

Adaptation

Climate Change Adaptation in Africa

DIALOGUE



Adapting locally to global climate change –
Experiences from rural Africa

December 11, 2007

Bali, Indonesia


Canada

Context

Most of Africa, particularly sub-Saharan Africa, relies on rain-fed agriculture and as a result it is very vulnerable to changes in climate variability, seasonal shifts, and precipitation patterns. Roughly 70% of the population lives by farming, and 40% of all exports are agricultural products. Agriculture contributes up to 70% of national GDP in some sub-Saharan countries, while crop production and livestock husbandry account for about half of all household income. Any increase in global warming would further aggravate vulnerability in the agricultural sector.

Observational records show that in the second half of the 20th century, Africa was warming at the rate of between 0.26 and 0.50°C per century, and there is evidence that this warming trend will significantly accelerate. According to the IPCC Fourth Assessment Report (2007) a medium-high emission scenario would see annual mean surface air temperatures increase between 3°C and 4°C by 2080 (IPCC, 2007).

On the occasion of the 13th Conference of Parties to the UN Framework Convention on Climate Change and the 3rd Meeting of Parties to the Kyoto Protocol, the Climate Change Adaptation in Africa program invited farmers and other representatives of rural Africa to Bali, to share their experiences of how they are experiencing and responding to climate change.

This interactive half-day dialogue focused on the adaptation challenges facing the agricultural sector in different regions of Africa. It highlighted climate change impacts affecting food security and rural livelihoods, as seen by farmers, representatives of agrarian organizations, and action researchers working with rural people. The dialogue provided a forum for those directly affected by climate change in Africa to describe:

- ***Changes they observe in the local climate, and how these changes are affecting their livelihoods***
- ***How are they are adapting – strategies they use, their strengths and weaknesses***
- ***What support they need from different levels of government to adapt***
- ***What can be gained from action research or other forms of collaborative learning***

Summary findings

- Climate change is already having significant impacts in rural Africa, forcing those dependent on agricultural resources to adapt with the tools and range of choices available to them.
- Changes in rainfall intensity, timing and duration were the most commonly noted observed changes, with dramatic impacts on yields and livelihoods. In South Africa's Western Cape, changes in wind direction and intensity are also affecting fruit production.
- The biophysical changes associated with climate change are triggering and/ or exacerbating co-existing social and economic vulnerabilities, such as conflict stemming from population displacement; unemployment in agriculture-linked industries; and breakdowns in the family unit.
- The range of responses to climate change cited included migration; diversifying income generating activities; use of traditional methods of water conservation and soil improvement; development of alternative cooking fuels to limit deforestation, improving the efficiency of irrigation systems, and interplanting crops of short and long-term growing cycle.
- Climate change needs to be looked at together with other global changes affecting rural Africa.
- Local, national, and regional policy instruments can help support rural adaptation, but the process of policy development has to include those most affected. Consultation alone is not sufficient to constitute inclusive policymaking.
- Research can help to validate or strengthen local ways of adapting to climate change, but it too must be approached in ways that include and meet the needs of rural people.

Speakers

Aimé Tovizounkou, farmer

Commune d'Adja-Ouèrè, Département du Plateau, Benin

Said Kolawole Hounkponou

Initiatives pour un Développement Intégré et Durable (IDID_ONG)

Project leader, "Strengthening the capacity to adapt to climate change in rural Benin"

Daan Louw, Associate Professor

Department of Agricultural Economics,
University of the Free State, South Africa
Project leader, "Managing climate risk to agriculture and water resources in South Africa"

Raymond Koopstad, farmer

Chair of Koekedouw Emerging Farmers Association (KEFA)
La Vouere, Ceres, Western Cape, South Africa

Dao Basiaka, President

Confédération Paysanne du Faso, Burkina Faso

Fatima Denton, Program Leader

Climate Change Adaptation in Africa program
IDRC Regional Bureau for Western and Central Africa
Dakar, Senegal

Moderator:

Masse Lo, Regional Program Director (Francophone Africa), LEAD International

Welcome, overview, and introductions



Fatima Denton, Program Leader of the Climate Change Adaptation in Africa program welcomed participants and overviewed the aims of the dialogue – to create space to share the human stories of the impacts of climate change in Africa. Dr Denton underlined that such stories are important to the CCAA program, as it tries to help researchers and local communities craft solutions that will be sustainable and respond to practical needs. She stressed that CCAA is interested both in learning more about how communities are coping with climate change, and the potential for

affected communities to be more directly involved in crafting research that meets their needs.

Moderator Masse Lo introduced the speakers and outlined that the discussion would be framed around four basic questions, with invited speakers from Africa’s rural sector invited to first address each question, followed by an opportunity for participants to add their comments and questions.

Question 1

What changes are African farmers and others experiencing on the land and how are the changes affecting their families, communities and livelihoods?

Researcher **Dan Louw** of the University of Free State opened discussion on this question by outlining the changes facing farmers in South Africa’s Western Cape region. Rainfall has been shifting south affecting the water reserves available for irrigating the region’s crucial fruit crops. Recent droughts in the fruit growing regions have stressed fruit trees, reducing yields and threatening livelihoods not only of farmers, but the agricultural labour force involved in processing and packaging the fruits for export.

Along with the shift and decline in rainfall, climate change has brought warmer and stronger winds, adding to the stress on trees. Fruit production depends on a certain number of cold units in winter, and the replenishing of water catchment basins through winter rains, to enable irrigation in dry periods. Farmers are also experiencing late rainfall, which damages fruit at harvest time.

Raymond Koopstad, a Western Cape farmer and Chair of the Koekedouw Emerging Farmers Association explained that climate change is a further complication compounding the already uphill battle confronting South Africa’s “emerging farmers” – those who have recently benefited from land redistribution. At the time of South Africa’s first free and open elections in 1994, 80% of agricultural land was owned by whites. A policy introduced in 1997 aimed to transfer land to

“previously disadvantaged” groups – essentially blacks and the mixed race “coloured” communities. Progress has been slow in making land available to these new farmers, and they face huge hurdles and a tremendous gap in terms of the resources and experience of white farmers who dominate the commercial farm sector.

Climate change has been an added stressor, as these emerging farmers take their first steps in gaining farming and marketing skills necessary for agricultural livelihoods.

2000 to 2003 saw three years of consecutive drought. Raymond and the other Koekedouw emerging farmers belong to a shared irrigation scheme that depends on winter rains .

“When the rains are inadequate,” he said, “they simply cut your quota of water for irrigation.”

Local farmers have also experienced more frequent hailstorms, which damages tender fruit such as peaches and apricots, making them suitable only for sale as juice, which does not cover the farmers’ production costs.

With 65 –70% of the local workforce depending on the secondary agricultural industries, everyone suffers when harvests are poor.

Dao Basiaka, President of Burkina Faso’s Confédération Paysanne, which represents small scale farmers, said recent years have seen a decline in rainfall, which has displaced local people. Livestock herders in particular have moved from North to West, with resulting conflicts over the limited available rich grazing and farm land. Conflicts between farmers and herders, and between different pastoralist groups have resulted, with populations more concentrated and competing over the diminished viable lands.

The droughts have hurt both commercial export agriculture, and household food production. A number of traditional grains are not adapting to today’s climate, so people are left with few options. The environment is degraded and poverty is deepened. Wells have been drying up, and there has been an increase in illness related to poor sanitation and malnutrition.





Aimé Tovizoukou, a farmer in Adja-Ouèrè rural community in Benin's Plateau district, produces palm oil, red oil (another palm extract) and fabricates alternative fuel from palm nut waste fibres. He also grows rice, manioc, beans and pineapples. In the past ten years, his community has seen radical changes in the distribution, timing and intensity of rains, with at times devastating floods. The traditional planting calendar has been turned on its head. Where farmers used to plant their first crop around the end of March, they often can now wait for three or more weeks for rain to nourish these seedlings. Farmers who delay their planting may see their fields then flooded, so that they cannot plant at all. These seasonal changes have had a devastating impact on yields. The combined stresses create tension in households.

Said Kolawole Hounkponou of the Benin NGO Initiatives pour un développement intégré et durable explained that southern Benin traditionally has two rainy seasons and two dry seasons.

"Now," he said, "it is impossible to say what the seasons are."

Where the rains used to come in March, they recently have come in May or June; they stop after three to four weeks, then start again a month later.

The district of Zou lost considerable rice acreage due to floods this year. Another district had to receive food aid this year because of the loss of harvests.

Northern Benin has experienced conditions similar to those M. Basiaka described in Burkina Faso. Pastoralists have been obliged to migrate because of drought, leading to conflict between competing populations.

A number of speakers commented on the impact that this climatic turmoil has had on the household level.

Mr. Tovizoukou said that in Kouffo, male family heads typically leave the land to their wives to manage to generate family income from market gardening. In the harsh conditions, men have been reclaiming their land, so women have been losing out.

For Mr. Basiaka, the revenue from his 40 acres in good years used to be good enough to have reserves of 24 months, enough to pay for school fees and other household needs. Depleted harvests have cut this reserve, leaving little household revenue. He says farmers need to diversify their livelihoods with other activities like small scale trading.

Mr. Koopstad related that the fall in harvest and ag-industry revenues in Western Cape puts enormous stress on families. Unemployed fruit pickers and packers are forced to turn to the cities to look for work, where they find themselves vulnerable, and in conflict with urban populations for the few available jobs. Children are left behind with other family members, and school attendance drops. Families are together only over the weekends.

Daan Louw added that this migration in turn fuels AIDS. Migrants to the cities face loss of dignity, and an increase in household violence, with growing populations living in unsanitary conditions in squatter camps.

Questions and observations

- One participant noted that the experiences shared point to the inter-connection between climate stresses and other social and economic pressures facing rural people – the population pressures, the increasing demand for water resources from growing cities and irrigated agriculture. The social and economic determinants of climate vulnerability have to be taken into account to have a complete picture of rural vulnerability.
- Another asked about the viability of GMO seed solutions being pushed on rural Africa from some quarters. He asked whether these seed technologies are sustainable and practical for rural farmers. If traditional seed varieties were not coping well with seasonal variability he asked, what are the viable alternatives?
- Another asked, in relation to the various conflicts between populations, who have been the winners and losers?



Question 2

How are rural people adapting? What are the strengths, weaknesses, and limits of current rural adaptation strategies?

Dao Basiaka described some traditional Burkina Faso planting and cultivation methods that have proven useful in confronting some effects of climate change – particularly drought and soil degradation. He described the practice called *Zai* whereby holes are dug and filled with compost made from a variety of waste matter before seedlings are planted. This improves soil fertility and nourishes root systems, making them less vulnerable to drought and other stresses.

His confederation is also encouraging and building capacity among small-scale farmers to diversify their activities, so that they have additional sources of revenue.

Aimé Tovizounkou and Said Hounkponou described local efforts to reduce local deforestation, which exacerbates soil degradation, by developing firewood alternatives from palm nut and shell waste fibres. Farmers also mulch and compost their soils, using straw and other agricultural waste fibres. These help somewhat in addressing both drought and soil runoff from heavy rains.

Raymond Koopstad described efforts by himself and other fruit producers to strike a balance between crop varieties of shorter and longer growing season, both to diversify their revenue stream, and to increase chances of at least some successful harvests. Many have also added a livestock component to their farms – chicken, sheep or beef cattle. Raymond himself boards horses for added revenue. Association farmers are experimenting with switching their irrigation systems from a “micro” spray system, to a drip system, which conserves water. They also mulch the base of trees with manure and straw to retain moisture.

When drought does hit the orchards, producers can try to avert complete loss of their tree stock by pruning off the first crop. This allows the trees to conserve energy to withstand the drought, in the hope that they will survive to produce when conditions improve.

“We have to be proactive,” said Mr. Koopstad. “We have to have plans in place to deal with what comes.”

Questions and observations

- Reflecting back on the discussion about conflict, and the migration from rural to urban areas, one participant observed that cities also need to be more engaged in the issue of climate change. They too are vulnerable to climate change, and need to better understand the pressure on rural communities and on the agricultural base that sustains them.
- Another participant asked, in relation to the coping strategies outlined for Burkina Faso and Benin, whether the strategies being applied at the individual level are adequate. He noted that a number of practices individuals resort to can in fact be harmful strategies – such as over reliance on fertilizers.
- Another participant asked whether there are success stories to be shared, rather than simply focusing on climate change impacts and vulnerabilities. He noted that he sees communities experimenting on their own with a range of adaptation strategies, that every community has its own unique way of addressing the problem. He also asked about other energy substitutes for areas that do not produce palm oil.

Responses

- Daan Louw replied that water conservation is a good practice across the board. The use of mulch and compost has multiple benefits in addition to water conservation. It improves soil and increases yields.
- Dao Basiaka said that essentially farmers are relying on traditional methods such as *Zai* for soil improvement, and small artificial reservoirs called “*bouli*” for water conservation. But he stressed also that deforestation and land degradation are exacerbating the impacts of climate change, and that these phenomena are caused by human activity.

“Who is polluting the earth?” he asked. “It is us. Who is cutting down trees? Us. If my land is degraded, I need to dig into my ancestral traditions to find a way out.”

Some solutions, he added, are going to take leadership, as they go beyond what individual farmers and communities can do.

Question 3

What supports are local leaders and policymakers providing? What more is needed from them?

According to Dao Basiaka, what politicians bring to adaptation is insufficient, because people adapt at the micro level. People don't recognize themselves in the policy responses. Communities need to be involved in both the elaboration and implementation of adaptation policies.



Community based organizations are important local relay institutions, both to raise awareness of the issues among rural people, and to represent them. Leaders need to accompany and support them. In fact, there are many examples, such as fining local people who cut down trees, that punish local people instead of supporting them.

In Benin, Aimé Tovizoukou cited the introduction of new seed varieties as being one help

government has provided. Nerica, for example, a drought tolerant rice strain developed in Africa, produces well, and seems better adapted to the changing conditions. But these measures alone are not sufficient.

Said Hounkponou said we need to consider how the policies are elaborated, whether it is through a real process of engaging local people, or just involving government officials and hired consultants. With the NAPA (National Adaptation Programs of Action) development process for example, national focal points were created in Least Developed Countries to facilitate the consultation process. A good number of people from different government departments and sectors were involved. But the results are not visible to rural people. And they don't support the role of NGOs in engaging local communities. They treat them as separate entities, having their own projects.

So the measures they propose are not what communities want. Furthermore, local levels of representation have a tendency to sit back and wait on a central authority to come up with top-down solutions.

Raymond Koopstad said that by contrast, he feels the South African government has been taking a very bottom-up, very consultative approach which is constructive, but a very slow process. There is an emphasis on popularizing good agricultural practices. So for example, if you want to

export fruit, you have to register as a food-based operation, and then meet certain standards for your production. The government also introduced a comprehensive agricultural support program which provides agricultural and management training.

At the local level, his emerging farmers association takes advantage of every opportunity for input on policies. Local level government has many competing priorities, so has not provided such good support to the agricultural sector. It was the severe prolonged drought that really put agricultural issues on their agenda, because of the local economic impacts.

Questions and observations

- One participant strongly disagreed with Mr. Hounkponou's characterization of Benin's NAPA consultation process. He said that NGO representatives were involved in the process, that it simply is not possible to consult everyone.
- Another asked how prepared farmers are to engage with regional and global policy processes on climate change adaptation.
- Another asked Mr. Dao if his organization had been involved in the NAPA consultations in Burkina Faso.
- Another questioner asked where we put the issue of decentralization in this debate.

Responses

- Mr. Dao said that the Confederation des Paysannes was involved in the Burkina NAPA process as an interface. But the conditions through which the consultation was undertaken did not allow for getting to the rural base. The Confederation is decentralized, with no single animator in Ouagadougou, and there was not enough time allowed for informing and getting input from rural people. The framework essentially came from above.
- Daan Louw responded to the question about involving farmers in regional and global processes that bringing farmers to the discussions in Bali was one small step in that direction, and he hoped to see the CCAA program providing other such opportunities.
- Said Hounkponou addressed the issue of decentralization by reiterating that in Benin, each community has an elected representative, but they tend to passively wait on a central decision making process. His organization is emphasizing the need for local communities to take ownership of their own problems and solutions.

Question 4

How can researchers work with rural Africans to strengthen and share local knowledge and adaptation practices?

Daan Louw started by saying that universities have been too focused on producing academic papers, with not enough attention paid to transferring technologies and findings to the field. The language that researchers and academics use is also foreign to farmers. Academics need to know more about what is happening on the farm. The technologies they are developing may prove too expensive for farmers, or dependent on other factors that are not realistic for farmers. Both parties need to learn from one another. He has seen the benefits of farmers organizing into

groups to learn from each other. He also likes to see farmers involved in research project design, and in steering committees of research projects.

Said Hounkponou added that there are many different kinds of research. It is rare today to see the kind of desk-based research that may have been common twenty years ago. Research today is far more field-oriented.

“If we really want to develop adaptation strategies that help communities,” he said, “research must be based on the needs of producers.”

Dao Basiaka outlined some of the areas in which scientific research can fill gaps or validate local knowledge, such as with testing different seed varieties and planting techniques. The complexity of environmental issues requires informed scientific responses. A degree of specialization is needed that local communities may not have, so it is important to draw researchers in. He noted that researchers also attract funding, and thus can help channel funding to address local needs. He noted that the Confederation aims for professionalization of the farming sector, and this requires sustained resources.

Capacity needs to be built through training to develop and test appropriate technologies. The ideal is to get to the point where vulnerable groups and subsistence farmers can commission research based on their needs.

Questions and observations

- One participant noted that in Senegal, there is a levy on peanut production that helps to fund rural development initiatives.
- Another observed that the boundaries and methods of research can limit its ability to validate local adaptation strategies if these do not fall within its methodology or lens. She noted that what is needed is more participatory and experiential research.
- Another noted that we have to look at the capacity of countries to support higher education and training in areas that contribute to climate change adaptation. There is a curriculum gap.

Responses

- Dao Basiaka added that Burkina Faso too has a levy system that supports rural development. The Confederation receives some funding from a portion of the sale of each kilo of maize.
- Dao also noted that he recently attended a conference on the Green Revolution, sponsored by the Gates Foundation, which was pushing biotech solutions for African farmers. But he questioned whether this really responds to the needs at the grassroots. Research, he stressed, has to be collaborative.

“We have to recognise that farmers are innovators too.

Conclusions and thanks

Fatima Denton and Masse Lo concluded the dialogue with the following summary remarks:

- The climate is clearly changing and having real effects on those whose livelihoods depend on the land and natural resources.
- Affected communities are so close to the edge that it takes just a small push to put them into the abyss.
- Biophysical changes are a bottom line for resource poor people, but these connect with social and economic changes, particularly for the family unit, which is at the forefront of adaptation, and clearly showing signs of disintegration.
- Part of the adaptation challenge lies in preparing farmers to be “problem holders,” to see themselves as agents of change.
- Clearly, consultation does not equal participation. Policy processes must be locally owned in order to be supported and to reflect community needs.
- The CCAA program is trying to increase its knowledge about local adaptation needs and strategies and is supporting the development of a series of “Adaptation Stories” that will document and share local experiences with climate change adaptation.

