access support from funds like the GEF Small Grants Programme to work on climate change adaptation.

Tip: Arrange for a guest speaker to explain how GEF and the Adaptation Fund work in their country. Contact a representative of the national implementing entity, a regional implementing entity, a multilateral implementing entity, or the country's National Focal Point.

IMPORTANT THINGS TO REMEMBER:

- The United Nations Framework Convention on Climate Change (UNFCCC) is the international organization that brings countries together to make policies about climate change.
 - Only country governments can make decisions about policies at the UNFCCC, but many other organizations attend meetings to observe and influence decisions.
 - Countries with similar interests often work together to promote policies that are in their best interests.
 - Countries implement UNFCCC climate change policies and also develop their own national plans to address climate change.
 - Indigenous peoples' organizations, NGOs and businesses work to influence decisions at the UNFCCC.
 - Under the Kyoto Protocol, developed countries agreed to reduce GHG emissions and to help developing countries mitigate and adapt to climate change.
 - Mitigation actions help stop or lessen climate change.
 - Adaptation actions help countries adjust to current or future changes caused by climate change.
 - Funding, mainly from developed countries, is available through the Global Environmental Facility (GEF) and other sources to help mitigation and adaptation action in developing countries.
-

KEY TERMS TO REMEMBER:

Adaptation: A change in the way of doing something. In the case of climate change, it involves addressing and adjusting to climate impacts. Because the climate is changing, plants, animals and people need to adapt to new conditions.

Delegates: People who represent a government or organization and have the authority to speak or vote for that organization.

Convention: A formal agreement (or treaty) between the people or groups who have signed it. It serves as a foundation for further discussions and treaties on specific issues.

Ecosystem: A group of plants, animals and microorganisms that live together in a specific place in a particular environment that enables them to survive.

Ecosystem services: Benefits people obtain from ecosystems such as food, water and timber; services that control climate, floods, disease, waste, and water quality; cultural services that are a source of spiritual benefits and also enjoyment.

Environment: The external surroundings in which a plant or animal lives (for example soil, rocks and water) that affects its behavior and ability to live.

Emission: A substance discharged into the air. In climate change, the term refers to Greenhouse Gases sent into the atmosphere.

Forum: A place for open discussion on specific issues.

Fossil Fuel: Fuel such as oil or coal that is formed inside the earth over a long time from decaying plants and other organisms.

Funds: A financial mechanism to provide resources for activities to achieve goals. For example, the Adaptation Fund provides money to governments to pay for adaptation activities. Money is contributed to a fund by donations, pledges from country governments, taxes, or other sources.

Mitigation: The process of stopping or lessening climate change by reducing greenhouse gas (GHG) emissions that come from industrial activities, forestry and agricultural activities.

Observers: People who attend meetings or conventions to understand what is being discussed and to influence decision-makers, but who cannot negotiate or vote on proposed actions. Observers to the UNFCCC represent businesses, NGOs, indigenous peoples, and other organizations.

Policy: A guiding principle that directs decision-making and planning to achieve specific results.

Protocol: An agreement that outlines specific obligations or actions that countries need to take to implement the objectives of the convention.³

Sustainable Development: Development that meets the needs of the present while still preserving resources for future generations.

**LEARNING OBJECTIVES:**

By the end of the session, participants will be able to:

- Understand adaptation and why communities need to think about adaption
- Understand how climate change can impact communities
- Understand climate vulnerability and what makes a community vulnerable
- Define exposure, sensitivity and adaptive capacity—three conditions that influence a community's vulnerability to climate change.
- Explain climate resilience and what a community needs to strengthen its resilience to climate change.
- Understand the difference between resilience-based approaches and vulnerability-based approaches to adaptation.
- Define the difference between local and external knowledge
- Explain how external and local knowledge can work together to help communities adapt to climate change
- Identify tools and approaches that communities can use to protect themselves from climate impacts

TRAINING TOOLS FOR THIS SESSION:**Posters:**

- The Effects of Climate Change in My Community
- Sensitivity, Exposure and Adaptive Capacity
- Climate Resilience

Games / Activities:

- This is Not as it Used to Be
- Mapping My Community
- More or Less Vulnerable?
- Adaptive Capacity: the Piggy Bank

Supplies:

- Large sheets of paper or a chalk board
- Markers or chalk
- A container to represent a 'Piggy Bank' (optional)

SESSION 4. KEY POINTS AND TRAINING TIPS

This session explains the concepts of climate vulnerability and climate resilience. It explains what makes a community more likely to be harmed by the impacts of climate change and how communities can strengthen their ability to adapt.

PART 1. WHY DO WE NEED TO CHANGE OUR BEHAVIORS AND ADAPT?

KEY POINTS:

1. Climate change mitigation is very important to reduce greenhouse gas emissions in the atmosphere but it will take a long time for the climate to return to normal. Until then, people and ecosystems must adapt.
 - a. Explain to participants that although it is not easy to know exactly how long it takes greenhouse gases remain the atmosphere, there are estimates that indicate carbon dioxide can stay in the atmosphere between 30 to 95 years. Scientists have found that while more than half of the CO₂ emitted is removed from the atmosphere within a century, about 20% of emitted CO₂ remains in the atmosphere for many thousands of years.
 - b. Discuss with the participants the challenges of adapting to a changing climate in a short period of time. Review the impacts this is causing to ecosystems and highlight the opportunity humans have to change behaviors.
2. Review the definition of Adaptation in the manual and use the vocabulary cards. Ask participants what adaptation means for people, communities, businesses and governments and what type of behaviours should change to make adaptation efforts successful. Raise the importance of working together.

ACTIVITY: IT IS NOT AS IT USED TO BE

- a. Ask participants to give examples of products they buy today in a store that they used to get directly from nature.
 - b. Ask participants to give examples of agricultural activities that were practiced without fertilizers and that now require fertilizers.
 - c. Ask participants to describe two situations where climate change is affecting food production and traditional agriculture.
 - d. What has influenced these changes? What are the impacts of these changes on ecosystems?
 - e. It is not as it used to be, how can we adapt and thrive?
-

PART 2. HOW DOES CLIMATE CHANGE IMPACT COMMUNITIES?

KEY POINTS:

1. Communities are key stakeholders in government decision-making about adaptation at the national and international level and their knowledge and needs are key elements of effective adaptation efforts.

Ask participants to give examples of the how communities can contribute to adaptation decision-making in their countries and in their own area.

ACTIVITY: MAPPING MY COMMUNITY

The goal of this activity is to make a map of the community and the surrounding areas it uses, identify key areas of vulnerability, and assess the community's capacity to respond to climate change and natural hazards.

The activity consists of making a drawing or map of their community. It should show the location of:

- important land and resource use areas (farms, fishing grounds, agro-forest),
- Economic activities and where people live.
- Facilities and resources in the community, such as houses, churches/mosques, health clinics, schools, roads.
- Natural ecosystems that the community depends on for food, building materials, or other needs.
- Areas that are most impacted by natural hazards, such as storms or floods.

When the map is completed, discuss what the community does when a natural hazard happens.

- What are the most serious threats to the community?
- In what areas is the community most likely to be harmed?
- How does the community work together to recover?

This is a very helpful activity to help understand the available resources and collective response to natural hazards.

CLIMATE CHANGE RISKS AND OPPORTUNITIES

- [illegible]

PART 3. WHAT ARE CLIMATE VULNERABILITY AND CLIMATE RESILIENCE?

KEY POINTS:

1. Climate vulnerability is a term used to describe how much an area or a community can be harmed by the impacts of climate change.

Tip: Before starting this part, ask who has heard of climate vulnerability before. Review the definition of climate vulnerability in the manual and use the vocabulary cards.

- # Understanding Sensitivity, Exposure and Adaptive Capacity

2. Using examples from the table below for each factor, put them in the context of a community and draw an example of how the interaction of these factors impact climate vulnerability:

Exposure	Sea level rise, number of hot days, annual rainfall, drought
Sensitivity	Drought tolerance of crops, level of flood-proofing of buildings, diversity of crops
Adaptive Capacity	Amounts of household savings, level of education, access to communications technology

***Tip:** use the posters to compare the possible scenarios of vulnerability. Use the examples in the manual and go into detail on the possible factors that could be changed to reduce the vulnerability.*

ACTIVITY: MORE OR LESS VULNERABLE?

Objective: to identify whether real-life examples contribute to greater or lesser vulnerability.

Time: 30 minutes

Supplies:

- Index cards, post-it notes, or small pieces of paper, with one of the statements below written on each of them. (Or, feel free to come up with your own statements.)
- Markers
- Two pieces of paper: one labeled “more vulnerable,” and the other labeled “less vulnerable”
- Masking tape

Setting up: This game works best outside or in an open space, such as a hallway or an empty room. Tape the “more vulnerable” sign on one side of the room, and the “less vulnerable” sign on the other side of the room.

Directions:

1. Give each participant one card.
2. Have the participants stand in the middle of the room. Ask each participant to read their statement (to themselves) and decide if they are more or less vulnerable, then to move to the corresponding side of the room.
3. Once the participants have moved to either side of the room, ask each one to read their card aloud, then ask the other participants if they agree with that person’s choice. If not, ask them to move to the other side of the room.

Optional: Ask participants to identify if their card is an example of exposure, sensitivity, or adaptive capacity. (Each statement below is identified with an E, S, or A next to it so that the trainer knows which is which.)

Alternative activity: on three different pieces of flip chart paper, write “Exposure,” “Sensitivity,” and “Adaptive Capacity.” Give each participant a piece of tape (or write the statements on post-it notes), and ask them to place their card on the corresponding piece of flip chart paper. After all of the cards have been placed on the flipchart paper, read the statements aloud, and ask participants if they are on the correct piece of paper. If not, ask them which piece of paper they should move the card to.

Sample statements:

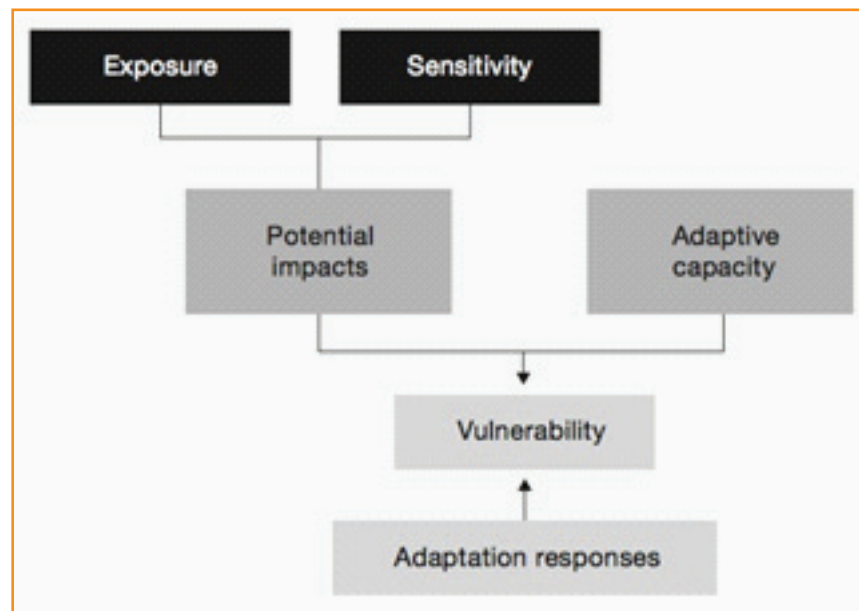
1. *My community has experienced very strong storms this year. (E)*
 2. *The houses by the ocean in my community can be damaged by strong storms. (S)*
 3. *I can go stay with my family in the city if there are any problems in my community.(A)*
 4. *I save \$10 every week to help my family, in case anything bad happens. (A)*
 5. *I have just bought disaster risk insurance for my business. (A)*
 6. *The rains usually come in February, but this year they haven’t come yet. (E)*
 7. *The tide is coming closer to my house than it used to. (E)*
 8. *My garden needs water every day this time of year. (S)*
 9. *My community only grows one type of crop. (S)*
 10. *My community relies on fishing as our only livelihood. (S)*
 11. *My community has early warning systems in case of a disaster. (A)*
 12. *My family has drinking water stored in case it doesn’t rain. (A)*
 13. *There have been more hot days this year than in the past. (E)*
 14. *My house is close to the ground and is likely to be damaged by flooding. (S)*
 15. *There have been more cyclones this year than in the past. (E)*
 16. *My community has a healthy forest to protect the watershed. (S)*
 17. *Deforestation has happened in my community. (S)*
 18. *My community has lost the mangroves that we used to have. (S)*
 19. *My community has strong leadership. (A)*
 20. *The river where we get our drinking water has dried up. (E)*
 21. *My community grows many different types of crops. (A)*
 22. *It is difficult to reach a health center from my community. (S)*
 23. *The fishing grounds near my community are likely to be damaged by storms. (S)*
 24. *If the weather is hotter than expected, I can plant a different type of crop. (A)*
 25. *The roads to my community are likely to be washed away by flooding. (S)*
-

3. Review each definition in the manual and use the vocabulary cards.

Explain the following key points to the participants:

- Climate Exposure is how likely climate impacts occur in a region. The more frequent and intense climate hazards occur, the more exposure the region will have.
- Climate Sensitivity is the degree to which a community is affected directly or indirectly by climate change. The more adequate infrastructure, diversified economy, healthy populations and ecosystems, the community is less sensitive to suffer damage.
- Adaptive Capacity is the community's ability to recover from climate impacts. The more skills, knowledge, good governance, organization and management the community has, the stronger the adaptive capacity to recover from climate impacts.

4. Use the scheme below to connect each definition and develop an example:



Training Guide Figure 3. Elements of Vulnerability

ACTIVITY: ADAPTIVE CAPACITY—THE PIGGY BANK

The goal of this activity is to understand the concept of adaptive capacity. For this activity the trainer brings a piggy bank or any container to act as the bank. (Or, draw a piggy bank on a large piece of paper, and use pieces of paper with tape on them to represent coins.) Adaptive Capacity is the ability to cope and recover from climate hazards and variability, plan for and adapt to future changes and access and manage the resources needed to recover and adapt.

Use the results from the previous exercises on climate vulnerability and climate sensitivity. Ask the participants to identify all the assets the community has that will help them to recover from the impact of climate hazards. Each asset counts as a coin and goes to the piggy bank. The more assets found in the community the higher the adaptive capacity and the more coins in the bank. Try to characterize the different type of assets and conclude the activity explaining that when a community is well organized, with strong skills, knowledge and financial resources, and manages its natural resources sustainably, its adaptive capacity is like a piggy bank, with savings that will help them to recover faster and more easily from the impacts of climate hazards.



WHAT OTHER CONDITIONS AFFECT VULNERABILITY?

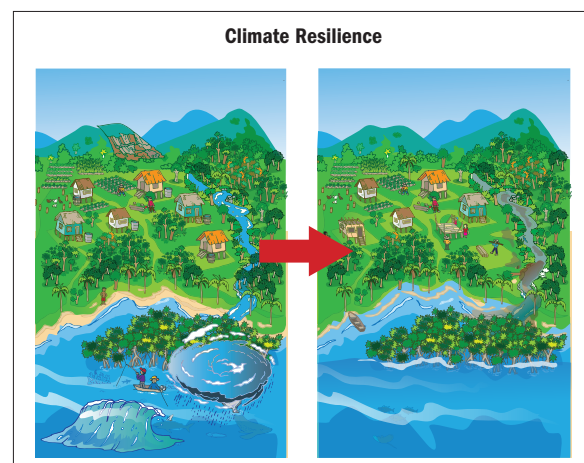
1. Use the poster called «More Vulnerable to Less Vulnerable». Describe some aspects that increase the vulnerability of a community.
2. Non-climate factors also affect vulnerability of communities. Explain that vulnerability increases when communities have limited sources of income, food or shelter. This means a low adaptive capacity. Give examples of how a community with already low adaptive capacity can become even weaker due to increased threat from climate change.
3. Explain that some individuals in the same community are more vulnerable than others and analyze the aspects that influence how sensitivity and adaptive capacity of individual members of a community is not the same.

WHAT IS CLIMATE RESILIENCE?

1. Climate resilience is a term used to describe the ability of a community or ecosystem to recover from a climate hazard and return to normal functioning.

Tip: Before starting this part, ask if any of the participants are familiar with the term 'climate resilience'. Review the definition of climate resilience in the manual and use the vocabulary cards.

- a. Use the poster on Climate Resilience. Compare the two scenarios of the same community and discuss all aspects that make the community and the ecosystems more resilient.



- b. It is important to distinguish the difference between adaptive capacity and climate resilience. Adaptive Capacity is how much the community's skills, management, infrastructure and resources contribute to increasing or decreasing the community's vulnerability to specific climate hazards. Resilience examines all the strengths and weaknesses that a community has and seeks to strengthen those weaknesses and improve a community's ability to recover from any harmful impact from climate change.
- c. Review the case study of Andavadoaka, Madagascar. Ask participants to discuss and illustrate their community's resilience or why their community is not resilient to climate hazards.

PART 4. VULNERABILITY-BASED PLANNING OR RESILIENCE-BASED PLANNING FOR CLIMATE CHANGE

KEY POINTS:

1. Explain that there are two main approaches to climate change adaptation planning:
 - a. Vulnerability-based approach
 - b. Resilience-based approach
2. Describe and discuss with participants the differences and characteristics:

	Stronger Vulnerability Focus	Stronger Resilience Focus
Characteristics of Planning Context	High level of understanding of future climate and impacts	Low level of understanding of future climate and impacts
	High level of access to knowledge relevant to vulnerability	Low level of access to knowledge relevant to vulnerability
	Low level of existing variability	High level of existing variability
	High certainty	Low certainty
Approach	More focused on reducing sensitivity	More focused on improving adaptive capacity

WHAT IS A VULNERABILITY-BASED APPROACH TO ADAPTATION PLANNING?

1. Remind participants a "vulnerability based approach" planning requires information on climate hazards and prediction about what type of impacts may occur from climate change in the future. It looks at a community's exposure, sensitivity and adaptive capacity to identify the specific impacts the community may face.
 - a. The main question in a vulnerability based approach planning is: *What are the livelihood activities and natural resources most likely to be harmed by climate events and climate change, and what should be done to protect them?*
 - b. Review the Verde Island Passage example in the manual.

- c. Remind participants that vulnerability based approach is more focused on reducing sensitivity.
- d. Illustrate cases where there is not enough information or resources to take “vulnerability-based planning approach” and review the definition for “resilience-based planning approach”.

WHAT IS A RESILIENCE-BASED APPROACH TO ADAPTATION PLANNING?

1. Remind participants a “resilience-based planning approach” examines the strengths and weaknesses of the community, builds on the characteristics of a community that are strong and will enable it to recover from any hazard, and tries to strengthen those characteristics that are weak.
 - a. The main question in a resilience-based planning approach is: *What are the characteristics of a community that will help that community be strong given any kind of climate event or change?*
 - b. Review the South Africa example in the manual.
 - c. Remind participants that a resilience-based approach is more focused on improving adaptive capacity.
 - d. Illustrate cases where the approach can change or be combined.

PART 5. WHAT TYPES OF KNOWLEDGE AND TOOLS ARE IMPORTANT FOR COMMUNITIES WHO WANT TO ADAPT?

KEY POINTS:

1. Adaptation planning requires knowledge, information and tools for decision making.

LOCAL KNOWLEDGE

1. Review the definition of traditional knowledge. Ask participants to provide examples of how traditional knowledge contributes to adaptation planning.
2. Review the definition of shared experience. Ask participants to provide examples of how shared experience contributes to adaptation planning.
3. Review the definition of local scientific research. Ask participants to provide examples of how local scientific research contributes to adaptation planning.
4. Discuss with participants how indigenous peoples and local communities, who depend on forests, adapt to changes in natural conditions. Mention some of the examples in the manual.

EXTERNAL KNOWLEDGE

1. Review the definition of external knowledge. Ask participants to provide examples of how External Knowledge contributes to adaptation planning.
2. Discuss with participants the importance of combining local and external knowledge to address the real needs of the community.
3. Explain how participation, information sharing and collaboration among communities, scientists, governments can contribute to increase adaptive capacity and help communities be more resilient to the impacts of climate change through good decision making. Mention some of the examples in the manual.

TOOLS THAT HELP TO UNDERSTAND VULNERABILITY AND RESILIENCE

1. Ask volunteers to provide some examples of tools that help to understand vulnerability and resilience.
2. Describe some of the most important tools:

- a. Climate monitoring: explain what means and how it contributes to understand vulnerability and resilience.
 - ii. Mention the different type of devices used for climate monitoring.
 - i. Highlight the value of collecting information and explain that accurate historical climate information is very helpful to understand what climate was like in the past, how it is changing now, and what it will look like in the future.
- b. Climate models: explain what climate models are and how they contribute to understanding vulnerability and resilience.
 - i. Mention the types of data needed to build a climate model and the resources and skills needed to run a climate model.
 - ii. Highlight the fact that climate models help to interpret possible climate scenarios in the future and are useful tools for decision making.
 - iii. Remind participants these tools do have limitations and only provide an estimate of what is likely to happen. A good model requires: good data, scientific expertise, good equipment.
- c. Early Warning Systems: explain what means and how it contributes to understand vulnerability and resilience.
 - i. Mention all the data, skills and resources needed for an early warning system.
 - ii. Highlight how useful it is to alert communities and give enough time to put their planning into action.
 - iii. Provide some examples of possible alternatives to setting up an early warning system.
- d. Vulnerability Assessments: explain what means and how it contributes to understand vulnerability and resilience.
 - i. Mention all the resources needed to implement this tool.
 - ii. Highlight how vulnerability assessments have combined local and external knowledge.
 - iii. Explain that this topic will be further discussed in Session 6.

IMPORTANT THINGS TO REMEMBER:

- The climate is changing, and communities must be able to adapt to both the negative impacts and new opportunities that these changes bring.
 - Communities should try to understand their vulnerability to climate change by assessing their exposure, sensitivity and adaptive capacity.
 - Communities that are strong and manage their resources well are more resilient to climate change.
 - Communities can improve their resilience to climate change by diversifying livelihoods strategies, and protecting and strengthening the health of their natural resources.
 - With enough information on likely climate impacts in their region, communities can take a vulnerability-based approach to adaptation
 - With limited information on potential climate change impacts in their region, communities can take a resilience-based approach to climate adaptation
 - Local knowledge should be used together with external knowledge to help a community prepare for climate change.
 - There are a variety of tools available to communities to help them do adaptation planning and action.
-

KEY TERMS TO REMEMBER:

Adaptive Capacity: The ability to adjust to current and future changes caused by climate change and to acquire the skills and manage the resources needed to recover from the impacts of climate change.

Climate Exposure: The likelihood that naturally occurring climate events (such as storms or floods), or changes to climate conditions (such as less rainfall, or hotter temperatures) will harm a community's natural resources, livelihoods and infrastructure (roads, houses, communications systems).

Climate Hazard: Climate events that cause damage or harm to a community or its surrounding environment, including hurricanes, cyclones, drought, and extreme flooding.

Climate Models: Computer studies that predict future exposure to climate change. Scientists take the data they collect on the atmosphere, greenhouse gases, oceans, land and ice and put it into computers to create different scenarios or pictures, showing what will happen to the climate in the future.

Climate Monitoring: Observing different aspects of climate (rainfall, temperature, storms) to understand a community's past and current exposure to climate hazards.

Climate Resilience: The ability of a community and its natural resources to recover from the damage or harm suffered because of climate hazards or climate variability and to return to normal functioning.

Climate Risk: The risk that climate and/or weather will negatively affect human life.³

Climate Sensitivity: How much a community depends on natural resources, particularly livelihoods and infrastructure systems that are likely to be harmed by climate events and climate change.

Climate Vulnerability: The degree to which climate changes can cause harm to a community or ecosystem.

Disaster: A hazard can become a disaster when it seriously disrupts a community's ability to lead their daily lives, causing major human, economic and environmental loss.

Early Warning System: Systems that alert communities to prepare for a climate hazard or event.

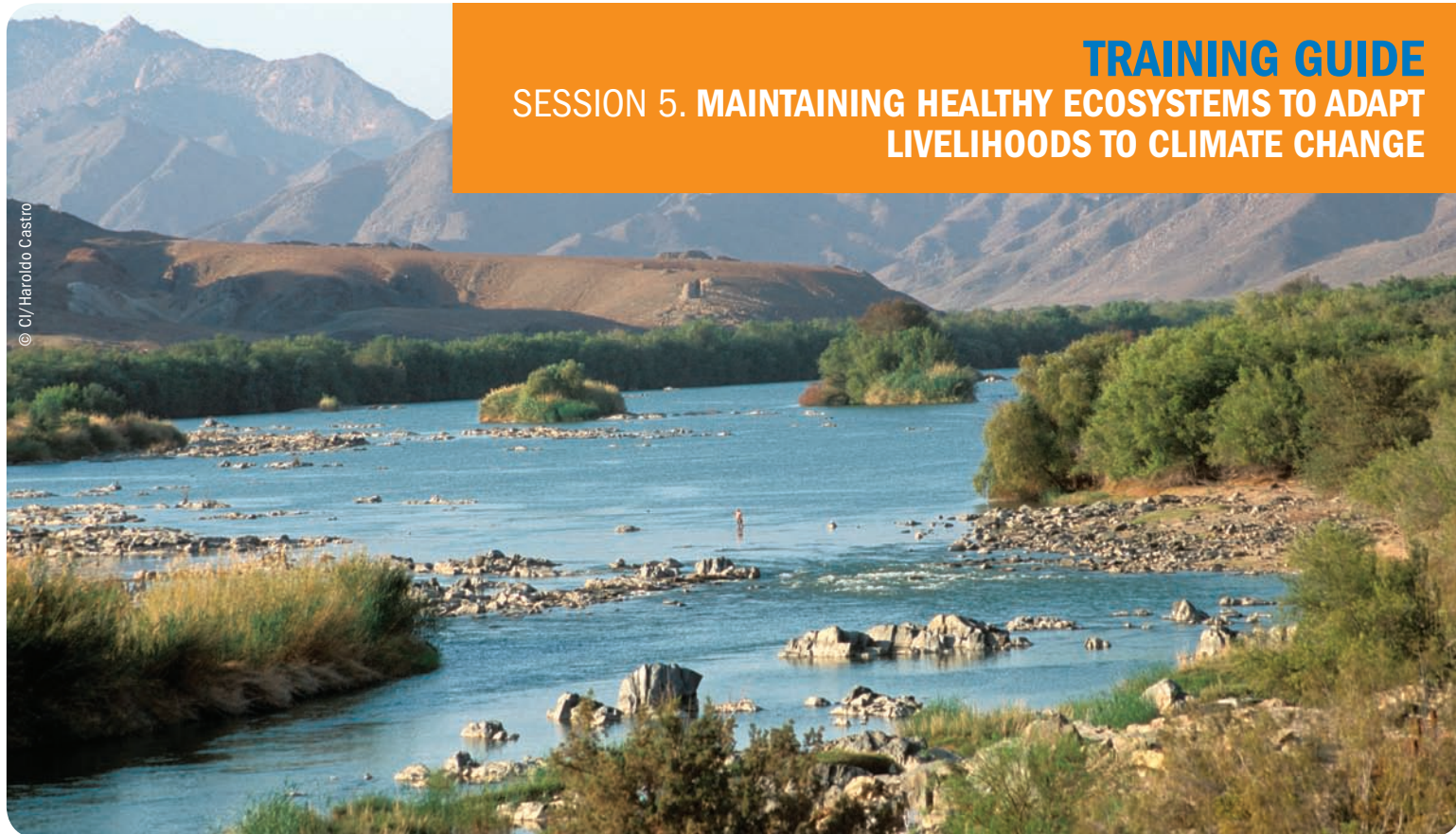
External Knowledge: Knowledge that comes from outside a system or community.

Local Knowledge: Knowledge that comes from inside a system or community.

Resilience-based approach: Examines the strengths and weaknesses of the community that will determine how well it can protect itself and recover from the impacts of climate change.

Traditional Knowledge: The wisdom, knowledge and practices of indigenous peoples and local communities gained over time through experience and orally passed on from generation to generation.

Vulnerability-based approach: focuses on understanding how a community's resources and livelihoods can be harmed by current and future impacts of climate change. It looks at a community's exposure, sensitivity and adaptive capacity.



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TRAINING GUIDE

SESSION 5. MAINTAINING HEALTHY ECOSYSTEMS TO ADAPT LIVELIHOODS TO CLIMATE CHANGE

LEARNING OBJECTIVES

At the end of the session, participants should be able to:

- Understand how ecosystems and their services help communities build resilience and adapt to climate change
- Understand how ecosystem services support different livelihoods
- Understand how ecosystem services are impacted by climate change
- Explain how ecosystem services support three important livelihoods—fisheries, agriculture and pastoralism
- Discuss examples of adaptation strategies for fisheries, agriculture and pastoralism
- Understand how people can improve the resilience of ecosystems and their livelihood services to protect themselves from climate change impacts.

TRAINING TOOLS FOR THIS SESSION:

Posters:

- Ecosystems for Fisheries
- Ecosystems for Agriculture
- Ecosystems for Pastoralism

Games/Activities:

- Pictionary
- The crossword puzzle

Supplies:

- Flipchart
- Markers

This session builds on the information from Session 1 (on the importance of ecosystems and ecosystem services) and the information from Session 4 (on how communities and ecosystems are vulnerable to climate change). It brings these two ideas together to show how ecosystems support people and livelihoods and how adaptation plans can be made to protect ecosystems and their services.

SESSION 5. KEY POINTS AND TRAINING TIPS

PART 1. HOW CAN ECOSYSTEM SERVICES HELP PEOPLE ADAPT TO CLIMATE CHANGE?

KEY POINTS

1. Explain the definition of Ecosystem services.
 - a. In Session 1, we learned that an ecosystem is a group of plants and animals that live together in a specific place that has a particular environment that enables them to survive. The environment is the characteristics of the surrounding area, for example soil, rocks and water.
 - b. Ecosystems provide essential services for people all over the world. Ecosystem services are the resources and processes provided by natural ecosystems that support human livelihoods, safeguard biodiversity and help control climate. Healthy ecosystems are essential to life on earth.
 - c. Ask participants to recall some of the examples of the ecosystem services given in the first part of the workshop (Session 1).
2. Explain how investing in ecosystems for climate change adaptation can reduce the SENSITIVITY of communities by:
 - a. Maintaining the delivery of ecosystem services.
 - b. For example: maintaining a healthy forest will ensure that there are materials to rebuild houses after a natural disaster.
 - c. Protecting resources from the impacts of climate hazards.
 - d. For example: healthy mangrove systems help protect coastal areas from large waves during storms and help keep saltwater out of the freshwater supply.
3. Explain how investing in Ecosystems for climate change Adaptation can increase the ADAPTIVE CAPACITY of communities:
 - a. Providing alternative option/services for meeting human wellbeing needs.
 - b. Good management of both fisheries and upland forests provides more than one source of food and income to help the community set aside food reserves and money to help recover from a climate hazard.

ACTIVITY: **ECOSYSTEM Pictionary**

The objective of this game is to illustrate examples of ecosystem services that can reduce a community's vulnerability to climate change or increase its resilience.

- Organize the participants into two groups.
 - Each group will pick one volunteer to make the drawings. Each representative will be assigned an ecosystem (e.g. forests, grasslands, wetlands, mangroves, coral reefs).
 - In one group the volunteer will draw the ecosystem and then illustrate examples of ecosystem services that may reduce a community's vulnerability to climate change.
 - The second group will do the same exercise, but this time the volunteer will illustrate examples of ecosystems that increase a community's resilience to climate change.
 - The rest of the participants in the groups will guess the service being drawn and how vulnerability can be reduced or resilience increased.
 - The first group that identifies three ecosystem services correctly wins.
-

PART 2. HOW DO ECOSYSTEMS AND ECOSYSTEM SERVICES SUPPORT HUMAN LIVELIHOODS?

KEY POINTS

1. Ecosystems and their services support many human livelihoods—fisheries, agriculture and pastoralism are three of the most important.
2. Specific ecosystem services support these livelihood options
3. Communities can take action to protect the ecosystem services that support livelihoods.
4. Review the case study examples in the manual and discuss how communities are adapting behaviors to protect fisheries, agriculture and pastoralism.

ACTIVITY:

1. Ask to participants to form three groups. The groups will each discuss one of the examples of how ecosystems and ecosystem services support human livelihoods (fisheries, agriculture, and pastoralism). Give each group the poster that illustrates the livelihood and ask the participants to answer and discuss the following questions. Participants can refer to the case studies in the manual, but ask them to consider the questions based on their own knowledge or experience as well.

- How do ecosystems support the fisheries, agriculture or pastoralism adaptation?
- How does climate change impact ecosystem services that support fisheries, agriculture or pastoralism?
- What are some examples of adaptation strategies for fisheries, agriculture or pastoralism?

2. Ask each group to report back on the results of the discussion and give a summary of their responses to the questions.

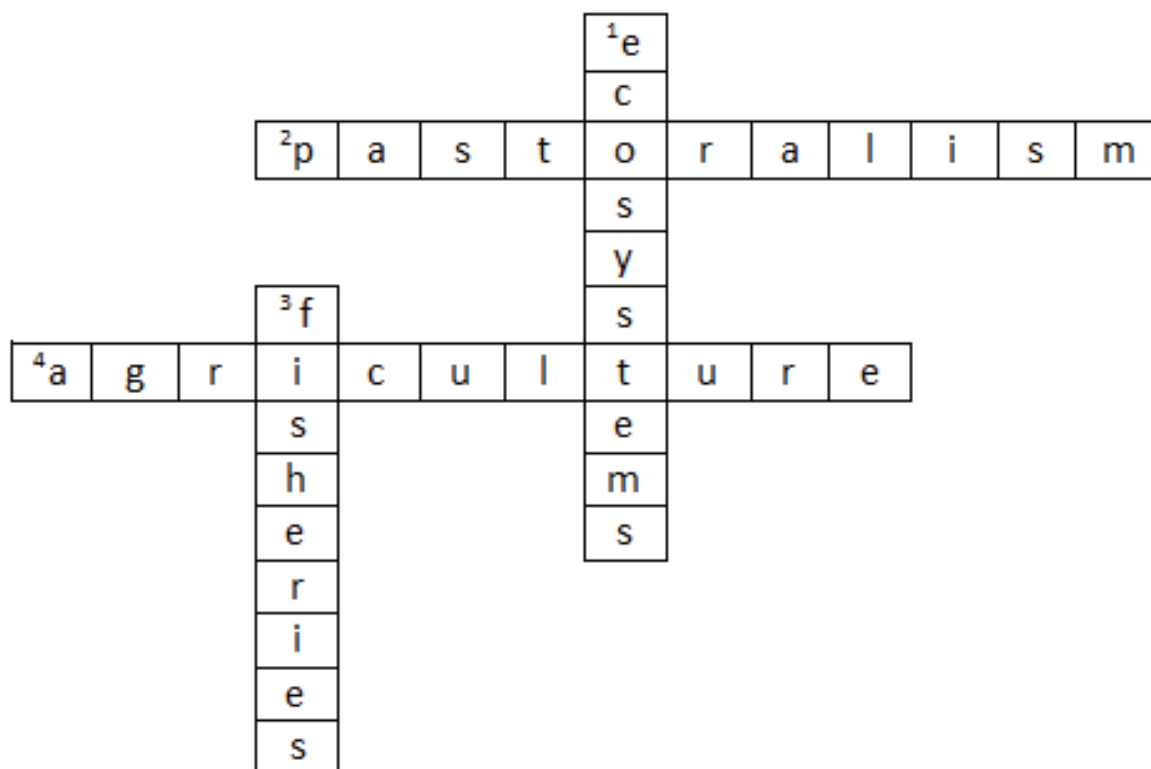
ACTIVITY: THE CROSSWORD PUZZLE OF ECOSYSTEM SERVICES AND HUMAN LIVELIHOODS

Print out copies of the cross word puzzle at the end of the Session 5 Training Guide.

I. Ask the participants to complete the crossword puzzle. Whoever finishes first receives a prize!

The answers are shown below:

1. Ecosystems
2. Pastoralism
3. Fisheries
4. Agriculture



PART 3. HOW CAN PEOPLE INCREASE ECOSYSTEM RESILIENCE TO CLIMATE CHANGE AND HUMAN PRESSURE?

UNDERSTANDING AN ECOSYSTEM'S VULNERABILITY

1. Describe some of the most important information needed to determine the vulnerability of ecosystems and develop adaptation plans:
 - Understand exposure of ecosystems to climate and development
 - Determine sensitivity of ecosystems to those impacts
 - Understand what skills the community has to respond to or protect it from climate hazards.
2. Highlight the importance of using both local and external knowledge.

DIVERSIFYING LIVELIHOOD STRATEGIES

1. Explain the term 'diversifying' (expanding the number of options or ways of doing something). Remember the saying, 'Don't put all of your eggs into one basket!' Provide some examples, such as planting several crops, and ask any local farmer his opinion and perspective on diversifying his way of farming.
2. Discuss some of the challenges and opportunities diversifying livelihood strategies can provide to a community.
3. Finalize the discussion by linking diversification with resilience. Diversification reduces sensitivity to climate hazards and strengthens resilience.
4. Use the examples from the manual to go more into detail.

TAKING ACTION FOR ADAPTATION PLANNING

1. Explain that adaptation planning for climate change is focusing more and more on ecosystems as well as infrastructure, public services, and communication systems.
 2. Climate change adaptation planning that focuses on actions to increasing the resilience of ecosystems and ecosystem services is often referred to as Ecosystem-based Adaptation (EbA) Planning.
 3. Ask participants of any examples where governments and communities can take actions that make ecosystems more resilient to climate change.
 4. Conclude this session by explaining that if ecosystems are more resilient, people and communities will be more resilient as well.
-

ACTIVITY: MATCHING PROBLEMS WITH ECOSYSTEM-BASED SOLUTIONS

Objective: to identify ways that ecosystem-based actions can address challenges

Time: 20 minutes

Supplies:

- Flipchart paper
- Markers or pens
- Tape
- Scissors
- Post-it notes (optional)

Setting up: Draw a map of a fictional community. (It can be very simple!) The map should show different problems like sea level rise, deforestation/forest fires, erosion, contaminated water supply, or low fish populations. Then, on smaller pieces of paper, draw solutions such as reforestation, mangrove and coral reef restoration, and agroforestry. Put a piece of tape on each piece of paper so that participants can place them on top of the problem that they see. (Or use post-it notes, if you have them.)

Directions: Ask for volunteers from the group to identify one of the problems that they see in the drawing. Then, ask them to match one of the solutions on the smaller pieces of paper to the problem, and stick it on the drawing. For example, coral reef restoration could be matched with low fish populations, or reforestation could be matched with soil erosion.

Alternative: Ask participants to draw a map of their own communities, and use this instead.

Note: This activity could also be used in Session 1.

*Activity by Elisheva Efrayim, Robert Kafoa, Maleli Qera,
Stephanie Robinson, Betani Salusalu, Thomas Tui*

IMPORTANT THINGS TO REMEMBER:

- Ecosystem services provide many basic resources to support people's livelihoods.
 - Climate change will impact ecosystem services (such as access to water, food, protection from storms, flooding and drought)
 - Adaptation strategies must consider each community's local knowledge and specific environmental situation.
 - Important livelihood options depend on ecosystems services—understanding how climate change impacts these services will help communities create effective adaptation plans to protect livelihoods.
 - Healthy ecosystems that are managed well are more resilient than ecosystems that are weakened from overuse and poor management
 - Diversifying livelihoods is an adaptation strategy that increases a community's resilience to climate impacts and takes pressure off of ecosystems that are heavily used.
 - Adaptation strategies that include ecosystems ensure that ecosystem services, communities and their livelihoods are resilient.
-

KEY TERMS TO REMEMBER:

Agroforestry: An approach to agriculture and livestock raising that incorporates trees and/or shrubs together with agriculture to produce increased productivity and sustainability.

Aquaculture: The cultivation, or “farming” of freshwater and saltwater fish species, such as finfish or shellfish, in pens and other enclosed areas under controlled conditions.

Coral Bleaching: Death of the small colorful organisms that live inside the tissue of coral.

Ecosystem: A group of plants, animals (including people) and microorganisms that live together in a specific place with a particular environment that enables them to survive.

Ecosystem Services: The resources and services provided by natural ecosystems.

Environment: The external surroundings (for example soil, rocks and water availability) in

which a plant or animal lives that impacts its behavior and ability to live.

Marine Protected Areas (MPA): Areas of the coast and/or ocean that have been established as “protected” and given rules about access and use. MPAs are designed to conserve fish and other species and maintain healthy fisheries for long-term use.

Locally Managed Marine Areas (LMMAs): MPAs that are managed largely or wholly by local communities including near-shore waters and coastal resources.

Ocean Acidification: Process in which oceans absorb excess CO₂ from the atmosphere and become more acidic. Ocean acidification is increasing with climate change.

Pastoralism: The raising of livestock that involves moving herds from place to place to find pasture and water.



TRAINING GUIDE

SESSION 6. HOW TO PLAN FOR ADAPTATION AND TAKE ACTION

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C/John Martin

Session 1

LEARNING OBJECTIVES

At the end of the session, participants should be able to:

- Understand what an adaptation plan is and why it's important to have one
- Understand the steps for creating an adaptation plan and putting it into action
- Understand what a vulnerability assessment is and why it's an important foundation of an adaptation plan
- Explain the importance of community participation in adaptation planning
- Understand the importance of measuring success and revising actions
- Understand why adaptation is a continual process of learning and acting
- Explain how adaptation planning can be joined with other planning processes

TRAINING TOOLS FOR THIS SESSION:

Posters:

- The Adaptation Planning Cycle
- Assessing Climate Threats vs. Non-Climate Threats

Games / Activities:

- Mapping Climate Threats and Non-Climate Threats
- The Seasonal Calendar

Supplies:

- Large sheets of paper or a chalk board
- Colored Markers and/or chalk

This session covers the steps and considerations needed to design an effective adaptation plan and put it into action. It also provides general information on how to conduct a vulnerability assessment and other tools that can help communities with adaptation planning. The session builds on the information about ecosystem services and assessing climate vulnerability that were presented in earlier sessions and discusses the importance of combining adaptation planning with other planning processes.

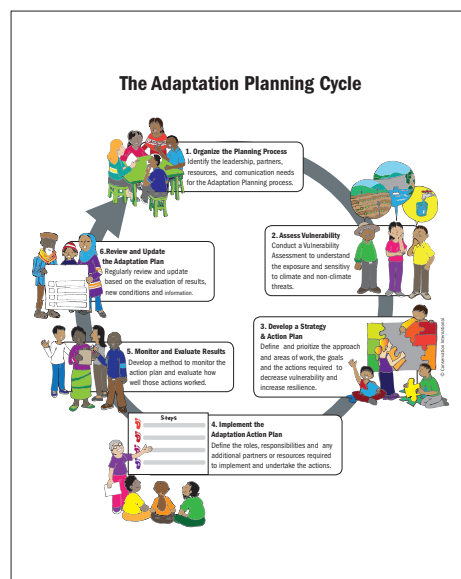
PART 1. WHAT IS AN ADAPTATION PLAN AND WHAT IS THE PROCESS TO CREATE ONE?

KEY POINTS:

1. Review the definition of adaptation plan and use the vocabulary cards.
 - a. Participants should understand the importance of multi-stakeholder participation in adaptation planning.
 - b. Compare the different scales that exist for adaptation planning. Ask participants to discuss the resources and skills needed and the people/groups that should be involved for national, regional and local or community planning. How are the needs of each level of planning different? How are they the same?
2. Have the participants look at the poster showing the adaptation planning process. Clarify that not every adaptation planning process is the same. This is just an illustration of some of the most important steps or components in adaptation planning processes—in fact these components are usually part of any effective planning process.
 - a. Ask participants to share experiences from working on different types of planning processes and compare the lessons learned.
 - b. Ask if anyone in the group has participated in an Adaptation Planning process and can share that experience.

ORGANIZING THE ADAPTATION PLANNING PROCESS

1. Remind participants that each community has different ways to take decisions and should make its own decision about the best way to get organized and do the planning process. Highlight the importance of full and effective participation of all the community members in adaptation planning. Creating ownership of the planning process by the whole community will can result in a more effective plan.
2. Use the poster with the drawing of the Adaptation Planning Cycle. Review important steps to consider when organizing the adaptation planning process:
 - a. Understand all parts of the Adaptation Planning Process: Discuss the key aspects of the adaptation planning process the community should consider. Highlight the importance of collaboration and incorporation of external and local knowledge in the whole process.
 - b. Identify the resources needed to complete the adaptation planning process: Discuss the importance of information sharing, capacity building and collaboration. Explain that



resources are not only financial but also include human and technical support that can come from within the community and from outside.

- c. Identify the adaptation planning team and team leader: Explain that the community should decide who leads the process and describe the importance of assigning roles and responsibilities for successful teamwork.
- d. Design a participatory communication and community engagement process: Ask participants to share experiences of building a participatory process. Refer to some of the common platforms for stakeholder engagement and information sharing, such as roundtables or community committees. Mention the value of raising awareness about the reason for creating the plan and keeping the community informed throughout the entire planning process.

ASSESSING VULNERABILITY

1. Review the definition of Vulnerability Assessment. Use the vocabulary cards.
2. Explain that the vulnerability assessment is the next step following after the planning process has been organized. Revisit the definition of exposure, sensitivity and climate hazards.

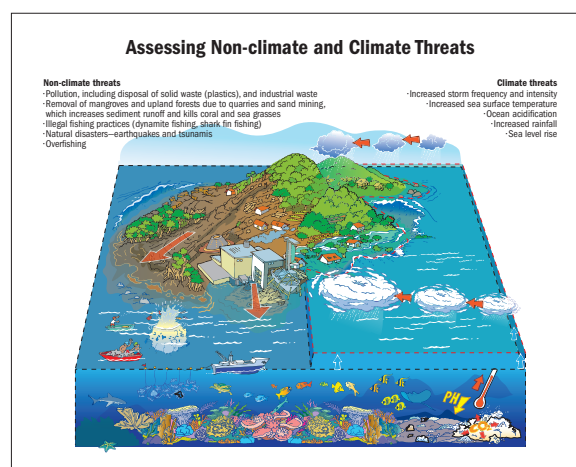
Tip: Work with the organizers of the workshop to arrange a guest presenter for the training to explain a local or national experience from conducting a vulnerability assessment.

3. Discuss all the possible scales and sectors in which a vulnerability assessment can be done. Mention that information from vulnerability assessments at national or regional levels can provide helpful information about possible impacts to local ecosystems.
4. A good vulnerability assessment requires gathering information from several sources. This includes all of the relevant stakeholder groups both within and outside of the community. Women, elders, and those who depend most on the community's natural resources often have the most knowledge about the ecosystems that are most important to the community.
5. Explain the basic steps, outlined in the manual, to organize a vulnerability assessment. Clarify that each vulnerability assessment is different but there are common elements. The elements include:

- a. Consider threats that are not from climate hazards or climate change.

Use the poster called, “Assessing Climate Threats vs. Non-Climate Threats”

- i. Explain that communities need to identify all the ways they are vulnerable, not just from climate hazards and climate change. Ask participants to provide examples of climate and non-climate threats.
- ii. Mention that identifying these threats shows communities which resources are healthy and which are already weakened and need help.



ACTIVITY: **MAPPING CLIMATE THREATS AND NON-CLIMATE THREATS**

The objective of this activity is to understand the difference between climate and non-climate threats.

- ii. Provide an example of a vulnerability assessment to be conducted in a specific landscape (pastoralism in West Africa, Agroforestry in Central America). Or, ask participants to use their own community.
 - iii. Ask participants to give examples of all possible threats that contribute to the vulnerability of the community.
 - iv. Ask participants to identify whether each threat is from climate or non-climate factors.
 - v. Refer to the poster called “Assessing Climate Threats vs. Non-Climate Threats”. Ask participants to describe all the examples that are in the illustration.
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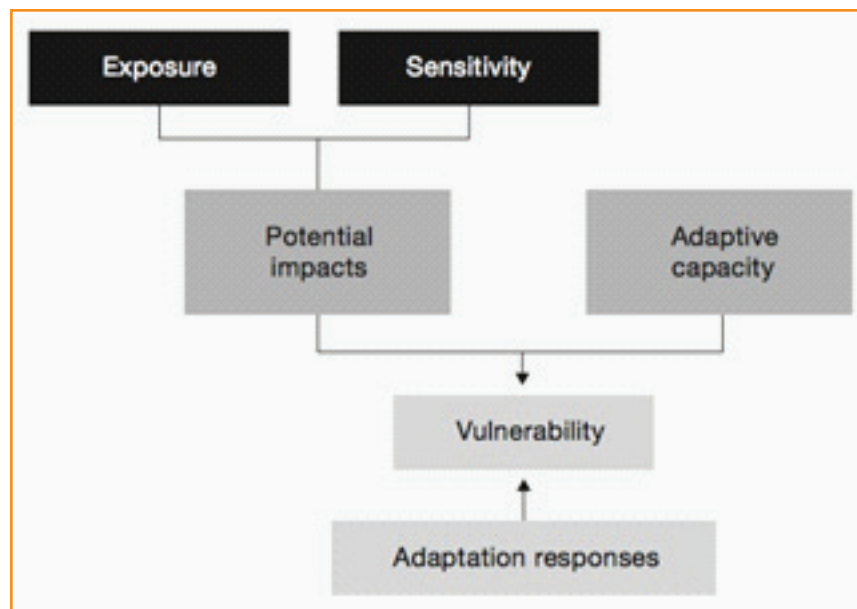
b. Develop a picture of local climate

iii. In this step, it is very important to understand the climate exposure and climate sensitivity of the community.

ii. Ask participants to provide examples.

c. Assess the community's vulnerability

- i. Review all the inputs provided below and explain that the final step is the assessment of what important resources are vulnerable to climate change and how that affects the community's vulnerability.
- ii. Ask participants to provide examples and use the diagram below as a resource.



WHAT TOOLS CAN HELP A COMMUNITY CONDUCT A VULNERABILITY ASSESSMENT?

1. Explain some of the available tools based on community participation that can help communities record and make use of this knowledge.
2. Review the definition in the manual of:
 - a. Community Resource Mapping (Refer to Activity in Session 4: Mapping my Community)
 - b. Climate Risk Mapping
 - c. Seasonal Calendars














ACTIVITY: THE SEASONAL CALENDAR

The purpose of this activity is to understand the changes in livelihoods over the year and to show the seasonality of agricultural and non-agricultural activities in the community.

1. If participants are from several communities, organize them into groups from the same community. If the training is being given in one community, organize the participants into groups that are experienced in different ways resources are used or managed, such as hunters, farmers, fishermen/ women or community business owners or leaders.
2. Each group will answer the following questions:
 - a. Human effort: What are the busiest months of the year? When are human activities occurring most often (planting, hunting, planning activities, etc.)
 - b. Food: What part of the year is food scarce or plentiful?
 - c. Income: How does income vary over the year for men and women?
 - d. Rainfall: How does rainfall vary over the year?
 - e. Water sanitation: How does drinking water availability vary over the year?
 - f. Human diseases: How do human diseases vary over the year?
3. Ask participants to illustrate the results from all questions on a large sheet of paper or it can be outline on the ground using stones, sticks, leaves, etc.
4. Ask participants to describe possible links they see among the different topics of the calendar.

Present the results from each seasonal calendar and discuss the possible ways this tool can be useful in adaptation planning and vulnerability assessments.

Time needed: 2 hours

January	February	March	April	May	June
					
					
					
					

DEVELOPING AN ADAPTATION STRATEGY AND ACTION PLAN

1. Explain that the vulnerability assessment process does not end until all the people who participated and will use the information to make the adaptation plan understand the results and outcomes of the assessment.
2. Then the community can use the information to decide what actions are most important to help reduce vulnerability and increase resilience, when they should be taken and what group or organization will lead the implementation of the activities in the adaptation plan.
3. Assessing the available and required resources is essential.
4. Emphasize that the vulnerability assessment should lead to action. Mention some examples of actions included in an adaptation plan such as:
 - a. Creating early warning systems
 - b. Infrastructure for water resources management
 - c. Improving watershed management
5. Community participation is fundamental in all steps. Explain that many groups will need to adapt to new actions and the rights of all groups involved must be respected, and that all groups should be fully informed about and give their consent to actions that will affect their lands and livelihoods. ,

MONITORING AND EVALUATING THE RESULTS OF THE ADAPTATION PLAN

1. Discuss the importance of regularly collecting relevant information to monitor, evaluate and report on the effectiveness of adaptation actions. This can also include information about changes in behavior and attitudes.
2. Review some of the examples in the manual for monitoring and evaluation processes:
 - Periodic reporting to the community members and to groups that may have supplied financial or technical support for the plan (Progress reporting during the time period required to complete activities and when actions are completed and both important.)
 - Individual or group interviews
 - Feedback from regular community meetings
 - Measuring the benefits of the activities versus their costs
 - Measuring changes in the health of important ecosystems.
3. Emphasize the importance of gathering and evaluating accurate information about the results of the action taken. Review how this helps with decision-making on new actions and helps the community to be accountable for completing all of the commitments in the plan. This also helps to monitor the effective use of all of the financial, human and technical resources used to design and implement the adaptation plan.

REVIEWING AND UPDATING THE ADAPTATION PLAN

1. Managing an adaptation plan is a continual dynamic process. Explain adaptation is about adjusting to change. Because change always happens, adaptation plans must be able to change and adjust as well.

2. Review some of the important points about adaptation plan review, reassessing community's vulnerability and revising adaptation strategies and action plans. Ask participants for opinions on the best approach to review and update adaptation plans in their communities.

PART 2: HOW CAN CLIMATE CHANGE ADAPTATION PLANNING BE INTEGRATED WITH OTHER PLANNING PROCESSES?

1. Review the definition of integrated adaptation planning—use the vocabulary cards.
2. Explain that adaptation planning, in many cases, is involved in other ongoing planning processes. Highlight the importance of creating linkages with existing processes and planning resources.
3. Ask participants for examples where adaptation planning could be integrated to other planning processes. Mention examples such as economic development, water management and conservation planning. Explain that climate change and ecosystem services are linking issues across different planning processes. And explain that including ecosystems in all areas of planning is important since ecosystem services support human development in so many ways.

INTEGRATING CLIMATE CHANGE ADAPTATION AND ECOSYSTEM SERVICES INTO DEVELOPMENT PLANNING

1. Protecting ecosystem services is also important to a good development strategy. Climate adaptation planning provides an opportunity to make a link with development planning such as water, sanitation, energy, education and agriculture.
2. Ask participants to provide local examples and opportunities of integrating climate change adaptation and ecosystem services into development planning.
3. Review the case study of Malawi.

INTEGRATING CLIMATE CHANGE ADAPTATION INTO CONSERVATION PLANNING

1. Natural resources are best protected when the communities know what climate impacts are likely to affect them in the future.
2. Review some examples of integrating conservation, ecosystem and climate adaptation priorities.
3. Review the case study of Mali.

INTEGRATING CLIMATE CHANGE ADAPTATION AND ECOSYSTEMS INTO DISASTER PLANNING

1. A hazard becomes a disaster when it seriously disrupts a community's daily life and causes major human, economic and environmental loss.
2. Recovering from a disaster usually requires outside help, but a community can reduce the risk of harm by planning what to do if disaster strikes.
3. Review the definition of Disaster Risk Reduction Planning. Ask participants to provide examples on action to improve resilience to potential hazards.
4. Review the Case Study of Tonga.

INTEGRATING NATIONAL AND LOCAL CLIMATE CHANGE ADAPTATION PLANNING

1. Local plans should be linked to national plans in order to be truly effective. Ideally, national planning will involve detailed consultation with all communities or groups involved.

2. Review National Adaptation Programmes of Action (NAPA). Use the policy timeline poster from Session 3 to review the UNFCCC process and background on the development of NAPAS.
3. Emphasize that local governments are increasingly considering climate change adaptation in their own planning processes.
4. Review the Case Study of Kiribati.

INTEGRATING PLANNING THROUGH AN ECOSYSTEM-BASED ADAPTATION APPROACH

1. Finish the session by discussing how Ecosystem-based Adaptation can be the common link across all these planning processes. Use the vocabulary cards and explain that through an EbA approach, it is possible to combine ecosystem services management and biodiversity protection to support human development, risk management, and conservation for more effective and integrated results.

DISCUSSION QUESTION: HOW CAN CLIMATE CHANGE ADAPTATION AND ECOSYSTEM SERVICES BE INCORPORATED INTO OTHER TYPES OF PLANNING?

Time: 30 minutes (15 for small groups, 15 to report back)

After providing some examples of how climate change adaptation and ecosystem services have been incorporated into ongoing planning processes around the world (see page xx for examples), split the participants into three groups to discuss the following question, in relation to three different sectors:

How can climate change adaptation and ecosystem services be incorporated into other types of planning?

- **Group 1:** Discuss and provide local examples and opportunities where climate change adaptation and ecosystem services could be integrated into development planning.
- **Group 2:** Discuss and provide local examples and opportunities where climate change adaptation and ecosystem services could be integrated into disaster risk reduction planning.
- **Group 3:** Discuss and provide local examples and opportunities where climate change adaptation and ecosystem services could be integrated into conservation planning.

Then, bring the three groups back together to share their examples.

IMPORTANT THINGS TO REMEMBER:

- Adaptation planning requires:
 - good organization;
 - using all available information;
 - assessing climate and non-climate risks and threats;
 - defining and implementing a strategy and action plan;
 - and identifying the necessary resources for implementation;
 - Communities should define an Adaptation Planning process that works best for their community and that involves the whole community and other groups or individuals who will be affected by the actions.
 - Vulnerability Assessments help communities understand the threats they might face (their vulnerability) from climate change and enable them to develop effective adaptation strategies.
 - It is important to continually monitor, evaluate, and revise the adaptation plan.
 - Adaptation planning needs to be evaluated and updated on a continual basis, incorporating lessons learned and new conditions and information.
-

KEY TERMS TO REMEMBER:

Adaptation Planning: A continual process that a community or group undertakes to assess its vulnerability to climate change and identify actions to reduce that vulnerability. Also involves implementing the actions, monitoring and evaluating the results, and revising and updating the action plan.

Adaptation Strategy: The approach, areas of focus, and goals that an adaptation plan takes.

Adaptation Plan: A plan made by a group of people (a country or a community) that describes the actions they will take to reduce their vulnerability to climate change. Activities can include creating new management policies, building a storm shelter, creating an early warning system, or rotating crops, among many other things.

Ecosystem-based Adaptation: Using ecosystem services as part of an overall plan to help people adapt to climate change.

FPIC: “Free, prior and informed consent recognizes indigenous peoples’ consent (FPIC) inherent

and prior rights to their lands and resources and respects their legitimate authority to require that third parties enter into an equal and respectful relationship with them, based on the principle of informed consent.”²

Integrated adaptation planning: Brings together adaptation planning for climate change with other planning processes— such as planning for development, or disaster risk reduction, or water utility management. (To integrate means to combine two or more things.)

Monitoring and Evaluation: Assessing the effectiveness of an action, activity, policy or program.

Participatory Processes: Method for making decisions that involves the active participation by all members of a group.

Vulnerability Assessment: A process that gathers information to identify areas where a community is exposed or sensitive to climate and non-climate hazards, or where and how their ecosystems and resources or livelihoods could be damaged.



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