

African Agriculture & Climate Change Resilience Strategy

I. Background

Sub-Saharan Africa is the region of the world where agricultural development is most urgently required to meet the needs of basic food security and economic development. The Rockefeller Foundation is making a major difference through its investments in the Alliance for a Green Revolution in Africa. Threatening those investments, however, is the likelihood that climate change over the next decades will bring climate shifts and more variable weather that will cause greater water stress, changing patterns of agricultural pests, and decreased yields, thus intensifying the instability of Africa's crop and livestock production systems. For instance, research results published in *Science* by David Lobell and colleagues (a current Foundation grantee under the initiative) suggests that in Southern Africa, maize production could decrease by as much as 30% by 2030 as a result of climate change.

Clearly, if agricultural development objectives are to be achieved, there will need to be a much better understanding of which specific impacts are likely to occur in Africa as a result of climate change, of the options available for adapting to the anticipated detrimental consequences, and, perhaps, of opportunities for taking advantage of any repercussions favorable to agriculture. This knowledge will need to be embedded in African agricultural research and development programs in ways that enable them to make informed investments to build resilience to the negative impacts of climate change on food production. Analysis supported by the Foundation demonstrates that this is not currently happening to any significant degree.

African climate and meteorology institutions have not yet established effective linkages with the agricultural research and development community. African policy research institutes are just beginning to take climate change seriously. Agricultural research and development organizations recognize that climate change poses risks for small scale farmers but have not engaged with a broader and more interdisciplinary set of partners in developing the new conceptual thinking needed to identify workable resilience strategies. Leadership in establishing such an interdisciplinary coalition is missing.

The Rockefeller Foundation is in an excellent position to catalyze the needed leadership and partnerships, given its long relationship with agricultural research and development organizations in Africa. Among its newest partnerships is the Alliance for a Green Revolution in Africa (AGRA), which was founded by the Rockefeller Foundation and the Bill and Melinda Gates Foundation in 2006.

II. Opportunity

The predicted impacts of climate change could threaten the success of a sustainable green revolution in Africa as envisioned by the Foundation, AGRA and others, by negatively affecting

productive capacities of even some of the most promising agricultural regions of the continent. To minimize the effects, we believe that climate change resilience needs to be mainstreamed as an important and integral component of African agricultural research, development, and training programs focused on improving the lives and livelihoods of small-scale farmers. And we believe opportunities exist for the Foundation to help these programs use climate information and design adaptation strategies in new ways that can significantly enhance the stability and sustainability of food production systems.

The anticipated results of this work include the development of new strategic frameworks and strengthened programmatic work on adaptation to climate change in African agricultural research and development organizations. Strategic plans of these organizations will need to reflect the best available knowledge on projected climate shifts in their regions and the best methods for adapting to such shifts as determined by empirical research. Their high-level management will need to promote and support work on climate issues and researchers trained in climate science will need to be added to staffs and incentives provided for integrated work.

Stronger collaborations will need to be established between agricultural research institutes and climate science organizations for these outcomes to be achieved. Creating networks of African and international scientists will be necessary for sharing and debating the most recent findings from experimental work, new interdisciplinary concepts, and assessments of adaptation measures. We expect institutional and individual leaders to emerge whom the Foundation can support to become champions for inclusion of new and stronger climate change adaptation strategies in African agricultural research and development programs.

III. Strategic Framework

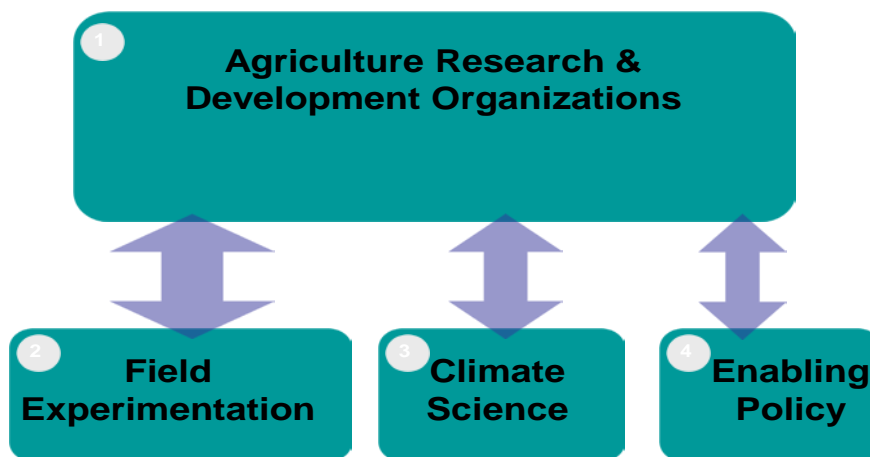


Figure 1: African agriculture climate change adaptation strategic framework

As laid out in Figure 1, our strategic framework is made up of four components, with the 3rd and 4th serving to provide an enabling environment for the 1st and 2nd to be successful.

1. Adaptation strategies will be adopted by farmers only if they are part of a broader set of development recommendations that can also provide near term benefits to farmers by increasing the productivity and profitability of their farms. Thus the long term scalability and sustainability of our investments depend on the successful adoption of climate change adaptation as an integral component of the routine work of key African agricultural research and development organizations. These organizations will be a combination of NGOs, government institutions, and academic research entities. In addition to funding field based adaptation experimentation to identify the types of interventions that are most promising, we must engage with these institutions to identify what they need to build and sustain their internal adaptation capacities and agendas. By engaging with them early, we can also create learning linkages between institutions and help connect institutions to the field-based work of others.
2. Our scoping work to date has indentified a clear need to rigorously identify resilience building measures that are beneficial for smallholder African farmers. Field-based adaptation experimentation is needed to determine what works and doesn't and to identify further research needed to promote successful adaptation. Efforts led by NGOs, governments, academia or the private sector may be supported, but will necessarily include a measure of experimentation and capturing of the learning.

Our vision is that components 1 and 2 will develop into a continuous cycle of experimentation, mainstreaming, enhancements through research, further experimentation, etc. By embedding this process in existing agricultural institutions, the sustainability will be more assured. We believe that future funding will be available from other sources to sustain good adaptation work in these institutions and that our early investments will help them deploy future funds more effectively and efficiently.

While 1 and 2 are our primary targets, there must also be an enabling environment for these to be successful. This leads us to the 3rd and 4th parts of our strategic framework:

3. Capacity of climate institutions will need to be strengthened to meet the specific informational needs of African research and development organizations. This will require strengthening the institutional linkages between climate science and agricultural development organizations, as well as supporting the development of agriculturally-relevant climate information.
4. As potential interventions are further developed, policy constraints may be identified that need to be addressed. This may include anything from data sharing agreements to budgetary policies regarding agricultural development. Policy analysis and advocacy are needed to make adaptation a key long-term component of the African agriculture agenda.

An additional role of the Rockefeller Foundation team overseeing this grantmaking portfolio will be to ensure that strong coordination and networking among the various sets of grantees takes place to build a lasting “agriculture adaptation” coalition for Africa.

As laid out in Figure 1, the most strategic starting point for efficient impact across all four components is with the agriculture research and development institutions, for the following reasons:

- These organizations have substantial short- and long-term influence over the agriculture agenda, and thus have the ability to carry the adaptation agenda forward.
- These organizations can drive the demand for field-based experimentation, climate science relevant to agriculture and policy reform.
- Because they are well established within the donor community and are in some cases permanent government institutions, their proposed climate change adaptation program would be both sustainable and scalable.

The strategy, therefore, is to focus our initial funding on working with a select group of regional agriculture research and development institutions to help them develop their own internal adaptation programs. The vision is that the adaptation programs will be mainstreamed in the institution through a three-step process:

- An initial period of strategic development
- Identification of adaptation practices, field experimentation, research, climate science and policy requirements, and the partners with which to work to deliver on these
- Dissemination of lessons learned and best practices; embedding of adaptation practices in general program, and the solicitation for donor funding for long-term adaptation programs based on the initial work seeded through the Foundation.

IV. Institutional and geographic prioritization/targeting

In recognition of the limited budget, short time frame, and shortage of on the ground resources, the target institutions for this initiative will be agriculture research and development institutions across East Africa. Working with these established institutions promises to increase the sustainability and scalability of the resulting interventions. Other regions will be covered as opportunities arise.

V. Desired Impact and Outcomes

Our vision is to be part of a sustainable African Green Revolution that focuses on ensuring that poor and vulnerable smallholder African farmers can meet their own basic food security needs, and maintain and increase agricultural production in the face of more variable and extreme climate conditions. We believe this can be achieved through the routine inclusion of strategies for adaptation to climate change within broader agricultural research and development programs in Africa, thereby increasing the stability and sustainability of production on small-scale farms by reducing risks associated with climate change and increased weather variability. By imbedding this work within leading agricultural research and development programs, small-scale farming in Africa should become more productive, profitable, sustainable and stable, thus helping to achieve growth with equity and resilience.

We see four primary outcomes resulting from this work:

Outcome 1 – Capacity

Agricultural research and development centers enhance their internal capacity and a cohort of African agricultural scientists and development experts are trained to address the major climate related agricultural challenges that will affect food systems for poor people in African countries.

Outcome 2 – Knowledge and Experimentation

African agricultural research and development institutions and others engage in experimentation to produce innovative approaches to increased stability of agricultural production needed to help smallholder farmers meet their own basic food security and income needs.

Outcome 3 – Partnerships and Resource Mobilization

New partnerships and networks among major stakeholders (e.g., agriculture research institutions, climate science institutions, governments, NGOs, donors) are formed to leverage resources (human capacity, information, funding, research results, infrastructure) aimed at improving the enabling environment necessary for building the climate resilience of smallholder farming systems in Africa.

Outcome 4 – Enabling Policies

Development and enactment of policy frameworks that enable the integration of climate information into agricultural development practice, experimentation with climate resilience building practices, and institutional partnerships needed to support smallholder farmers.

VI. Sustainability and Scalability

Sustainability will be achieved by working with existing institutions and helping them to incorporate work on climate change resilience as an important component of their routine operations. Funding beyond the Foundation’s three-year investment will be obtained by coordinating and networking with other donors from the beginning.