



Climate-Smart Agriculture (CSA) in Kenya: Opportunities and Recommendations for County Governments

Key messages:

1. Climate change is an added challenge to the agriculture sector in Kenya.
2. Climate-smart agriculture (CSA) is an approach that helps to address the negative impacts of climate change and food insecurity simultaneously to ensure sustainable agriculture development and livelihood improvement.
3. Kenya has developed and is implementing a comprehensive policy framework for CSA: the CSA strategy and implementation framework
4. Counties, as part of their devolved agriculture function, can help promote CSA through:
 - Domestication of national policies and strategies to encourage CSA adoption
 - Allocation of finances to support CSA extension service delivery
 - Stimulation of value chains and markets to support producers using CSA practices
 - Establishment of county-level CSA Multi-Stakeholder Platforms

A changing climate for Kenya's agriculture

The **agriculture sector is the largest contributor to Kenya's economy** and includes crop and livestock production, agroforestry, fisheries and aquaculture, agro-processing, trade, and all associated services. Due to its reliance on rain and natural weather patterns, however, this key sector is **vulnerable to climate shocks and long-term changes**, which already are increasing pressure on Kenya's food security. Over the years, **natural hazards from extreme weather events in the form of droughts and flooding have increased, both in frequency and magnitude of damage**. Within the arid and semi-arid areas, which depend mainly on livestock-based livelihoods, communities have become especially vulnerable to recurrent droughts. Additionally, unpredictable rainfall variability across the country makes it difficult for crop farmers to plan their production activities. Economic losses from climatic events in Kenya are projected to be 3% of the country's GDP in 2030 and up to 5% in 2050 respectively, if impacts by climate change in Kenya are not addressed effectively (Government of Kenya, 2018).

Climate change exacerbates the situation of Kenyan farmers who already face difficult production environments with limited access to quality production inputs, extension services, market linkages, weather information or financial services. Increased occurrences of pests and diseases as well as further decreases in crop yields and livestock productivity are anticipated. In the crops sub-sector, average maize and bean yields have stagnated or declined since 1990 and similar trends are observed for coffee and tea despite research and agronomic efforts to increase productivity (Fig 1). Finally, expected higher food prices due to reduced supply will likely increase food insecurity, especially in climate change hotspots. This changing climate for Kenya's agriculture stipulates systemic adaptation measures that reach far beyond the business as usual.

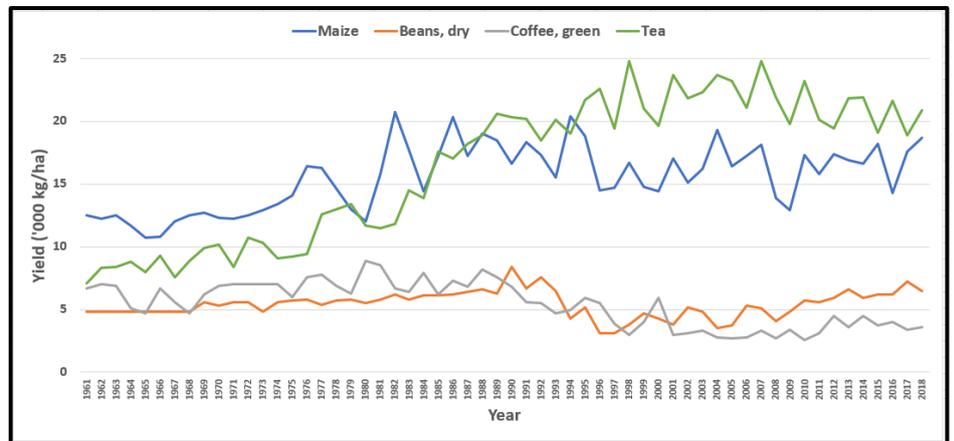


Figure 1: Maize, beans coffee and tea: yield trends – Source: FAOSTAT

How CSA can address the challenges

Climate-smart technologies, practices, services and policies and their implementation can help farmers cope with and adapt to changing farming conditions. The CSA approach enhances the streamlining of sustainable farming practices and simultaneously fosters ecological, economic, and social resilience. Integrated concepts that foster diversification, efficiency and synergies in production, storage or transportation can be applied in the agriculture sector to reduce ecologic impacts and sustain income and livelihoods.

There is robust evidence that sustainable farming practices can create and enhance the resilience of agricultural systems to climate change effects. The available technologies and management to support sustainable farming include: sustainable soil management practices such as [cover crops](#), [intercropping](#), mulching, crop rotation, [nutrient management](#) and [conservation tillage](#); livestock management including [grassland restoration and management](#), forage production and conservation, [silvopastoral systems](#) or [crop-livestock integration](#), improved grazing systems and smart [water management](#) to name just a few. Social benefits in turn can be fostered through farmer groups that empower women, youth and good governance, through integration of traditional knowledge, creation of index insurances and establishment of local seed banks. In the longer run, CSA aims for implementation of holistic sustainable agricultural development processes, for example through changes in agricultural and food systems based on inclusive and sound policies and circular market mechanisms.

To promote CSA in Kenya, the Ministry of Agriculture, Livestock, Fisheries and Cooperatives has created the Kenya Climate Smart Agriculture Strategy (2017-2026) and the related Implementation Framework (2018-2027).

Opportunities for counties to scale-up CSA

Harnessing county commitments is crucial to achieve a scaling up of existing and new CSA initiatives in Kenya. Domestication of the national strategy and implementation framework through county-specific measures are required urgently to foster the resilience of the agriculture sector and of Kenya's food system. Since the climate risks for each county vary from direct (e.g. drought, floods) to indirect (e.g. pests, price volatility) climate impacts, tailor-made climate smart and sustainable interventions by county governments and implementing actors are required.

Climate-Smart Agriculture (CSA) is agriculture that sustainably **increases productivity, enhances resilience (adaptation), reduces/removes greenhouse gases (mitigation) where possible**, and enhances achievement of national food security and development goals.

The thorough endorsement of CSA strategies by county governments is a prerequisite to build the sustained resilience needed. Among others, this includes the mainstreaming of CSA into County Integrated Development Plans, increased investment in CSA programmes, better coordination and cooperative approaches in CSA implementation and a rigorous monitoring and evaluation of the activities to ensure longer term sustainability. Several counties, including Makueni, Wajir, Isiolo, Kitui and Garissa, have developed a Climate

Change Act and finance mechanism that provides guidance for CSA budgeting. They further created stakeholder platforms and developed monitoring and follow-up tracking systems. Such systemic capacity building and institutional set up can be adopted in other counties to enhance the scaling up of CSA.

Additionally, creating an enabling environment for private sector actors and linking them with farmers for increased market linkages and access could catalyse upscaling of CSA

Kenya county climate risk

profiles: CIAT has developed [31 county climate risk profiles](#) to guide climate-smart agriculture (CSA) priorities and investments at sub national level in Kenya

in Kenya. Counties can also play a critical role in organizing farmers' groups for CSA technology adoption.

Recommendations for county governments to encourage CSA

Climate smart agriculture offers an excellent opportunity to pursue innovative measures to help producers and consumers cope with the changes in emerging and projected climate patterns. As provided for in the devolved system of Government in Kenya, implementation of agricultural policies is the mandate of counties. Judicious implementation of CSA at County level can simultaneously increase gains in agricultural productivity, strengthen resilience to weather shocks, enhance adaptation and reduce emissions intensities from agriculture and food systems where possible.

Counties can help promote CSA through:

1. Domestication of national policies and strategies to support and promote investment in CSA

One of the first steps that counties can take to promote CSA is integrating CSA practices and technologies into County Integrated Development Plans (CIDPs). This ensures that climate change effects are taken into consideration. Exploring ways of securing farmers' rights by working with local government authorities can help enhance adoption of CSA practices as land tenure security is often a major barrier to adoption.

2. Allocation of finances to support CSA extension service delivery

Agricultural extension services are a critical function of county governments, and adequate budget allocation to programs fostering CSA is critical. Gender and other social inclusion considerations should inform these processes. Current budget lines for agricultural activities can be reviewed to ensure the activities being undertaken adhere to climate-smart principles.

3. Stimulation of value chains and markets to support producers adopting CSA practices and technologies

County governments can help support the private sector in scaling up CSA by providing an enabling environment for the creation of micro, small and medium enterprises along the agricultural value chain to increase the scaling of CSA practices. The importance of physical and social infrastructure, such as roads and energy access, should be considered. Enhancing the use of ICT in the aggregation of commodities, linking farmers to markets to reduce postharvest losses, digitizing processes and payments, and provide financing for CSA along the value chain can all help support scaling of CSA. Additional steps could include reforming fertilizer subsidy programs to ensure they are efficient, transparent and well targeted (with gender considerations factored in); investing in irrigation and agricultural water management as well as other enabling infrastructure; leveraging modern agricultural

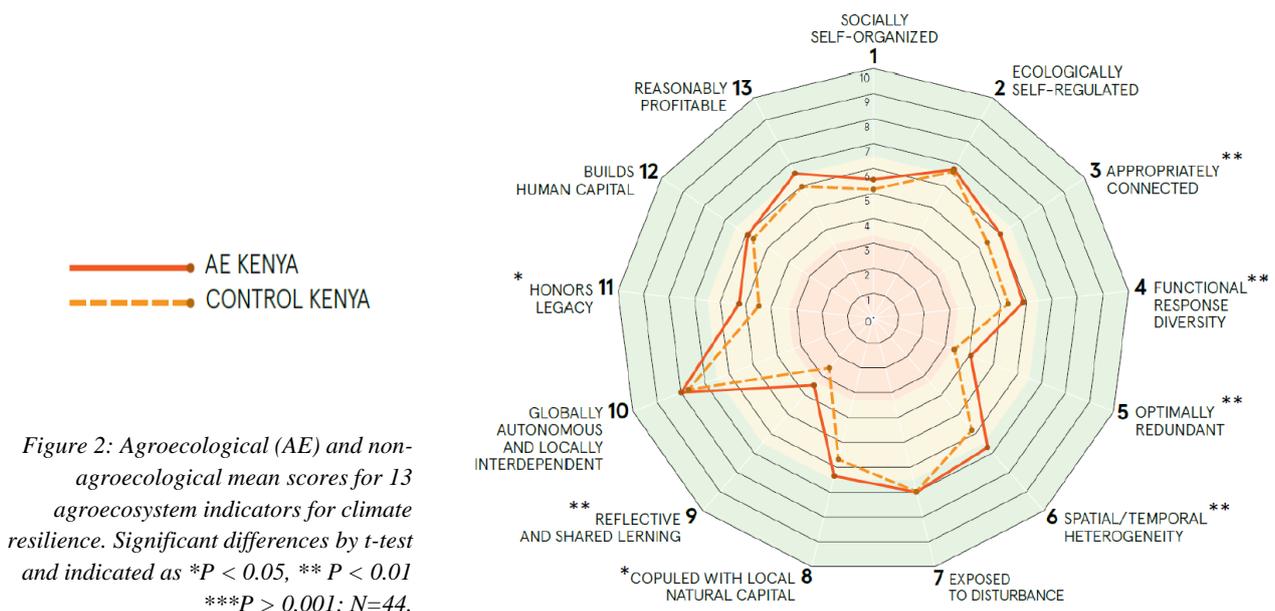
technology to generate a wide range of agricultural support applications, including e-extension services, and capacity building of farmers and farmer groups to undertake CSA.

4. Establishment of county-level CSA Multi-Stakeholder Platforms

One of the most critical actions a county can take to ensure the scaling of CSA is the establishment of county-level Multi-Stakeholder Platforms (MSPs) to support information sharing, learning and coordination across sectors. Given that climate change is a systemic challenge, these county MSPs have an opportunity to foster engagement between sectors and actors, thereby aiming for synergies among energy, water, agriculture and health. Counties can also play a role in strengthening farmers' and producers' cooperatives for knowledge sharing and scaling of CSA practices, with a focus on women and youth organizations. Along with sharing success stories, the establishment of demonstration plots for different CSA practices can help farmers consider adoption of CSA practices.

Case Study: Climate Resilience through Sustainable Farming in Kenya

Using the [FAO Resilience SHARP](#) tool, a comparative case study conducted in Busia, Tharaka-Nithi and Meru in 2019 showed that agro-ecological (AE) interventions increase climate resilience (Fig 2). On average they score better in environmental aspects, economic components and significantly better in agronomic practices. Key factors for this were greater functional and species diversity, redundancy, and heterogeneity in integrated farming systems as well as participation in farming communities and programs. All farmers of the study expressed highest priority in further support in sustainable farming practices, access to insurance, animal breeding, non-farm income generation as well as access to water infrastructure and land to foster resilience.



Additional resources

- Repository of CSA interventions: Evidence for Resilient Agriculture (ERA) <https://era.ccafs.cgiar.org/>
- Government of Kenya (2017). [Kenya Climate Smart Agriculture Strategy 2017-2026](#) (KCSAS)
- Government of Kenya (2018). [Kenya Climate Smart Agriculture Implementation Framework 2018-2027](#) (KCSAIF).
- Government of Kenya (2019). [Agricultural Sector Growth and Transformation Strategy \(ASTGS\): Towards Sustainable Agricultural Transformation and Food Security in Kenya 2019 - 2029](#). Abridged Version.

This policy brief was prepared on behalf of the Kenya CSA Multi-Stakeholder Platform (CSA MSP) by Laura Cramer (CCAFS), Joab Osumba (CCAFS), Martin Herren (Biovision), Caroline Mwongera (Alliance of Bioversity and CIAT), Meaza Melkamu (Africa Conservation Tillage Network), Daphne Muchai (Women Farmer's Association of Kenya), Veronica Ndetu (Ministry of Agriculture, Livestock, Fisheries and Cooperatives) and Bernard Kimoro (Ministry of Agriculture, Livestock, Fisheries and Cooperatives) . The brief is a product of the CSA MSP, which is coordinated by the Climate Change Unit of the Ministry of Agriculture, Livestock, Fisheries and Cooperatives and has more than 40 members from government, research, civil society, private sector, and other institutions that exchange their experiences with CSA and foster activities to scale-up climate smart agriculture in Kenya. The authors thank members of the MSP for their inputs on earlier drafts.

August 2020

Support provided by



RESEARCH PROGRAM ON
**Climate Change,
Agriculture and
Food Security**

