

# Climate learning *for African agriculture*

Climate Learning for African Agriculture: Working Paper No.4

## **African Agricultural Research and Advisory Services under Climate Change: Perspectives from an E-Discussion**

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<http://www.erails.net/FARA/climate-learning/climate-learning/Home/>



## Introduction

This paper presents some of the information presented and views expressed, during a three-week e-discussion on the issue of climate change within African agricultural research and advisory services. For us, as organisers,<sup>1</sup> the results were surprising, in that participants departed strongly and significantly from the questions we had wanted them to answer, and raised different and broader issues, that we might have regarded as tangential but which provided significant learning for us on the questions of climate change and agriculture.

The e-discussion was organised by the project “Climate Learning for African Agriculture”, funded by the Climate and Development Knowledge Network, and led by the Natural Resources Institute (NRI) of the University of Greenwich, the Forum for Agricultural Research in Africa (FARA) and the African Forum for Agricultural Advisory Services (AFAAS). This project is investigating ways in which ideas and principles of climate compatible development are being used by agricultural research and advisory services across Africa, and reasons why this uptake has not been greater. The e-discussion was conceived as both a research method for investigating this and a means to stimulate greater discussion on climate issues within agricultural research and extension. Its objectives were:

- To share experiences on climate change and agriculture in Africa to inform participants and build up a picture of what is happening amongst key organisations in this field in terms of policy and practical responses across three sectors (public, private, civil society);
- To better understand which concepts are guiding current practice and how far approaches integrative of adaptation, mitigation and sustainable agricultural development are being considered;
- To build a shared understanding of what a holistic response to climate change might be and what is needed to enable appropriate action for success.

The aim was to reach public sector staff, but also NGO and private sector participants where possible, given that they have an increasing role to play in providing these services.

The e-discussion took place between early March and early May 2012.<sup>2</sup> Notices of the discussion and invitations to join were widely circulated to interested parties and posted in web forums in advance. In particular, a personal invitation was sent to heads of national agricultural research services by the Executive Director of FARA.

The e-discussion attracted 118 participants, from over 33 countries.<sup>3</sup> The affiliations and positions of these participants were extremely varied, including NGO staff (both African and European), project personnel and active agricultural researchers. However, the key target group of national-level managers of research and extension services was seriously under-represented.

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<sup>1</sup> We would like to acknowledge the technical support of Francis Kpodo of FARA, and the contributions of Myra Wopereis-Pura of FARA and Dan Kisauzi of AFAAS to organising and guiding the discussion.

<sup>2</sup> The original plan was for an e-discussion lasting three weeks, but we took the decision to extend it.

<sup>3</sup> Participants for whom there is a record of their country (whether of work or citizenship) mentioned 26 African countries and seven countries outside Africa. However for a large number of participants there is no record.

Two preparatory papers, introducing in different levels of detail some of the key concepts and questions around the e-discussion objective, were produced by the project team and shared online prior to the e-discussion:

- A briefing paper: Exploring the links between Climate Change, Agriculture & Development
- Detailed resource document: Exploring the linkages and guiding concepts relevant to Climate Change, Agriculture and Development.<sup>4</sup>

Three questions were originally formulated by the project team to guide the discussions –one for each week of the e-discussion as originally planned:

- i) What are you currently doing to respond to climate change?
- ii) What are the challenges and opportunities facing African agriculture posed by climate change?
- iii) How should research or advisory services respond to climate change?

Contributions from the organisers at the beginning of each week attempted to keep the discussions on this track. These contributions also included a link to and a summary of the Final Report of the Commission on Sustainable Agriculture and Climate Change (<http://ccafs.cgiar.org/commission>).

However, we found that the great majority of participants chose not to respond directly to these questions, and certainly not according to the schedule proposed, but instead presented a range of arguments, views and experiences that systematically went well beyond the questions posed.<sup>5</sup> We would like to present these views under eight headings. Two respond fairly closely to our original intentions:

- Climate change is an important and urgent problem for African agriculture
- There is a shortage of experience on the direct incorporation of climate change considerations in research and advisory services.

Six concern the broader linkages necessary to think about our questions. Research and advisory services in the context of climate change cannot be divorced from questions of:

- Climate justice
- The broader determinants of adaptive capacity in agriculture
- Governance of agricultural services
- The innovative use of communication technologies
- The need for integration of agricultural information with seed (and other input) supply
- Current controversies in agricultural development, particularly the use of GMOs.

We present a selection of the views expressed, without excessive editing, under each of these headings, although in many cases one contribution could cover several topics. Under each heading contributions are relayed roughly in the sequence they were made.

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<sup>4</sup> Both are available at <http://www.erails.net/FARA/climate-learning/climate-learning/library>

<sup>5</sup> To some extent, these departures were exacerbated by some technical difficulties with the platform for the e-discussion (a D-Group), delaying participation of some who applied to join, which may also have affected the overall quantity and quality of discussions, but these were overcome during the second week. We feel the departures from our set agenda were more systematic than can be ascribed to technical problems.

## **Climate change: an important and urgent problem for African agriculture**

There was a general sense from contributors that climate change is a problem for African agriculture requiring urgent action. However, there was variable understanding of climate change, with some contributors interpreting it as climate variability and in some cases risking confusion with localised environmental degradation rather than seeing it as a phenomenon with global causes and reach.

A programme support officer from the Irish humanitarian NGO, Concern Worldwide, focusing on emergency relief in Ethiopia, described the cyclical food emergencies in what government terms 'hotspots' and these are in large part attributable to erratic rainfall and the failure of seasonal rains. With both UN agencies and government early warning systems forecasting the late arrival of rains there could be another costly emergency. Others raised the need for assisting vulnerable populations, both with food aid and with post-drought rehabilitation and vulnerability reduction. There is a need to study why drought in Africa, unlike elsewhere, is followed by famine.

A contributor from Ethiopia set out the key challenges in responding to climate change, stressing that understanding climate dynamics requires knowledge and technology. There is currently a "knowledge gap about climate change in the community" and this prevents adaptation. S/he reported on extreme weather effects currently being experienced and the associated risks (e.g. increased flooding, erosion, landslides, water shortages, wildfires, and vulnerability of crops and forests to pests and diseases and reduced crop production). But there is little understanding in Ethiopia that these events could have a connection to climate change and this makes collaborative, integrated and holistic responses more difficult. Awareness-raising is therefore urgently required. Currently, most activities are led by government on this issue, but other stakeholders need to take part. Government is promoting economic growth and responding to climate change, for example, policies have been designed to support community coping strategies and to promote the "Green Economy" through agriculture and environmental protection. There is good access to water for small and large scale irrigated agriculture to increase productivity and adapt to existing conditions. Media organisations and practitioners have been encouraged to report on climate change to create awareness and encourage adaptation. Various international NGOs are also collaboratively working with the media and government on risk reduction strategies.

This contributor requested information on resilience building in extremely drought prone areas and pastoralist agro-ecosystems in these locations and options when such development programmes are interrupted by emergencies. Requests for information were also received from Zimbabwe (on climate change impacts in drylands).

Some contributors raised the need for mitigation measures, for example forest protection (this is further discussed under "climate justice" below). A contributor from the Central African Republic noted that conservation measures may be unpopular, but should nonetheless be undertaken to protect remaining areas of forest and there should be education on managing and conserving natural resources and appropriate international mechanisms established for rational and sustainable management of natural resources to prevent climate change. "Catastrophe awaits" if this course is not followed.

A more critical view came from a contributor from the Botswana College of Agriculture, who questioned the labelling of everything as climate change, rather than natural variability (e.g.

droughts due to ENSO). S/he said that it is necessary to tease out trends of natural variability, before we can talk about climate change.

### **A shortage of experience on climate change in research and advisory services.**

Despite our best efforts, few concrete examples of how climate considerations have been incorporated into the practice and management of agricultural research and advisory services in Africa were identified. This might be partially due to the relative absence of senior managers of such services from the discussion, but we suspect that the reverse argument might apply – that such senior managers saw little incentive to join our discussion because they have not concerned themselves with climate change. This accords with general impressions we have since gathered<sup>6</sup> that there are few if any examples where climate change considerations have been “mainstreamed” within national organisations.

A contributor from a farm advisory service in Togo noted that his organisation is implementing a project to educate producers on the importance of using improved seeds that withstand increasing climate variability and the establishment of a platform of seed producers.<sup>7</sup> Several contributors also introduced their research projects on aspects of climate adaptation in African agriculture.

There was also limited discussion on what changes are needed in research and advisory services to respond to climate change. Some contributors indicated that more information sharing is needed from service providers to farmers. A handful highlighted the need for a more responsive system that listens better to farmers.

### **Climate justice**

Strong feelings were expressed regarding the need for climate justice and for effective and fair financial mechanisms to enable research and advisory services to respond to climate change challenges. These views often spilled over into consideration of the needs of the poor for rural energy, and not holding the poor responsible for deforestation that they participate in through necessity.

A contributor from the Central African Republic said it is important to research adaptation, to practice irrigation in agriculture and to do this requires finance. Climate change is now a reality and the poorer nations, which despite their abundant natural resources are kept in positions of permanent dependence by richer countries, are paying the price. A second contributor from the Central African Republic said that solutions will never come from imperial nations of the North, and noted the increasing influence of China and the emerging economies. Developing country leaders have to resist pressure from more powerful countries.

A contributor from the Zambia Climate Change Network said that it is the rich in developed countries and not the poor that should bear the costs of adaptation and mitigation – citing the ‘polluter pays’ principle. The current state of the climate is the result of human appetites

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<sup>6</sup> For example through the four country case-studies currently being conducted by CLAA – for example see CLAA Working Paper 3 on Benin by Ismail Moumouni and Latifou Idrissou.

<sup>7</sup> The four case-studies are now finding several good examples of project-level work on climate and agricultural research and extension.

for wealth creation and the ways in which energy is used. We can develop in a cleaner way, but this requires additional costs to invest in technologies – the rich should take responsibility for this.

A contributor from the Crop Research Institute in Ghana said that rural farmers should not be made to pay for adaptation and mitigation measures. Instead the rich should be the ones to pay for these. More deforestation is caused by rich people, and most rural people cannot afford LPG gas and so rely on charcoal as fuel. Solutions include afforestation and reduced LPG prices and increased availability.

A contributor from the Uganda Coalition for Sustainable Development said it is necessary to look at the extra-sectoral linkages associated with climate change (e.g. the need for renewable energy sources to be designed so that they are affordable for the poor, compared to Uganda's approach where even the urban population cannot afford electricity). He said that charcoal value chains have been well-described, that business is booming and what is needed is a clear way to tax it. Another contributor responded to this comment saying that although they are not totally opposed to this suggestion, there are other energy users that make a much larger contribution than charcoal burners in forests that may regenerate naturally or be replanted. A contributor from the University of Burundi mentioned other energy sources: given that agriculture is the main activity in Burundi and across SSA, rural households need support for biogas and solar energy to tackle energy security challenges that are linked to food security.

Another contributor took a rather different stance, arguing that as much as the developed countries should pay for their high rates of greenhouse gas emissions (in accordance with the polluter pays principle), the poor should also be held accountable for exacerbating the impacts of climate change in their environment. Accountability will encourage them to change and to adopt better environmental practices and proposed adaptation and mitigation strategies. Tree planting to create carbon sinks and the adoption of energy saving stoves is important.

An AFAAS representative from Uganda said that natural resources are not a critical policy area (for policy-makers in Africa), and asked how we can ensure that monies paid by polluters go back to replacing the natural resource base. The priority should be giving people alternatives: poor people that burn charcoal have few alternatives. The rich pay the poor to cut trees for charcoal that is transported to urban areas – so they also have responsibility. In the Ugandan cattle corridor, livestock deaths and crop production failures are common, and pastoralists and farmers resort to charcoal burning to obtain cash to buy food. The contributor asked: "How can a policy-maker and implementer enforce the law in this type of situation with angry populations?"

Another contributor concurred that it is not acceptable to ask the poor to pay for responding to climate change. S/he also said that poor farmers and rural dwellers contribute to the phenomenon because they have to undertake environmentally unfriendly practices to survive, but queried whether their contribution would be significant enough to cause the dramatic climate change currently observed.

Increased population pressure and extravagant capitalism leads people to over-use resources and this is affecting the equilibrium of the planet (exceeding planetary carrying capacity), according to one contributor, with whom others agreed.

A contributor from Ethiopia argued that the west should play a major role in climate mitigation by reducing emissions, but developing countries should take charge of their own issues. S/he gave a long list of mitigation measures that should be followed, in the industry, energy, agriculture and forestry sectors. There is also a need for: water resources management policy (irrigation and waste water management); land-use policy to protect fragmentation and erosion; corporate social responsibility as an obligation for investors; involving communities and using their indigenous knowledge to come up with interventions; community awareness creation and solutions involving participation and ownership (e.g. of forest reserves. Interventions should be integrated (for example, combatting soil erosion with intensifying agricultural productivity).

### **The broader determinants of adaptive capacity in agriculture**

There was some discussion of the institutional change and governance implications required for agricultural adaptation to climate change, and the need for holistic, collaborative multi-stakeholder responses.

A contributor from the Democratic Republic of Congo, from the National Institute for the study of agricultural research (INERA) commented that finance is a constraint on climate adaptation, and said that policies should take account of the threats to peasant survival, with incomes below an acceptable threshold. Lobbying around the theme of climate change should focus on community survival solutions.

A sociologist from the Ministry of Agriculture and Water in an African country wrote of the vulnerabilities faced by smallholder producers in Africa, and noted the diverse institutions already planning and implementing adaptation programmes. This contributor wished to highlight the cultural dimensions of achieving food security (i.e. that food habits of a particular population have a bearing on consumption patterns). Referring to the FAO definition of food security (availability, accessibility, stability and optimal use), he questioned what the implications of climate change would be for food security and suggested that many adaptation projects are introducing new practices which may be of detriment to the everyday practices of the local population. This contributor requested collaboration on this research topic.

Another contributor (location unknown) also supported the tailoring of projects/programmes on adaptation and said they should take into account all the key challenges of food security, good governance, land tenure, education, community health etc. They should also remember to maintain pressure on the powerful countries that refuse to sign treaties to limit GHG emissions, especially those generated by excessive industrialisation. All countries should have 'a positive climate balance, not a negative one'. There were also contributions concerning the importance of forests to local and global climate, and a variety of examples of both poor forest governance (abuse of forests by politicians asserting private ownership, unregulated incursion by local people) and well-managed forests (e.g. co-management programmes in Malawi).

A contributor questioned the implementation of climate change strategies starting at the policy level, noting that this was a top-down approach, rather than a bottom-up approach in which communities would be fully involved in the process from start to finish. Key challenges in Africa relate to the limited scale of financial resources allocated to climate change programmes (mitigation and adaptation) by governments, with most of the funds coming

from donors which may be less sustainable when the funding ends. Research findings are also not being disseminated to communities at risk and are not being implemented. The contributor ended by asking: 'How can you ensure communities are receptive to the findings and recommendations emerging from research?'

The contributor from the Zambia Climate Change Network said that farmers need production tools and materials themselves to respond to climate change rather than being 'alienated' from sustainable practices and systems.

A contributor from an NGO focused on agricultural research in Asia provided a summary of a document by Dr Mae-Wan Ho on 'Sustainable Agriculture: Small integrated farms with off-grid renewable energy may be the perfect solution to the food and financial crisis while mitigating and adapting to climate change'. Several contributors agreed with this position, but one also asked how this shift could be achieved.

### **Governance and financing of agricultural services**

A contributor from an NGO focused on agricultural research in Asia argued that the process of allocating financing for agricultural research for development (AR4D) in Africa is 'top down' and does not meet the needs of poor smallholders, but follows donor vested interests and those working in the public sector who are specialists with little practical experience. A Tanzanian contributor from Sokoine University said that agricultural research institutions are ineffective, but the problem is not the result of structure, but on the financing of research in Africa, as compared to that in industrialised countries, which for example find it easier to obtain research equipment. A Ghanaian contributor from the Crops Research Institute concurred that financing for agricultural research is lacking from African countries. The capacity of African research scientists to conduct climate-related research is also limited, especially capacity to monitor GHG gases in the agricultural sector.

An NGO representative from India agreed with the broad framing of climate and agriculture issues, if adaptation needs of the poor smallholder producers are to be met, and was glad that the discussion was not restricted to mitigation only. Adoption of low cost integrated agriculture (applicable to soil and agro-climatic conditions) raises governance issues. Too often AR4D needs for poor smallholders are identified by specialist scientists and associated with 'top-down' policy-making and a lack of stakeholder consultation (let alone treating stakeholders as equal partners. The question of who pays and how is also relevant to how AR4D is structured, managed and implemented by these specialists in the public sector research and advisory services. The contributor argues that these services have not met the needs of poor smallholders who become poorer each year. A citizen jury in which all stakeholders, as equal partners, share information with farmers would be one way forward. The focus should be on nutritious food and cash needs of the smallholder producers and their communities, through integrated agriculture to improve livelihoods in the long term.



### **The innovative use of communication technologies and the media**

There was a contribution on this topic from the Director of the West Africa Regional Office of Farm Radio International, based in Bamako, Mali made. FRI is a Canadian international NGO specialised in agricultural communication using radio. He outlined their approach of 'Participatory Radio Campaigns', a combination of research and action for participatory agricultural communication which allows them to increase the impact of extension and encourages farmers to make informed choices (see [www.farmradio.org](http://www.farmradio.org)). A number of reports from the IRRRA project – Research Initiative on Rural Radio in Africa – are on this website. He commented that this innovative approach is an advantage for farmers at a time when the number of extension agents is declining drastically in all countries.

### **The need for integration of agricultural information with seed supply**

Several contributors discussed the question of seed, which is an example of a more general point about the need to integrate the provision of agricultural information with other inputs. A contributor from a farm advisory service in Togo reported a lack of improved seeds, and the lack of education of farmers about the importance of using seeds adapted to a changing climate and the repeated use of seeds over time that do not perform. This contributor said they are implementing a project to educate producers on the importance of using improved seeds that withstand increasing climate variability, and the establishment of a platform of seed producers.

A response from a Ministry of Agriculture representative in Tanzania noted that the uptake of new seeds in agriculture can be hindered by the availability and accessibility of desired seeds. The affordability, palatability and marketability of seeds are features that shape farmers decisions on uptake. He said that many farmers will continue to use local varieties even where these perform poorly, and suggested more research is needed to find ways of solving this problem.

### **Current controversies in agricultural development, particularly the use of GMOs**

The concern with seed overlapped with concern over genetically-modified organisms. The use in other fora of climate change as an argument for the development of GMOs was not referred to explicitly, but was a background to the discussion. There were two contributions from India, one lengthy, on the issues of GMOs, the way they have been pushed by national research and extension services "at any cost", their perceived failure to deliver benefits for small farmers, and arguments that they have had profound negative impacts. These contributions also referred to the need for promotion of more sustainable, specifically organic, production and the need for provision of non-GM seeds. They illustrate that for significant constituencies, and even if the connections are tenuous, discussions of climate change and agriculture will overlap with other current controversies in agricultural development.

## Conclusion

Our main intentions in organising the e-discussion were to identify how considerations of climate change (both adaptation and mitigation) were being incorporated into the policies, management and practice of agricultural research and advisory services, while engaging stakeholders in the project's learning process. Our discussion group, which was self-selecting with a bias to NGOs and individual researchers, preferred a broader framing of the questions around topics such as climate justice, the determinants of adaptation, the governance of agricultural services and the intersection of climate debates with other controversies.

The project received a strong message that our key questions cannot be considered in isolation from broader questions on agriculture and development. This helps us define more clearly our future plans, which include using virtual means both to chart the incorporation of climate issues in agricultural services across Africa, and to re-engage a wide range of stakeholders to discuss the way forward.



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