

The Effects of Climate Change in the Congo Basin : The Need to Support Local Adaptive Capacity

Many regions in Africa have endured climate-related risk and uncertainty for decades. However, the effects of these risks are not experienced everywhere with the same intensity. The threat is particularly great in sub-Saharan Africa.

In the Congo Basin, more than 80% of people live exclusively on agriculture, fisheries, livestock and harvesting activities that are highly dependent on climate. The Intergovernmental Panel on Climate Change's Fourth Assessment Report states that the threat to African countries is compounded as they lack the technical means to assess the impact of climate change and determine effective coping strategies. Furthermore, the rate of climate change tends to invalidate the populations' adaptive efforts; hence the need to assist them in designing and implementing effective strategies to deal with this scourge.

It is in this context that in 2008, the Centre for International Forestry Research (CIFOR) initiated a project entitled "Altering the Climate of Poverty under Climate Change: the Forests of Congo Basin" (CoFCCA). This three-year project, funded by the Climate Change Adaptation in Africa (CCAA) program, is being implemented in five sites in three countries - Cameroon, the Central African Republic and the Democratic Republic of Congo (DRC). It aims to assess the level of local communities' vulnerability to climate change in the Congo Basin forests and bring stakeholders together to design and implement specific adaptation strategies through participatory action research (PAR).

This paper seeks to demonstrate that :

- 1) PAR has proven an effective tool for social learning and knowledge sharing, and has allowed communities to interact, exchange knowledge, and coordinate their strategies on climate change adaptation;
- 2) Climate change offers opportunities but one of the biggest challenges is to find and develop them; and
- 3) A multifaceted and coordinated external support effort is essential, and should involve government, the private sector, and local and international NGOs.

Climate risks and responses in the Congo Basin

Through a process of participatory diagnosis, communities first discussed the climate conditions they suffered from and the magnitude of the effects of climate variability on their livelihoods. They then approached officials within the decentralized technical services and support structures for further discussion. These stakeholders exchanged views on the effectiveness of adaptation strategies implemented to date, and on the need to reduce their vulnerability. Results of the discussions showed strong similarities in the climate change risks and their effects across the five study sites summarized in Table 1.

Local communities have so far developed their own individual or collective strategies to cope with climate risks. In Nkol Evodo in central Cameroon, some households were able to prevent animal deaths in hot spells by planting and tending plant species eaten by these animals around their homes, or by placing full containers nearby to water them. Communities have also collectively set up firewalls to protect forests.

Local communities in the Congo Basin forests are vulnerable to climate change. Therefore, multifaceted and coordinated support, involving government, the private sector, and local and international NGOs, is essential for their adaptation.

Table 1. Climate risks and their effects in the study sites

Climate risks	Perceived effects	Solutions identified	Partners/ Potential stakeholders
Positive Effects			
Pockets of rain in the dry season	<ul style="list-style-type: none"> • Rapid growth of some plants such as plantain, cocoyam and cassava 	<ul style="list-style-type: none"> • Extending their cultivation over a wider area 	Local communities themselves
Drying of some watercourses and swamps	<ul style="list-style-type: none"> • Positive impact on the production of off-season corn, with a shift from one to two cycles of annual production 	<ul style="list-style-type: none"> • Expand their production and increase yields 	local communities themselves
Negative Effects			
Torrential rains in the rainy season	Cassava tuber rot	<ul style="list-style-type: none"> • Seeking improved seeds Relocating fields 	<ul style="list-style-type: none"> • Research institutions • NGOs
Pockets of drought in the rainy season	<ul style="list-style-type: none"> • Etiolation (rapid elongation) of rain-fed rice, peanuts and corn Withdrawal of wild game during pockets of severe drought 	<ul style="list-style-type: none"> • Seeking tolerant seed varieties • Training in raising domestic livestock 	<ul style="list-style-type: none"> • Research institutions • NGOs
High winds	<ul style="list-style-type: none"> • Loss of branches of multipurpose trees such as Jansang (<i>Ricinodendron heudelotii</i>) and andok (<i>Irvingia</i> spp.) • Failure of cacao flowers 	Keeping trees around important species as wind-breaks	<ul style="list-style-type: none"> • Local communities themselves • NGOs
More intense and longer heat spells in the dry season	<ul style="list-style-type: none"> • Fewer edible caterpillars and mushrooms • Decrease in fish stocks • Animal morbidity • Increasing numbers of bushfires • Outbreaks of diseases such as malaria and typhoid 	<ul style="list-style-type: none"> • Planting caterpillar host plant species around homes • Promoting livestock raising techniques • Raising awareness on the dangers of bushfires • Promoting exchange groups on pharmacopoeia 	<ul style="list-style-type: none"> • Research institutions • State technical services • NGOs

Seizing and exploiting opportunities presented by climate change

In Cameroon and the DRC, discussions initiated through the project enabled communities to see that unusual pockets of rain in the dry season were having positive

effects on the growth of banana and plantain. The same was observed of taro in Cameroon and cassava in the DRC. In deciding to expand cultivation of these crops to reduce their vulnerability to climate change, communities are aware that they are

simply conducting an experiment, given the degree of uncertainty surrounding climate change forecasts. By this same logic, they are taking advantage of the drying out of wetlands for the systematic cultivation of off-season maize.



Comestible caterpillars host plant species (Photo : G.Akwah)

Climate change may also bring new opportunities. Farmers in Cameroon now grow corn and other vegetables in areas that were formerly swampy. (Youssoufa Bele, Cameroon).

Other options, such as apiculture, domestication of gnetum trees and cultivating caterpillar host plants, provide food safety nets in anticipation of the most critical moments.

Support needed

One of the lessons learned from the CoFCCA project is that endogenous knowledge, however useful it may be, cannot by itself reduce local populations' vulnerability to climate change. The implementation of these new strategies

is fraught with many problems, including poor access to scientific innovations and information on climate change, low social capital (which is an obstacle to collective action), and the lack of an institutional framework to support reflection and action on climate change adaptation. The following external supports are therefore needed :

- an observatory on climate change in Central Africa, able to provide meteorological information that can help communities adjust their farming schedules;
- a local-level network of observatories on climate change, to support decision-making;
- NGO-developed mechanisms for information and appropriate messages on climate change for local communities;
- new or improved frameworks for NGOs to share and exchange, at the local level, information and experiences on climate change in general and adaptation in particular; and
- research and action programs established by governments to support communities in increasing the effectiveness of their adaptation strategies.

Conclusion

Climate change poses a problem of survival as it exacerbates poverty in Central Africa. The study conducted by the project found that adaptation efforts developed by local communities are no longer sufficient to address climate uncertainties and the speed with which changes are occurring. PAR enabled them to think of new adaptation strategies, which can however be implemented only with the support of partners such as national and regional policy-makers and NGOs and through international cooperation, following an action-oriented and coordinated approach. ■

Acknowledgment :

The project "The Congo Basin Forests and Climate Change Adaptation" is funded by the Climate Change Adaptation in Africa (CCA) program, a joint initiative of Canada's International Development Research Centre (IDRC) and the United Kingdom's Department for International Development (DFID). The views expressed in this paper by the authors do not necessarily reflect those of DFID or IDRC. The authors also thank the communities for their active collaboration in PAR activities.

