

## KEY POINTS

- Climate change challenges poverty reduction and food and water security in the Coral Triangle.
- The project identifies actions to integrate into community efforts for building resilient fishing and farming livelihoods.
- The adaptation assessment promotes community decision making through participatory research activities.
- A set of policy recommendations focuses on strengthening the links of vulnerable communities with the national government.
- Policy implementation requires support of nongovernment organizations at the community and national levels.

## CLIMATE CHANGE IN CORAL TRIANGLE OF THE PACIFIC COUNTRIES: SUPPORTING COMMUNITIES TO ADAPT

In 2010, the Asian Development Bank (ADB) launched a regional technical assistance to respond to concerns raised by five Pacific developing member countries that lie within or on the border of the Coral Triangle—Fiji, Papua New Guinea, Solomon Islands, Timor-Leste, and Vanuatu, collectively called the Coral Triangle of the Pacific (CTP) countries—regarding management of their coastal and marine resources.<sup>1</sup> The technical assistance, comprising a design (Phase 1) and an operational phase (Phase 2), aimed to help these countries address the urgent threats facing their coastal and marine resources, in line with the objectives of the Coral Triangle Initiative on Coral Reefs Fisheries and Food Security.<sup>2</sup>

This brief provides representatives of national government and regional organizations—and other key decision makers in climate change, development, fisheries, agriculture, environment, and natural resource management in CTP and similar countries—with policy advice to help rural communities adapt to climate change.<sup>3</sup> The brief also provides donor organizations with information on where to target resources to support fishing and farming communities as they adapt to climate change. Policy interventions and issues to be considered are highlighted.

<sup>1</sup> ADB. 2010. *Technical Assistance for Strengthening Coastal and Marine Resources Management in the Coral Triangle of the Pacific*. Manila.

<sup>2</sup> Coral Triangle Initiative. <http://coraltriangleinitiative.org/>

<sup>3</sup> This brief was prepared by the World Fish Center. Research was conducted under the ADB and Global Environment Facility initiative on Strengthening Coastal and Marine Resources Management in the Coral Triangle of the Pacific (R-CDTA 7753, Phase 2) in collaboration with organizations in Solomon Islands and Timor-Leste, and farmers and fishers who participated in the community-based assessment of climate change in the two countries. For further details, visit the Coral Triangle Knowledge Network Website ([www.ctknetwork.org](http://www.ctknetwork.org)) or download the technical assistance consultant's report (<http://www.adb.org/sites/default/files/project-document/153350/43427-012-tacr.pdf>).



*Presentations on climate change adaptations in Batugade, Timor-Leste.*

## INTRODUCTION

Increasing land and sea temperatures, rising sea levels, changing rainfall patterns, and ocean acidification will alter ecological functioning on both land and sea. This will likely exacerbate challenges to food and water security and poverty reduction.

### Climate change will affect community fishing and farming livelihoods in Coral Triangle of the Pacific countries

Projected impacts of climate change will greatly affect fishing and farming livelihoods in the CTP countries.<sup>4</sup> While some opportunities may arise, such as the potential to harvest and store increased wet season rainfall, challenges are likely to be severe, including

- reduced productivity of reefs and their fisheries due to rising sea temperatures and ocean acidification;
- changes in distribution of major commercial ocean species, such as the projected eastward movement of tuna;
- water shortages due to increasingly erratic rainfall patterns or longer dry seasons; and
- risk of flooding and soil erosion due to increased wet season

rainfall, impacting farmland and infrastructure, and causing siltation in reef systems.

Other than climate-related threats to fishing and farming, the communities' existing poverty, reliance on overexploited natural resources, weak governance systems, and physical isolation from centralized government services also weaken their capacity to adapt to climate change. It is also likely that climate change impacts will be particularly marked for marginalized community members, including women.

Communities throughout the Pacific have been adapting to climate variations for generations, but the rate and scale of projected changes mean that communities will need to adapt further and more rapidly if they are to build resilient livelihoods.

### Climate change policy

Of the CTP countries, Fiji, Papua New Guinea, and Solomon Islands have developed climate change policies while Timor-Leste and Vanuatu are in the early stages of policy development. Where such policies do exist, lack of staff, poor infrastructure, limited communications, poverty, and scarce resources can make them

<sup>4</sup> ADB. 2014. *Economics of Fisheries and Aquaculture in the Coral Triangle*. Manila.

ineffective. Some countries have difficulty implementing existing priority policies, such as environmental management or reversing the decline of coastal fisheries. Without strengthening systems to improve delivery of services related to food security, natural resource management, and community livelihoods, efforts to act on climate change in those areas will likely prove ineffective.

It is imperative that climate change policies in the CTP countries are implemented effectively, with community and other stakeholder inputs being central to policy development and implementation. Developing climate change policy must involve not only crafting strategy documents, but also providing sufficient resources and capacity to support equitable outcomes, particularly for the most vulnerable groups. Decisions on allocating limited resources and making trade-offs can be more effective when community members are involved in transparent and equitable processes.

### Project Approach

The technical assistance project used an adaptation pathways and decision-making approach, which engaged communities in assessing the impacts of climate change and identifying

adaptation actions that could be effectively integrated into existing efforts to build resilient fishing and farming livelihoods. The project team worked with fishing and farming communities, local nongovernment organizations (NGOs), and representatives of regional and national government in Solomon Islands and Timor-Leste to help them identify and assess options for adapting to climate change. The project also assessed the capacity of institutions to assist communities to implement the adaptations identified. The research findings and recommendations are relevant not only to communities in Solomon Islands and Timor-Leste, but also to the other CTP and other Pacific countries facing similar climate change challenges.

Through community participatory activities, the likely impacts of climate change on fishing and farming livelihoods and a range of actions that may help communities adapt to climate change were identified. The communities selected adaptations they wanted to evaluate further in terms of economic, environmental, and social costs and benefits. This information was used by fishers and farmers to develop a plan for implementing the most appropriate adaptations.

The project addressed three considerations in carrying out these activities:



*A fishing family off the island of Atauro, Timor-Leste.*

- Equitably and genuinely engage with all community members, including women and children and those who are marginalized and disempowered.
- Consider socioeconomic and technical adaptation measures. When pursuing adaptation technologies a socioeconomic environment that enables stakeholders to make informed decisions and act on them is needed.
- Address climate change adaptation as an integrated, multiscale issue, recognizing the individual and collective influence of community members, local NGOs, and government representatives in enabling adaptation.

Ministerial briefs, policy documents and press releases in the two countries were reviewed to learn how climate change policy, as well as policies in related areas, such as natural resource management, agriculture, biodiversity, and environment, were being developed and implemented. The review provided insights into how well communities might be supported in relation to climate change and livelihoods.

The project produced two reports and a series of eight easy-to-follow brochures<sup>5</sup> giving detailed accounts of the methods used. A short video captured the communities' participation in the assessment.<sup>6</sup>

## KEY POLICY RECOMMENDATIONS

### 1. Work with communities.

Policy and project teams must work closely and equitably with all community members to integrate knowledge, experiences, priorities, values, and perspectives.

Policy and projects will, as a result, be more relevant to the needs of communities, and hence more effective and likely to be adopted. The allocation of limited resources will be more transparent and promote equality within and between communities in their capacity to adapt. The project observed that the communities were best placed to determine how climate change and variability affect their livelihoods, and were, in fact, already implementing climate change adaptation measures.

### 2. Ensure inclusive representation.

All members of communities need to be represented in decision-making activities and in developing, implementing, and evaluating climate change actions and policies.

More equitable targeting of policy will benefit all community members. Failure to do this can result in perverse incentives and

can even worsen inequalities. Substantial additional effort may be required to engage community members who are regularly marginalized or excluded from decision-making processes. The project found that many factors influence the effects of climate change and capacity to adapt, including access to resources and information, extent of social networks, and power to make decisions and implement actions.

### 3. Target the most vulnerable.

Provision of information, support, and guidance must target the most vulnerable members of a community. This investment should include education, training, and extension services and must be sustained in order to implement and monitor adaptation actions. Support must be integrated across national and “subnational governments,” NGOs, and communities, via improved communication networks. Targeting the needs of the most vulnerable will contribute to allocating limited resources more effectively.

In fisheries, decision-tree and cost-benefit analyses revealed that diversification of strategies of small-scale fishers would be effective in enhancing their financial viability and may improve the sustainability of fisheries. Greater investment is also needed in equipment and technical services to enable communities to better manage degraded fisheries and diversify into sustainable alternative food production, such as aquaculture.

**Agricultural communities are aware of the need to improve farming practices to increase crop production and stabilize yields but lack information and resources.**

Capacity building should target rural communities, especially women, who are the primary producers of crops. Designing materials and activities to meet the specific needs of female farmers may reduce inequality within communities and increase capacity to adapt to climate change.

### 4. Plan for aquaculture.

Policies must be developed to ensure that aquaculture is well planned, environmentally benign, beneficial to communities, and sensitive to land ownership and competing land uses.

<sup>5</sup> Midterm and Final project reports. Assessing Adaptation Options for Climate Change: A Guide for Coastal Communities in the Coral Triangle of the Pacific. <http://www.ctknetwork.org/tools/assessing-adaptation-options-for-climate-change-a-guide-for-coastal-communities-in-the-coral-triangle-of-the-pacific/>

<sup>6</sup> Coral Triangle Knowledge Network. Community-Based Adaptation to Climate Change Empowers Coastal Communities in Timor-Leste. <http://www.ctknetwork.org/videos/community-based-adaptation-to-climate-change-empowers-coastal-communities-in-timor-leste/>

Sustainable development of aquaculture will help reduce potential conflict over land use, reduce off-site impacts, and promote equitable sharing of resources in multi-use landscapes. However, land suitable for aquaculture is also suitable for other uses. Aquaculture may increase food security and farmers' income, but large-scale or intensively managed aquaculture may conflict with existing land uses or cause off-site pollution.

## 5. Strengthen links between governments and communities.

Strengthening links with national government through subnational governments is required in both policy and practice. Deficiencies in government capacity to deliver services, especially at subnational levels, must be addressed with consistent strategies for training and adequate finance.

The project found that local governance often does not link well with national government, which could result in (i) national policies being irrelevant or detrimental to communities, (ii) poor implementation of policy, and (iii) desired policy outcomes being compromised. Improved communication between national and subnational government would promote transfer of ideas, information, resources, and services, and increase accountability and transparency of decision making.

## 6. Develop long-term plans and monitoring.

Long-term community development planning and monitoring will

build community ownership; increase transparency of decision making, accountability, and equity in resource allocation; improve community understanding of prioritization and budgeting processes; and build relations with government agencies.

Communities have the experience and local knowledge to facilitate their own development. Viewing support for communities as a long-term strategy and increasing accountability to deliver on this will help build resilient and adaptive livelihoods. This will enable communities to make informed decisions in responding to climate change. Long-term resourcing, support and guidance from multiple sources, including government and NGOs, are required.

## CONCLUSION

Fishing and farming communities in the study areas are aware of climate change and concerned about its impacts. When working with other stakeholders at community, regional, and national levels, these communities are adept at identifying how to adapt to climate change and the challenges and opportunities that go with it. Supporting them through policy development will require a long-term focus on both the supply of adaptation technologies and the cultivation of an enabling environment that promotes informed decision making and the capacity to benefit from adaptation for all members.

At the heart of all policy development and implementation there must be genuine engagement of communities in which their diverse voices, issues, values, and cultural context are



*A village meeting in Nukukaisi, Makira, Solomon Islands to discuss climate change issues.*

represented. To develop and deliver a meaningful climate change adaptation policy, communities must build around their capacity to implement existing priority policies in related areas, such as fisheries, agriculture, and natural resource management.

Policy alone will not build resilient coastal communities. Implementation at all levels is necessary to ensure policy intent is delivered. In the short term, support from NGOs and other institutions may be required, and the challenges of integrating multiple agencies and agendas must be addressed. Adaptation to climate change requires strong cooperation, coordination, and consensus building among many partners. Ultimately, ensuring long-term support to address climate change for communities in the CTP countries facing similar problems remains the responsibility of the national governments and their leadership.

**Effective policies will empower communities to take action and benefit all, including those who are marginalized and disempowered.**



*Presentations on climate change adaptations in Batugade, Timor-Leste.*

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