



Assessing adaptation options for climate change:
A guide for coastal communities in the Coral Triangle of the Pacific
1. Assessment process



Scoping



Identifying
options



Evaluation
of options



Planning
implementation

Introduction

Assessing options for adapting to climate change is an important part of building resilient fishing and farming communities.

This brochure is part of a series that collectively detail how a community-based assessment of climate change was used in partnership with coastal communities and provincial and national-level stakeholders in Timor-Leste and Solomon Islands. The assessment contains four distinct, but related, steps (Fig 1) focused on supporting community-level decision-making for adaptation through a series of participatory action research activities. Each brochure in this series details a specific activity in the four-step assessment.

This series of eight brochures is primarily aimed for use where resources are limited or where it is more appropriate to use a rapid, qualitative and non-data intensive method of assessment. Community leaders, local NGOs and regional and national-level government representatives in developing countries may find this series useful.

In this brochure we provide an introduction to and details of how we conducted a community-based adaptation assessment of climate change in partnership with community members, local NGOs and government representatives in Timor-Leste and the Solomon Islands.

This series of brochures is intended for use more broadly across the Coral Triangle and Pacific region.

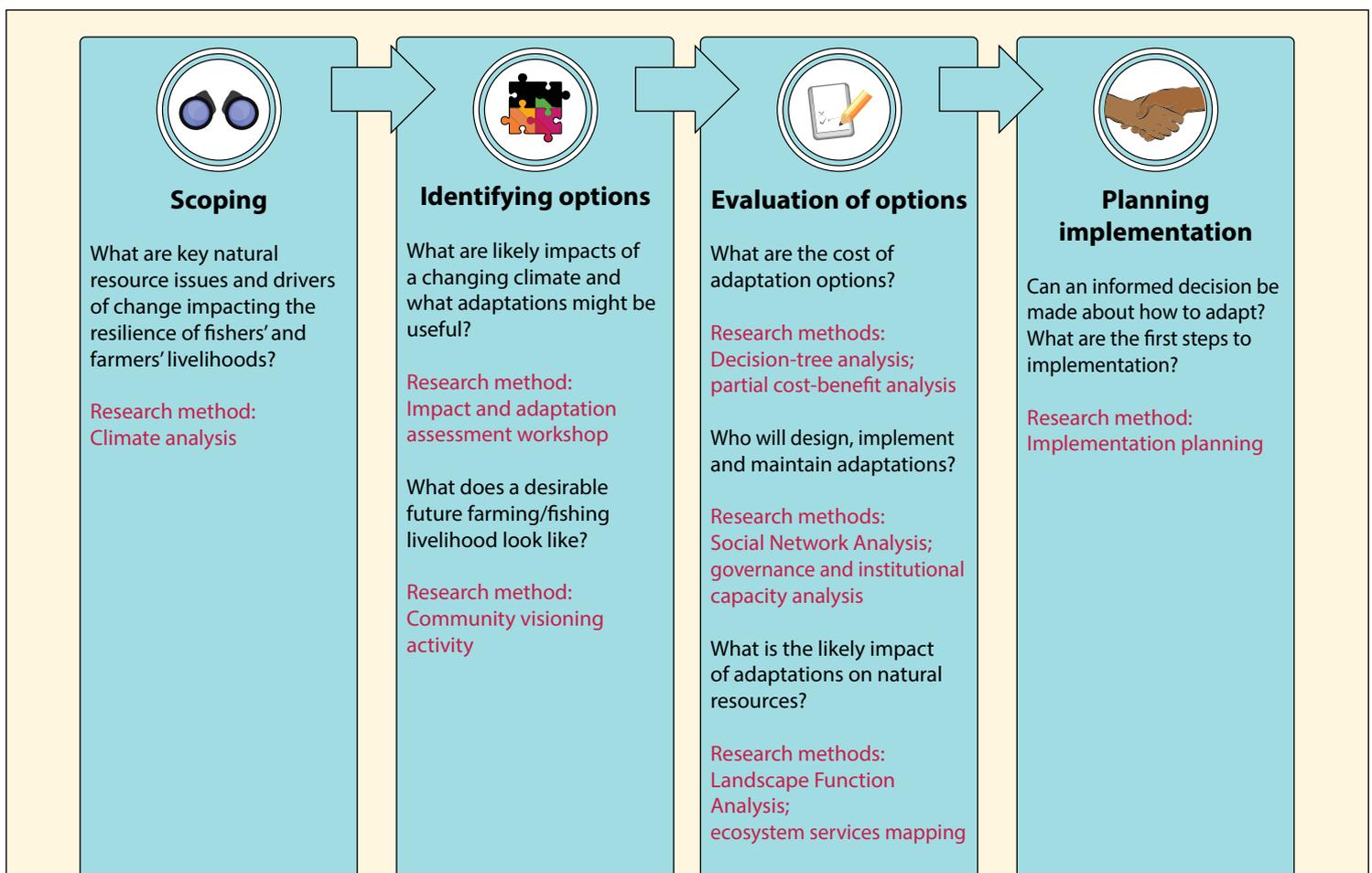


Fig 1: The four steps taken by community, local NGOs and regional and national government representatives in developing a plan to respond to climate change. Each step addresses specific questions likely to be asked by community members needing to adapt.

What Is Climate Change?

The atmosphere provides a blanket around the earth. As a result of human activities over the past few centuries, such as the burning of fossil fuels, this blanket is changing and gases such as carbon dioxide are building up (Fig 2).

This has the potential to trap more heat from the sun in the atmosphere and lead to rising temperatures and other changes in climate. Altered rainfall patterns, sea level rise and increased intensity of weather events may be some of the changes that could result.

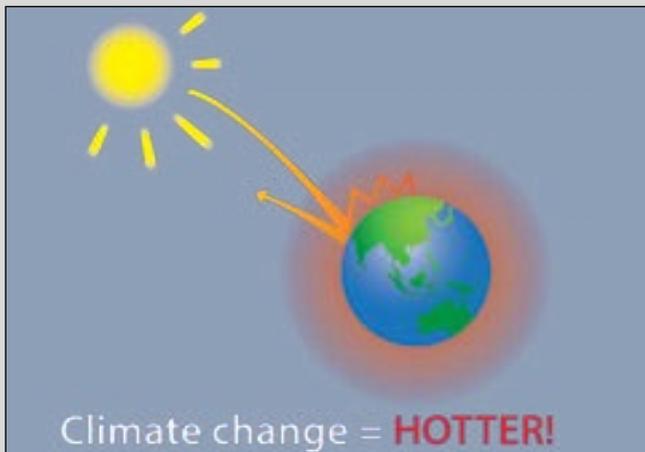


Fig 2: The effects of climate change are complex and vary in different parts of the world. Effects include rising temperatures, altered amounts and timing of rainfall and rising sea levels. All this can impact on fishing and farming livelihoods.

How Climate Change Is Impacting the Region

There is increasing evidence to show that the climate in the Coral Triangle and Pacific region is changing, just like in other parts of the world. Some wet seasons are becoming shorter, dry seasons longer, average temperatures slowly increasing and seasonal patterns of rainfall showing a marked difference from past decades.

Some of these changes are likely to continue into the future. Communities have been adapting to changes in climate for many years, but future changes may require continuous adaptation, and possibly to a greater extent than in the past.

Making effective decisions on how and when to adapt is critical to building resilience in fishing (Fig 3) and farming (Fig 4) livelihoods.

This community-focused climate change adaptation assessment is aimed at guiding those involved in making decisions that affect communities and in particular, the communities themselves. This is done through a series of activities that help provide information for making effective, evidence-based decisions. Importantly, it does this through participatory activities that build capacity to cycle through this assessment process on an ongoing, adaptive management basis.



Fig 3: Climate change has the potential to change the types and numbers of fish that can be caught.



Fig 4: Climate change has the potential to change the crops that can be effectively grown and the yield that they are able to provide.

Working With Fishing and Farming Communities to Consider Climate Change

Community-based assessments of climate change are helpful in understanding how fishers and farmers can adapt to a changing climate. The kinds of questions these assessments may try to answer can include the following:

- How is the climate changing in the region?
- What are the key natural resource issues and drivers of change for fishing and farming communities?
- What are the likely impacts of climate change on livelihoods?
- What actions can communities adopt to become more resilient to climate change?
- What do desirable futures for the communities look like?
- What are the likely costs and benefits of adaptation actions?
- Who will design, implement and maintain adaptation actions?
- What are the potential environmental impacts of adaptation actions?
- What are the first steps required to initiate the implementation of selected adaptations?

Our Approach to Community-Based Adaptation Assessment

Several approaches and tool kits already exist and are used in the Coral Triangle and Pacific region to conduct community-based assessments of climate change. Many of these are aimed at national-level professionals, researchers and policy makers; they provide large, technical manuals and may require high-level skills and resources for their application. For example, see: U.S. Coral Triangle Initiative Support Program. (2013). Climate Change Adaptation for Coral Triangle Communities: Guide for Vulnerability Assessment and Local Early Action Planning (LEAP Guide). Prepared with support from the United States Agency for International Development. <http://www.coraltriangleinitiative.org/library/guidebook-climate-change-adaptation-coral-triangle-communities-guide-vulnerability>

This series of brochures is intended to complement these existing materials by providing details on how to conduct an assessment when resources and technical skills are more limited. We provide step-by-step details of assessment activities that can be conducted in participation with community members. The brochures have been written in an easy-to-understand format and provide hints and tips for effectively undertaking each activity.

In each brochure we focus on a specific activity in the assessment process. The brochures provide the following:

- a small amount of background information on the issue (such as why the climate is changing)
- the questions that the activity is seeking to answer
- step-by-step method guide to help in conducting the activity
- our experiences of conducting the activity in either Timor-Leste or Solomon Islands, some of the findings emerging from the activity and the implications for the participating communities

Innovative elements of this approach include the following:

- using a decision-making approach in which community participation is central
- a multiple-scale perspective of adaptation, involving community fishers and farmers, researchers, government and NGO representatives
- evaluating the communities' selected adaptation actions from an economic, social and environmental perspective
- building community capacity to support ongoing assessment of climate change and the need to adapt
- Recognising the socio-economic context in which fishers and farmers need to adapt, including the barriers they face
- moving the assessment to consider implementation of selected adaptation actions

The Brochures in This Series

This is the first of eight brochures that detail activities conducted in this community-based adaptation assessment methods manual. The other brochures in this series provide details about how to undertake the following activities:

2. Climate analysis

This brochure includes details of how to examine local rainfall and temperature data to understand what has happened in the past and explore how this compares with the farmers' and fishers' experiences of managing climate over their lifetimes. It is aimed at providing information to move the assessment toward considering the potential impacts of future changes in climate on community livelihoods (Fig 5).

3. Impact and adaptation assessment workshop

This brochure details a participatory workshop conducted with researchers and community fishers and farmers that aims to identify potential impacts of a changing climate on livelihoods. It seeks to identify ways in which people may adapt and generate a vision of what successful adaption may make farming and fishing communities look like in the future (Fig 6).



Fig 5: Researchers and community discussed climate change in relation to seasonal calendars that show livelihood activities throughout the year.



Fig 6: The community prioritized and categorized adaptation actions.

4. Decision-tree and partial cost-benefit analyses

This brochure describes a method for identifying the potential costs and benefits of different adaptation actions. This includes a decision-tree and partial cost-benefit analysis of priority adaptation actions identified by the community (Fig 7).

5. Social Network Analysis

This brochure details an activity aimed at identifying the key individuals and institutions necessary for designing, implementing and managing adaptation actions. The activity captures the communities' view on who is currently providing information, support and problem-solving services that assist their fishing and farming livelihoods. It is also possible to use this activity to explore how existing social networks might need to change to help adaptation (Fig 8).

6. Landscape Function Analysis

This brochure provides a method for identifying the environmental costs and benefits associated with different adaptation actions. It includes analysis of the ecological function and soil structure of the cropped home gardens in communities (Fig 9).



Fig 7: The community undertook cost-benefit analyses of different fishing methods.



Fig 8: Fishers in Atauro mapped out their social networks through identifying the main actors and the connections between them.



Fig 9: The ecological function of different parts of home gardens were measured using Landscape Function Analysis.

7. Ecosystem services mapping

This brochure provides a method for identifying the environmental costs and benefits of different adaptation actions. It includes details of how to work with national and provincial-level stakeholders to map important uses of natural resources, productive coastal areas and native systems. This information is used to understand where important ecosystem services come from and how they might be impacted when natural resources are managed in different ways (Fig 10).

8. Implementation planning

This brochure is the last in the series and details an activity aimed at helping the community to identify the first steps needed to apply their ideas for adaptation. The activity includes gathering all the information generated during the community-based adaptation assessment and using it to help develop a plan for implementation (Fig 11).



Fig 10: National and provincial stakeholders mapped important land uses and natural resources in order to begin identifying drivers of ecosystem services.



Fig 11: Community members reviewed the findings from each of the activities conducted in the community-based assessment of adaptation to climate change. They decided on the three most important people and organizations that are needed to start implementing the desired adaptation actions.



This research was conducted by WorldFish under the project “Responding to Climate Change Using an Adaptation Pathways and Decision-Making Approach”, pursuant to the Asian Development Bank and Global Environment Facility cofunded initiative R-CDTA 7753-Strengthening Coastal and Marine Resources Management in the Coral Triangle of the Pacific (Phase 2).

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For further details on this project, visit <http://www.ctknetwork.org/> and <http://www.worldfishcenter.org/ongoing-projects/adaptationpathways-responding-climate-change>

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