

Info Note

Integrating climate change in agriculture and food security policies and strategies

Experiences and lessons from East Africa

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Key messages

- Integrating scientific evidence into climate change and agriculture policy processes is complex. The complexity is exacerbated by uncertainties surrounding climate change and its related impacts.
- The need for evidence-based policy making and implementation for agricultural transformation in Africa cannot be overlooked, especially in the context of a changing climate.
- The CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) in collaboration with other CGIAR centers and key partners from government and development organizations have developed and tested tools and models to be used by policy makers, donors and other decision makers to target and prioritize climate-smart agriculture (CSA).
- A road map to implement the 2015 Paris Agreement is critical. National Adaptation Plans (NAPs), Nationally Appropriate Mitigation Actions (NAMAs) and Nationally Determined Contributions (NDCs) are entry points where scientific evidence can be used to inform policy development, including implementation.
- Engaging policy makers across scales from local, national, regional to global levels is necessary in order to encourage uptake of scientific evidence to inform decision-making.

Africa's agriculture is at a crossroads. Under optimistic lower-end projections of global warming, climate change may reduce crop yields by between 10–20 percent in most parts of Africa (Schlenker and Lobell 2010). Increased warming, drought and aridity will contribute to loss of 40–80 percent of Africa's cropland suitable for growing maize, millet, and sorghum by the 2030s–2040s. By 2050, for example, three percent of Africa's land will no longer be suitable for growing maize—a major staple crop for over 200 million people in East and Southern Africa. Food security, therefore, will be the overarching

challenge, with increased droughts, flooding, and changes in rainfall patterns.

Agriculture significantly contributes to economic growth, food security, and employment in Africa. It is thus critical that African countries and regional economic blocks take proactive measures to address climate change. While integration of agriculture in the United Nations Framework Convention on Climate Change (UNFCCC) discussions has been very slow, 52 out of the 54 African countries have prioritized the agriculture sector for climate action within their Intended Nationally Determined Contributions (INDCs). Notably, 52 countries prioritized adaptation in agriculture, and 36 countries prioritized mitigation in agriculture.



Richard Muyungi of Tanzania, former SBSTA chair, discusses the concept of CSA at a meeting. Photo: Pernille Høj (CCAFS)

Similarly, several African countries are proactively putting in place policies and strategies for climate change adaptation and mitigation in agriculture at national and local levels. In order for policy makers to develop and

implement successful climate change policies and programs, they require reliable and timely information on the uncertainties and complexities related to climate change, including risks, and vulnerability. The role of scientific evidence can therefore not be overlooked.

The science-policy interface is a social process that encompasses relations between scientists and other actors in the policy process. It allows for exchanges, co-evolution, and joint construction of knowledge with the aim of enriching decision making (Van den Hove, 2007).

In East Africa, CCAFS scientists have been working with policy makers from 2011 to identify suitable policy and institutional frameworks that support evidence based policy and program development. This entails making available evidence from research to support policy development and implementation at different levels—local, national, regional and global. This has mainly been through continued engagement with policy makers in Ministries of Environment, and Agriculture, Livestock and Fisheries, to ensure emerging policies and strategies on climate change, agriculture and food security are informed by scientific evidence.

Integrating agriculture into global climate change discussions



Chebet Maikut, Uganda's UNFCCC Focal Point, Ministry of Water and Environment during the COP22 session in Marrakech, Morocco. Photo by IISD/Mike Muzurakis

Following the landmark decision at the 17th Conference of Parties (COP17), referring issues relating to agriculture to its Subsidiary Body for Scientific and Technological Advice (SBSTA), negotiations on agriculture progressed significantly during the 40th Session of the SBSTA in June 2014, in Bonn, Germany. Parties agreed on four issues on agriculture to be discussed at in-session workshops at SBSTA 42 (June 2015) and SBSTA 44 (June 2016):

- Development of early warning systems and contingency plans in relation to extreme weather

events and its effects such as desertification, drought, floods, landslides, storm surge, soil erosion, and saline water intrusion;

- Assessment of risk and vulnerability of agricultural systems to different climate change scenarios at regional, national and local levels, including but not limited to pests and diseases;
- Identification of adaptation measures, taking into account the diversity of the agricultural systems, indigenous knowledge systems and the differences in scale as well as possible co-benefits and sharing experiences in research and development and on the ground activities, including socioeconomic, environmental and gender aspects; and
- Identification and assessment of agricultural practices and technologies to enhance productivity in a sustainable manner, food security and resilience, considering the differences in agro-ecological zones and farming systems, such as different grassland and cropland practices and systems.

Parties and admitted observer organizations were invited to submit to SBSTA their views on issues relating to the four issues above. CCAFS in partnership with different regional economic commissions (RECs) and development agencies including, the Common Market for Eastern and Southern Africa (COMESA), African Climate Policy Centre (ACPC), West and Central African Council for Agricultural Research and Development (CORAF/WE CARD), the International Development Research Centre (IDRC), African Development Bank (AfDB) and the African Group of Negotiators (AGN) came together to push for inclusion of agriculture within climate change discussions and to strengthen a common African position on agriculture as guided by African Ministerial Conference on the Environment (AMCEN). This engagement was initiated at the request of the Chair of the AGN in 2013. A team of agriculture and climate change experts from the five sub-regions of Africa—Africa Group of Negotiators Expert Group—worked with the AGN to prepare technical and position papers on agriculture and climate change in Africa. CCAFS and partners worked with the AGN to prepare their submissions to subsequent SBSTA sessions, where CGIAR knowledge and outputs and other science partners were used to provide evidence to the AGN to articulate the need to include agriculture into the global climate change policy discussions.

“I think the outcome of SBSTA40 is a significant achievement given the complexity of these negotiations. The conclusions give a framework of how things are going to move going forward and the coverage of scientific and technical issues to be covered is broad enough to give us traction. This partnership is shaping up to be a global force that can define the agriculture negotiations going forward,” Manyewu Mutamba, Economics and Policy Analyst, Southern African Confederation of Agricultural Unions.



Food security is prominent in the Paris Agreement. The preamble makes specific reference to safeguarding food security and ending hunger. Photo: V. Atakos (CCAFS)

Gender in the UNFCCC

Africa has been at the forefront in advancing issues relating to gender in UNFCCC negotiations and gender is an integral part of the engagement process within the AGN. A major milestone was achieved at the eighteenth Conference of the Parties (COP18) held in 2012 in Doha, Qatar, where Parties adopted decision 23/CP.18 which states as follows: *“Decides to enhance decision 36/CP.7 by adopting a goal of gender balance in bodies established pursuant to the Convention and the Kyoto Protocol, in order to improve women’s participation and inform more effective climate change policy that addresses the needs of women and men equally.”* And a further decision was to *“add the issue of gender and climate change as a standing item on the agenda of sessions of the Conference of the Parties.”*

To advance decision 23/CP.18, Parties adopted a two-year Lima Work Programme on Gender for promoting gender balance and achieving gender-responsive climate policy (decision 18/CP.20) at COP20 in 2014 in Lima, Peru.

In particular, the COP *“decides to clarify the meaning of the term ‘gender-responsive climate policy’ from an implementation perspective and improve the development and effective implementation of gender-responsive climate policy and requests the secretariat to organize an in-session workshop on gender-responsive climate policy*

with a focus on mitigation action and technology development and transfer during the forty-second session of the Subsidiary Body on Implementation (SBI 42) to be held June 2015.”

CCAFS, IDRC and ACPC continue to support the AGN and technical experts to prepare submissions on agriculture and gender. The submission on ‘gender responsive climate policy with a focus on adaptation and capacity building and training for delegates on gender issues’, stressed on the provision of guidance for mainstreaming and integrating gender into policy making and on how to integrate gender into NAPs, NDCs, TNAs, NAPAs, REDD+, including i) how to enhance monitoring and evaluation frameworks for measuring gender indicators; ii) develop and transfer efficient, appropriate and environmentally sound gender responsive technologies, with a focus on women’s triple roles; iii) development and provision of gender responsive climate services (including early warning systems to manage multi-hazard disasters and risks).

“Adaptation actions should be country driven and gender responsive, this should also include socially and environmentally sound technologies. Furthermore, there should be gender balance in delegations attending UNFCCC negotiations and training on gender issues should be for both female and male negotiators” Stella Gama from the Ministry of Natural Resources, Energy and Mining in Malawi.

Regional engagement

At regional level, CCAFS working with COMESA, East Africa Community (EAC) and the Southern Africa Development Community (SADC) supported preparation of five country CSA framework programs (CSA-FP) in eastern ([Kenya, Uganda and Tanzania](#)) and southern Africa ([Namibia and Botswana](#)). The CSA-FP aim to support countries to synergize their National Agricultural Investment Plans (NAIPs) and agricultural sector programs with national climate change strategies and action plans in order to ensure a common and holistic approach. The CSA framework programs aim to deliver multiple benefits including (i) food productivity and nutritional security, and incomes especially to women and other vulnerable groups; (ii) building resilience in agriculture and adaptive capacity of farmers; and (iii) contributing to reducing greenhouse gas emissions from agriculture and land use. The framework programs are expected to catalyse increased public-private sector investments in regional and national CSA programs with a reach of more than 100,000 agricultural service providers benefitting 10 million smallholder farmers (including women and youth) and small-scale food producers by 2025.

The country CSA-FPs were developed through a rigorous process, integrating scientific evidence from CCAFS and other CGIAR centers on the contribution of agriculture to climate change, and the role of agriculture in climate change mitigation and adaptation. The scientists also worked with the policy makers to identify and prioritize suitable CSA technologies and strategies. Following the regional engagement, in 2015, Kenya integrated adaptation and mitigation components from the CSA-FP into their Intended Nationally Determined Contribution (INDC). Tanzania, on the other hand, used the CSA-FP to support a proposal to transform agriculture in the country to the Green Climate Fund (GCF).

The African regional engagement approach adopted by CCAFS has inspired similar regional engagement initiatives with the UNFCCC by Latin America and South East Asia.

National and local engagement



In collaboration with CCAFS, Kenya, Uganda and Tanzania have produced INDCs with strong climate-smart agriculture components. Photo: S.Kilungu (CCAFS)

At the national level, different approaches have been used to engage with policy makers, all of which are linked to and build on each other. The initial step involved visits to ministries of environment (climate change), agriculture including livestock and food security in the four CCAFS focus countries in East Africa—Kenya, Uganda, Tanzania and Ethiopia. Through these face-to-face discussions, common objectives on integrating climate change and agriculture issues at national and local levels were identified. In order to bring in other stakeholders, CCAFS organized a series of workshops in the four countries in collaboration with government partners, to identify priorities for research on agriculture and climate change. These meetings brought together participants from various ministries, local government, research institutions and non-governmental organizations to identify the policy and research gaps at national levels.

From 2011, CCAFS East Africa has continued to work with government partners to review, develop and implement different policies and strategies on climate change and agriculture. CCAFS role has been to ensure that agricultural and climate change issues are well articulated in the different documents.

Kenya integrates CSA into its INDC

One of the key successful science-policy engagement efforts in East Africa was the CCAFS led process on “Taking Forward Kenya’s National Climate Change Action Plan (NCCAP) 2013-2017”. The process created momentum for implementation of the agriculture priority actions in the NCCAP. Building on this engagement process, CCAFS and scientists from the Center for International Forestry Research (CIFOR), the World Agroforestry Centre (ICRAF), the International Livestock Research Institute (ILRI) and the International Center for Tropical Agriculture (CIAT) provided inputs into the development of Kenya’s Climate-Smart Agriculture Framework Program (CSA-FP), aimed at guiding investments into climate resilient and low carbon agriculture.

As of July 2015, the CSA-FP was integrated into Kenya’s Intended Nationally Determined Contribution (INDC) submission to UNFCCC. The INDC identifies both mitigation and adaptation components from the CSA-FP, and identifies forestry and other land use as sectors where capacity building for GHG inventories with CIFOR and ILRI is a priority. Kenya’s INDC aims to reduce the country’s greenhouse gas (GHG) emissions by 30% by 2030, relative to a business-as-usual scenario of 132 Mt CO₂eq. The Framework Program will draw from a pool of an estimated USD 40 billion in mitigation finance, which will be mobilized by 2030.

At local level, CCAFS is working with communities and policy makers to develop local adaptation plans of action (LAPAs) and to integrate climate change and agriculture issues in local level policy documents. Through LAPAs, communities and policy makers are actively involved in understanding their changing and future climatic conditions and to engage effectively in the process of developing adaptation priorities specific to their environment. The LAPAs developed and implemented are usually climate resilient plans that are flexible enough to respond to changing climate and vulnerability conditions.

The process of developing LAPAs involves integration of local and national level approaches to mainstream adaptation into planning. In Western Kenya, CCAFS and its partners have initiated the process of developing



CSA is an approach that helps a country to transform and reorient agriculture and ensure food security in a changing climate. Photo: S.Kilungu (CCAFS)

LAPAs within the climate-smart villages of Nyando basin. Local people, including NGOs and CBOs were involved in a week-long process of identifying adaptation plans within the agriculture sector and sharing the plans with policy makers at sub-county and county levels. Some of the adaptation strategies identified included use of climate adapted crop varieties, improved livestock management practices, land, soil and water management technologies, market and value chain development, access to finance and credit, access to climate information services and, agricultural knowledge transfer.

Decision support tools and models

CCAFS and other CGIAR centres have also developed tools and models which can be used to inform policy decision making. The climate analogues tool can be used by decision makers and communities to identify suitable adaptation options in agriculture, including institutional innovations. So far, 91 policy makers and practitioners from Kenya, Uganda, Tanzania and Ethiopia have been trained on how to apply the climate analogues tool.



Participants gain hands on experience on the analogues tool. Photo: P.Kimeli (CCAFS)

“With the evolution of sophisticated tools and models to understand impacts associated with climate change, scientists are now better placed to inform policy makers on suitable climate change adaptation strategies for different agricultural zones in Tanzania”, said Dr. Hussein Mansoor, Assistant Director, Crop Division at the Ministry of Agriculture, Food Security and Cooperatives. Dr. Mansoor made this remark as he officiated the closing ceremony of the training workshop on “Using Climate Scenarios and Analogues for Designing Adaptation Strategies”, held in Dar-es-salaam, Tanzania in July 2014.

The CSA prioritization tool ‘*targetCSA*’ has been developed by CIFOR and ILRI with CCAFS support. The tool was developed through a rigorous engagement process with the Kenya government and other key stakeholders at national level and aims to support decision-making on selection and prioritization of suitable CSA technologies and practices. This tool will support targeting of CSA interventions in Kenya and eventually other East Africa countries.

Engagement through learning hubs



CCAFS is working with partners to empower farmers to manage climate risk through a combination of crop diversification and improved practices.

Photo: K. Trautmann/CCAFS

CCAFS climate-smart villages (CSVs) are learning grounds for policy makers, media and other stakeholders on how local communities are adapting to climate change. CCAFS partnered with CARE Adaptation Learning Programme in Africa (ALP), PROCASUR and the African Centre for Technology Studies (ACTS) to organize learning events to expose policy makers from Africa and beyond to ongoing climate change adaptation and mitigation strategies including CSA. For instance through the Nyando CSVs, delegations of policy makers from Ethiopia, Rwanda, Kenya, Uganda and Tanzania have had an opportunity to interact with farmers and research institutions to gather first-hand experience of what the farmers are doing to improve their livelihoods, build resilience, and reduce GHG emissions from agriculture.

These learning events and visits create a platform for policy makers to interact with farmers and research institutions to gather first-hand experience of what the farmers are doing to improve their livelihoods, build resilience, and reduce emissions from agriculture.

Apart from the policy makers, the CCAFS CSVs have hosted a series of high level delegations—comprising of development partners and national, regional and international media—resulting in greater sharing of success stories from the CSVs. Key media and communication partners include the local television and radio stations in the region, SciDev.net, France24, BBC and German TV.

In November 2013, Rachel Kyte, the World Bank Group Vice President and Special Envoy for Climate Change visited the Nyando climate-smart villages in western Kenya. In her blog story published on the World Bank site, she highlighted the importance of linking local action to global processes:

“From a global perspective however, identifying farming practices that increase production and resilience and reduce pollution or capture carbon is critical. If agriculture and land use change continue to produce up to 30 percent of global greenhouse gases, it will be close to impossible to slow or stop global warming. CCAFS on-farm experimentation with emissions levels is providing data that will serve us all.”

The linkage to local action is critical for up scaling and out scaling of CSA technologies and practices.

“We have heard the challenges these farmers face first hand due to climate change impacts. The various adaptation initiatives being demonstrated here are quite encouraging since farmers are now able to feed their families as well as earn income to address other household needs. However, the big question is: how can we upscale such initiatives?” asked Jean-Pascal Van Ypersele, Vice-Chair of the Intergovernmental Panel on Climate Change (IPCC).

Jean-Pascal was speaking during a field visit to CCAFS CSVs in Makueni during the 9th International Conference on Community-Based Adaptation to Climate Change (CBA 9) in 2015. The visit provided an opportunity for shared learning based on ongoing work in the field for delegates from 21 countries drawn from different parts of the world.

Exploring use of ICTs to bridge science-policy gap

To enhance the science-policy dialogue on climate change, agriculture and food security issues in Africa, CCAFS in collaboration with COMESA, the Rockefeller Foundation and Pamoja Media have created a regional online knowledge sharing and learning platform—Climate and Agriculture Network for Africa (CANA). Through CANA, policy makers, researchers and other stakeholders continue to engage in various discussions and share information. Collating a range of scientific research outputs on agriculture and livelihoods in Africa, CANA provides a ‘one stop shop’ for policymakers. The platform includes a section dedicated to CSA. Other sections include building resilience to climate change; low emissions development; financing climate change adaptation; policies for adaptation; and gender and equality.

Through CANA, CCAFS and partners have hosted a series of webinars focusing on different themes including gender and youth, media engagement, climate services, and CSA tools and approaches. During a webinar on bridging the science- policy gap, it emerged that policy makers need up to date information in order to make decisions.

“The justification of decisions can only be done from a well-informed point and this is why researchers, scientists and policy makers have to collaborate,” said Victor Orindi during a past webinar hosted on CANA. He works for Kenya’s National Drought Management Authority (NDMA).

To boost the sharing of information among policymakers and scientists, CANA has extended its reach through several social media include Facebook and Twitter. The CANA platform had close to ten thousand views in 2015. During the year, CANA’s interactive online sessions were in high demand, with participants signing up to receive regular updates and take part in discussions.



Participants at the CANA workshop on web content management and social media visibility. Photo: S.Kilungu (CCAFS)

Integrating GHG data in agriculture and livestock

The Mazingira Centre at ILRI is another key learning hub. The facility is a collaboration between ILRI, CIFOR and CCAFS. Through the facility, ILRI researchers intend to not only avail country specific measurements but also build capacity in GHG measurement. Together with CCAFS, ILRI has hosted policy makers from Uganda and Kenya at the Mazingira Centre. Discussions during the visits revolved around compiling data on emissions from a full range of sources including livestock and smallholder farms, manure management systems, and other productive land use, such as forests, tea and timber plantations.



Kenyan policy makers from the Ministry of Environment Water and Natural Resources (MEWNR) in the Mazingira lab at ILRI discuss ongoing work Photo: S.Kilungu (CCAFS)

Going forward, policy makers from both countries will continue discussions with CCAFS and ILRI scientists to build the evidence base that will ultimately lead to development of country-specific emission factors.

“I’m excited that there are research facilities that can help our GHG reporting system and also our reporting to the UNFCCC,” said Stephen King’uyu, Climate Change Department, MWENR, Kenya

Conclusion

Science-policy engagement processes are critical in supporting African countries to develop and implement climate resilient agricultural programs. This will help readiness to address climate related shocks in agriculture. However, establishing and maintaining partnership structures at multiple levels is a slow process that requires patience and relies on the active involvement of other stakeholders. Currently, most African countries are formulating their climate change policies, strategies, action plans and putting in place legislative frameworks. Countries are also developing green growth and low carbon strategies that aim to integrate climate change into national development. For agriculture, many countries are beginning to embrace the CSA approach as

a way of increasing agricultural productivity, building the resilience of smallholder farmers to shocks as well as addressing through improved practices reductions in GHG emissions intensity from agriculture and food systems. In conclusion, it is increasingly emerging that policy needs to be informed by scientific evidence. The partnership engagement approach CCAFS has adopted across all scales of providing scientific evidence to policy makers should be pursued with vigor to ensure that policies on climate change and agriculture developed and implemented in Africa are not only relevant but effective based on meeting the needs and priorities of the continent.

Further Reading

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- Climate Smart Agriculture Framework Programs for Kenya, Uganda and Tanzania: [Country climate smart framework programs](#)

Blogs

- Climate action in Kenya: New national plan launched - <http://ccafs.cgiar.org/blog/Action-climate-Kenya-New-plan-launched%2520#.UooKleK2X7A>
- Tackling climate change: Kenya holds first national adaptation planning meeting for agriculture - <http://ccafs.cgiar.org/blog/tackling-climate-change-kenya-holds-first-national-adaptation-planning-meeting-agriculture#.UooQmuK2X7A>

CCAFS Tools

- CCAFS - CSA guide tools <https://csa.guide/csa/tools>

Research led by



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This brief provides an overview of CCAFS East Africa policy and partnership work in Africa.

The titles of the INFO NOTE series seek to disseminate research findings on climate change, agriculture and food security, as well as stimulate feedback from the science community.

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CCAFS and Info Notes

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