



# Climate risk management in Africa: Learning from practice

African development is at a critical juncture. Both internal and external efforts focus on lifting African people out of poverty and hunger and empowering them to participate in economic growth – but how does climate fit into these endeavors? Where millions rely on rainfed agriculture for their livelihoods, climate-sensitive diseases are a major public health problem, and climate-related disasters regularly threaten development gains, it is astonishing that development efforts have so far largely failed to integrate climate information and knowledge. The partners behind the publication *Climate Risk Management in Africa: Learning from Practice* – the African Union, the African Development Bank, the United Nations Economic Commission for Africa, the Global Climate Observing System, and the International Research Institute for Climate and Society – would like to see this change. They believe that an important opportunity is being missed.

Incorporating climate information into development decisions allows the risks associated with climate to be better managed and reduces vulnerability among the poor. Effective climate risk management (CRM) also has the potential for synergistic results, as farmers, for example, become more confident and thus more willing to invest in yield-increasing technology.

Climate science has made substantial advances in recent years, and increasingly reliable climate information is becoming available. Yet the benefits of this science are largely failing to reach African decision-makers. An analysis of the reasons for this identified problems with the availability of climate data and the effectiveness of climate services, as well as a failure to incorporate climate considerations into policy and practice.

There are, however, some notable exceptions – cases where national authorities, development projects, or private-sector operators have recognized the value of climate information and have sought to systematize its inclusion

in their decision making. The elements of good CRM practice demonstrated by these cases can inform future efforts in this direction. *Climate Risk Management in Africa: Learning from Practice* documents five such cases, deriving lessons from within and across them.

As the cases make clear, what is needed is an integrated approach that incorporates climate science and information into multidisciplinary development planning and projects. Crucially, the approach should also be participatory, involving all primary stakeholders so as to ensure that their real needs are met. The climate tools developed and deployed through this approach will enhance stakeholders' decision making by providing relevant new information that they can incorporate into practice.

Climate change is making headlines around the world, but its inherent uncertainties are causing confusion, and sometimes controversy, over the best way forward. Climate variability is with us *now*, and the partners responsible for this publication believe that learning to better manage climate variability today will increase the resilience of infrastructure and systems, and strengthen the capacity to

**“The impact of climate change will fall disproportionately on the world’s poorest countries, many of them here in Africa. Poor people already live on the front lines of pollution, disaster, and the degradation of resources and land. For them, adaptation is a matter of sheer survival.”**

former UN Secretary General Kofi Annan,  
at COP 12, UNFCCC, November 2006, Nairobi.

adapt to future climate change. This is especially the case for the more frequent and more damaging extreme climate events that are likely to be associated with future climate change.

## Recommendations

The report's major recommendations to policy makers are:

### ■ Recast climate as a 'development' issue

Climate has long been understood as an important issue for sustainable development, but it has largely been ignored by development planners and economists. It must be recast in development terms if it is to be perceived as a core development issue. That means spelling out the economic implications of climate-related risks such as famine, malaria, flooding, etc. It also means establishing the potential of climate information and services to improve the management of risk and promote sustainable development. Investment in judiciously chosen studies to quantify the economic impact of climate variability and change as well as the benefits of climate information in climate-sensitive sectors is therefore recommended.

### ■ Encourage institutional innovation

There are centers of excellence throughout Africa that can play key roles in developing, managing, extending, and sharing knowledge on how to better manage climate-related risks. Creating institutional networks and partnerships that can develop and

## Flood management in Mozambique

The floods that occurred in Mozambique in 2000 were the worst in living memory, and severely tested the country's flood early warning and response system. Despite some shortcomings, it was generally agreed after the disaster that the system had been effective. The system exhibits several elements of CRM good practice that could be extended to other countries and other kinds of disaster.

Backed by good policy and planning for flood management, the system integrates flood prevention, preparedness, and response activities at multiple levels, from local communities to central government. There is active collaboration between the levels, both prior to and during flood situations. The water authorities work closely with the meteorological service, as the flood hazard depends on both climate and hydrological factors. Collaboration with neighboring countries is also critical, as floods are often the result of rainfall in upstream watersheds and management decisions taken outside Mozambique; this is supported by regional agreements which have been strengthened since the 2000 floods.



PA-Retena/S&P Pictures

## Agriculture in Mali



In Mali, rainfed agriculture is the mainstay of most peoples' livelihoods, but it is highly vulnerable to frequent droughts. Recognizing this problem, the national meteorological service launched a project some 25 years ago to provide climate information to rural people, especially farmers. The project was highly innovative from the outset – the first in Africa to supply climate-related advice and recommendations directly to farmers, and to help them to measure climate variables themselves, so that they could incorporate climate information into their decision making.

Today, farmers consistently report higher yields from fields where 'agromet' information is used in decision making, with corresponding increases in farm income. More than 2000 farmers work directly with the project, and many others access climate information through these representative farmers. The evidence suggests that these farmers are able to make better management decisions that lead to higher yields and incomes; are prepared to take more risks, investing in new technologies that can raise yields and incomes still further; and start to seek information from other sources to improve their decision making.

A multidisciplinary group is at the heart of the project's success. It includes members from the meteorological service, the Ministry of Agriculture, agricultural research institutes, rural development agencies, farmers, and the media. The group acts as a 'boundary institution', bridging the gap between the

climate and agricultural communities by translating climate information into useful information and advice for farmers. Other factors contributing to the project's success are political support from the government; long-term financial support from the principal donor; the project's farmer-centered approach; and effective communication, including the use of rural radio.

## Food security in Ethiopia

Droughts occur frequently in Ethiopia, where widespread poverty increases people's vulnerability, leading to food insecurity. The country has responded with an early warning and response system that enables mitigation measures to be put in place before disaster strikes. The effectiveness of the system was demonstrated in 2003, when more than 13 million Ethiopians were affected by drought, but a major famine was avoided.

The system has evolved and improved since it was set up in 1976, and today it is a complex information management system that gathers data from multiple sources and provides information to a large number of users. There are early warning committees at all levels of the government, down to district level; at each level information is gathered and reported to higher levels. The main objective is to provide assistance before people's livelihoods are destroyed, so that they can recover quickly after the disaster is over.

The system is highly effective at meeting its current primary purpose, of securing external food aid. However, it could play an even more useful role if it could also reach farmers and pastoralists directly, with timely advice that would help them manage climate variability. The challenge of conveying useful messages in local languages also needs to be addressed. The media have an important role to play here, alongside agricultural sector specialists who can produce the necessary tailored climate information.



implement innovative, problem-focused CRM programs is essential if these centers are to continue to achieve positive development outcomes as climate change takes hold. These programs will need to do business differently to those of the past, bringing together the different R&D communities needed for effective CRM and integrating their knowledge to develop new approaches, tools, and methods.

Specifically, investment in 'boundary institutions' can help to bring climate information to bear on sectoral planning and decision making. These institutions can act as intermediaries between scientists and decision makers or between climate specialists and sectoral managers. They can translate scientific knowledge into practical guidance for the organizations that wield decision-making authority, and can help clarify the needs of decision makers so that these guide scientific enquiry.

### ■ Orient meteorological services towards achieving development outcomes

Many national meteorological services at present have little incentive, are not sufficiently resourced, or are not mandated to provide agriculture and other climate-sensitive sectors with the range of services they need. Governments are urged to make the necessary institutional changes, including the provision of new resources where necessary, to reorient national meteorological services towards sustainable development outcomes.

### ■ Strengthen research in support of climate risk management

Innovative strategic and applied climate research has a key role to play in improving CRM as we embark on an increasingly uncertain climatic future. This research should span the

**“Our ability to turn a threat into an opportunity hinges on actions taken today.”**

Ahmadu Babagana, Director, Department of Rural Economy and Agriculture, African Union

## Epidemic malaria in southern Africa



Epidemic malaria – distinct from endemic malaria – affects an estimated 124 million Africans and causes between 12% and 15% of all malaria deaths. Outbreaks are influenced by short-term variations in rainfall, temperature, and humidity. Measures to control epidemics need to be applied in the right place at the right time, and climate information can help significantly with these decisions.

Partners in the Roll Back Malaria initiative have developed a new epidemic malaria early warning and response system that includes seasonal forecasts and climate monitoring, as well as vulnerability assessments, case surveillance, and response planning. The system is currently being tested in several epidemic-prone countries of southern Africa, where the early evidence is that national control programs have substantially improved their preparedness and response.



## Drought insurance in Malawi

This case study describes a pilot project that is testing a new way of dealing with drought risk: the provision of index-based weather insurance directly to smallholders. The project, which is primarily driven by the private sector, goes to the heart of food insecurity in Malawi by tackling the major cause of low levels of farmer investment in new technology: fear of crop failure.

Rather than insuring against crop failure, as traditional agricultural insurance contracts do, the new contracts are written against an index describing the relationship between lack of rainfall and crop failure. Farmers receive payouts if rainfall falls below agreed trigger points during key stages of crop growth. Whether the insurance pays out or not, farmers still have the incentive to make productive management decisions.

The project, which bundles insurance with a loan for the purchase of seeds and fertilizer, began in the 2005–06 season, and initial experiences appear to be positive. Practically all the farmers involved are keen to participate again in the second year, and there is a high demand from new farmers to join. It is estimated that several thousand contracts have been signed so far for the 2006–07 season.



continuum from daily or near-term weather and seasonal forecasting to long-term predictions. But climate science by itself will not be enough: also needed is sector-specific research to understand the implications of climate change and its relationship with the sector concerned, and to improve sectoral decision making under climate uncertainty. With regard to the latter, it is important to understand why people and institutions do what they do and what it would take to change their decisions for the better.

### ■ Promote systematic knowledge sharing

A knowledge management system allows the efficient sharing of approaches and experiences among institutions so as to promote the rapid and effective uptake of innovative practices, technologies, and research results. Almost everywhere in Africa, however, the development of such systems is afforded low priority and is inadequately funded at present, leading to critical information gaps. This needs to be addressed through better funding, improved partnerships, and concerted knowledge sharing, across both sectors and scales.

## Lessons from the case studies

- Climate information is most effective when integrated into multidisciplinary decision-making frameworks
- Reducing climate-related risks requires multi-level stakeholder coordination and communication
- Climate information must be credible if it is to be used in decision making
- Reinforcing and sustaining climate observation networks is essential
- Information and communications technologies, the media, and extension services are vital components of improved information systems
- Innovations for managing climate-related risks are being developed and deployed
- Economic analysis of the value of climate services is lacking
- The case study countries could benefit from each other's experiences

This policy brief summarizes the main messages of the report *Climate Risk Management in Africa: Learning from Practice*. The full reference is: Hellmuth, M.E., Moorhead, A., Thomson, M.C., and Williams, J. (eds) 2007. *Climate Risk Management in Africa: Learning from Practice*. International Research Institute for Climate and Society (IRI), Columbia University, New York, USA.

The report is available online at <http://portal.iri.columbia.edu/climateandsociety>

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