



Using participatory action research to manage uncertainties in adaptation

The Climate Change Adaptation in Africa (CCAA) program has supported applied research to inform adaptation policies and practices that can reduce the climate vulnerabilities of African societies. A key challenge has been for researchers to anticipate the future impacts of a changing climate, and the consequences for societies that are also affected by demographic, economic, and technological changes.



In West Africa, researchers are helping to strengthen decision-making on fisheries policy. Photo: IDRC / Djibril Sy



Lessons learned

- **Participatory action research (PAR) helps reduce uncertainty when it focuses on immediate needs related to climate resilience and vulnerability, triangulates information from multiple sources, and strengthens institutions to make informed decisions.**
- **Decision-makers tend to be more constrained by institutional weaknesses in adaptive capacity more than by issues with uncertainty about future climate conditions.**

Recognizing that adaptation is a long-term, iterative process, CCAA's approach has been to support initial steps through participatory action research projects that do the following:

- *Deal with uncertainty* by considering low-regrets solutions that address immediate problems and improve climate resilience.
- *Triangulate information* from different sources to engage multiple actors, build consensus, and identify feasible actions.
- *Strengthen institutions* that use information and make decisions, so that further actions can be identified as new knowledge emerges.



In Benin, researchers focused on low-regrets strategies that improve soil fertility and access to early warning and advisory information.

Photo courtesy of IDID-ONG

Dealing with uncertainty

To develop good advice on adaptation, researchers try to reduce many uncertainties related to predicting future climate conditions and their potential impacts. Some researchers use climate models; however, because the systems being modelled are complex, some degree of uncertainty will always remain. Focusing on the unknowns rather than on what is known makes it difficult for those who must decide if and when to invest in adaptation options.

Many CCAA projects have focused on low-regrets solutions that address drivers of climate vulnerability. This approach reduces the sensitivity of communities to unpredictable shocks and stresses. Increased incomes, improved access to markets and government services, and reduced demands for water, for example, all strengthen the resilience of communities to deal with climate impacts. Crucially, they also address current development challenges, such as poverty and water insecurity, giving high confidence in a return on investment.

For example, in Benin, which has suffered extremes of flooding and drought in recent years, a CCAA project¹ worked with

farmers, researchers, NGOs, and government officials to create a severe weather early warning system and test better soil management techniques. These actions included specific adaptations to flooding, but also addressed poor soil fertility and food insecurity, both of which were pre-existing development challenges that made the communities more vulnerable to climate impacts. The project therefore included different types of adaptation activities: some focused on climate vulnerabilities specifically, while others addressed the general robustness of the community to shocks and stresses.

Researchers studying the relationship between climate change and vector-borne disease in Tunisia² realized that the use of irrigation water was a key factor in determining rates of infection. Although their research was not designed to address adaptation in agriculture, they have worked with local farmers' groups to reduce irrigation water use. This practice in turn reduced demands on scarce water resources and costs of pumping the water, with immediate benefits to the farmers.

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Triangulation of sources

Scientific uncertainties will decline over time as methods and observations improve and consensus grows, even though uncertainties will never be eliminated absolutely. Yet while the task of researchers is to reduce uncertainties and focus on what can be known, decision-makers and communities that are faced with climate change inevitably focus on what should be *done*.

¹ Strengthening the Capacity of Farmers to Reduce the Impact of Climate Change in Rural Benin.

² Analysis of the Health Impacts of Climate Change Adaptation: The Case of *Zoonotic Cutaneous Leishmaniasis* from *Leishmania Major* in Tunisia.



Where the impacts of climate change and increased variability are immediate, action is needed, even if uncertainties remain over the effectiveness of proposed interventions. In other cases, stakeholders may disagree about the likely impacts of climate change or the benefits of proposed adaptations, even if the scientific uncertainties are relatively low. Recognizing this political dimension of decision-making, a number of CCAA projects have responded to such situations by trying to engage multiple actors who have access to different information and then build consensus for appropriate action.

CCAA has supported research by the IGAD Climate Prediction and Applications Centre (ICPAC), which brought together climate modellers and members of the traditional Nganyi weather-forecasting community in Kenya.³ Engagement in the project generated increased trust between the two groups; together they produced integrated seasonal forecasts to be shared with local farmers. Integration of the two different sources of knowledge dealt explicitly with aspects of uncertainty in both the scientific and traditional methods.



In Western Kenya, ICPAC brought together scientific and indigenous forecasters to produce local level forecasts that are more useful to farmers. *Photo: IDRC / Thomas Omondi*

The process of integration also helped to fine-tune the downscaling of climate forecasts based on local knowledge about local features that determine weather.

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Building institutions for decision-making

Decision-makers in developing countries often work in constrained situations with limited opportunities to take action, and they frequently lack basic information. They are more likely to judge results and recommendations from complex research in terms of their practicalities rather than in terms of their uncertainties.

Given this situation, a number of CCAA projects have focused on strengthening institutional capacity for adaptation: for example, by creating multi-stakeholder platforms for information sharing and decision-making. A CCAA coastal adaptation project in Morocco⁴ used exactly this approach to compensate for the lack of a legal and institutional framework for integrated coastal zone management. The project brought together stakeholders from a number of government departments, NGOs, and citizens' groups.

Similar approaches have been used in coastal adaptation projects in Egypt⁵ and Cape Verde,⁶ by the URAdapt project on urban adaptation in Ghana and Ethiopia, by a regional fisheries project in West Africa,⁷ and in projects on, for example, agricultural and health adaptation.

³ Integrating Indigenous Knowledge in Climate Risk Management in Support of Community Based Adaptation.

⁴ Moroccan Coastal Management: Building Capacity to Adapt to Climate Change.

⁵ Adaptation to the Impacts of Sea Level Rise in the Nile Delta Coastal Zone.

⁶ CapaSIDS: Capacity Building and Knowledge on Sustainable Responses to Climate Change in Small Island States.

⁷ Adapting Fishing Policy to Climate Change with the Aid of Scientific and Endogenous Knowledge.



In Morocco, researchers brought decision-makers and local stakeholders together to develop strategies that protect coastal resources and livelihoods. Photo: IDRC / Mary O'Neill

The collective experience of these projects has been that convening stakeholder forums and providing even the most indicative information can catalyze adaptive capacity by raising awareness, focusing attention on the problem, building relationships between stakeholders, and generating experience in selecting and evaluating adaptation options.

Adaptation is a long-term, iterative process rather than a series of one-shot solutions. While CCAA researchers have made valuable contributions to strengthening the adaptive capacity of the communities and government departments that are partners in their projects, these are initial steps in a long process. The experience of CCAA projects so far has been that institutional weaknesses in adaptive capacity are more significant limitations than are issues with scientific uncertainty around adaptation options. In contexts of larger institutional challenges, decision-makers may be more willing to rely on indicative information and less concerned by high levels of uncertainty in recommendations from adaptation researchers.

Looking ahead

Researchers will continue to improve their understanding of potential impacts from a changing climate as observations and data are collected. As experience with adaptation grows, their understanding of possible courses of action will also improve. In the meantime, even where uncertainties remain, action researchers can support positive outcomes that increase resilience to climate shocks and stresses and strengthen capacity to adapt in the future.

Improving our understanding of climate vulnerabilities can help communities develop more robust livelihood strategies. Initiatives to improve incomes and human health and to increase water and food security all have immediate benefits, while at the same time leaving people better able to cope with adversity caused by droughts, floods, and other climate impacts.

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Even when large uncertainties remain over the effectiveness of adaptation options, action researchers can strengthen the ability of people and institutions to make decisions. Convening stakeholder platforms, reviewing available evidence, and building consensus are all integral aspects of the participatory action research approach. Ultimately, adaptation to climate change will be a long-term process that is best served by people and institutions with the capacities to re-evaluate practices, policies, and plans in the light of new information. Action researchers have crucial roles to play in strengthening such institutions and capacities.



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