FANRPAN
Food, Agriculture & Natural Resources Policy Analysis Network

POLICY BRIEF 12/2017

CLIMATE-SMART AGRICULTURE IN UGANDA

Introduction

The effects of climate change on agriculture are severe, and one of the most significant emerging challenges to household livelihoods in Africa. As such, it is imperative that efforts to address agriculture in the context of food security and rural development take climate change into consideration. Climate-smart Agriculture (CSA) is defined as agricultural practices that sustainably increase productivity and system resilience, while reducing greenhouse gas (GHG) emissions. It is not a single specific agricultural technology or practice that can be universally applied; it is a combination of policy, technology, and finance options that involves the direct incorporation of climate change adaptation and mitigation into agricultural development planning and implementation (FAO, 2010). Uganda holds great potential for CSA, but this needs to be further explored. Although the country has traditional agricultural practices as well as research-based programmes and techniques that have CSA qualities, CSA promotion requires concerted action from multiple actors to allow for context-specific approaches.

KEY RECOMMENDATIONS

ONE: Improved institutional coordination is crucial for achievement of the integration required for effective implementation of CSA at scale, and should be prioritized to ensure the implementation of the Ugandan Agriculture Sector Strategic Plan.

TWO: Farmer-extension-research linkages must be strengthened. Participatory platforms for engagement will strengthen the research sectors capacity to understand farmers' needs, and enable extension services to provide researchers with insights to address challenges on the ground.

THREE: Identify and roll-out context-appropriate technologies and climate applications through participatory approaches to increase farmers' preparedness and ensure widespread uptake.

FOUR: Invest in developing robust extension services that can catalyse private sector investment in priority areas such as weather-based index insurance.

FIVE: Closely monitor the impact and success of CSA activities in Uganda to understand the potential of initiatives to contribute to agricultural transformation and livelihoods, and attract increased investment.

POPULATION Total population of 41.5 million of which 84% live in rural areas (Trading Economics, 2016).

ECONOMY Real GDP growth slowed to an estimated 4.8% in 2016, from 5.5% in 2015, with increases projected for 2017 and 2018. A stable macroeconomic environment with single-digit inflation (averaging 2.8% in 2016) (African Economic Outlook, 2017).

POVERTY 37% of the population below the international poverty line (World Bank, 2017a).

AGRICULTURE IN ECONOMY Currently less than 24% of GDP is from agriculture (World Bank, 2017b). Ugandan Statistics (2016) revealed that almost 75% of national employment is in agriculture.

FOOD SECURITY INDEX Mid-range ratings on the Food Security Index (relative to other African countries) within top 50% of countries globally (Food Security Index, 2016).

CLIMATE CHANGE Uganda's greenhouse gas emissions contribute less than 1% of global emissions (USAID, 2015).

Context Overview

AGRICULTURE IN UGANDA

Uganda's agricultural sector covers a wide range of activities including the production of traditional cash crops (coffee, sugar cane, cotton and tea) and food crops (banana, cassava, maize, sorghum, finger-millet, potatoes and beans) and keeping livestock (cattle, goats, pigs and poultry).

Relatively poor soil quality due to degradation has resulted in low productivity of crops in Uganda and yields are significantly below potential. Post-harvest losses are as high as 40 percent (Feed the Future, 2017).

VULNERABILITIES

The Fifth Assessment of the Intergovernmental Panel on Climate Change (IPCC) has shown that global climate change is already damaging crops and undermining food production capacity, particularly in poorer countries (IPCC, 2014). **The vulnerability of African countries, including Uganda, to climate change is compounded by strong dependence on rain-fed agriculture** and natural resources; high levels of poverty; low levels of human capital; low levels of preparedness for climate events; and poor infrastructure in rural areas.

Temperatures in Sub-Saharan Africa are already close to or beyond thresholds at which further warming reduces (already low) yields (Cline, 2008), and the country is expected to be 1.5°C warmer by 2050 (McSweeney, New & Lizcano, 2016).

A comparative assessment (FANRPAN, 2017) reveals that the impacts of climate change (particularly droughts, floods, and other alterations in rainfall patterns) are already being perceived both by formal experts and by rural populations across Eastern and Southern Africa, including Uganda.

Uganda is experiencing significant impacts of climate change, which include changing weather patterns, drop in water levels, and increased frequency of extreme weather events (NDC, 2015).

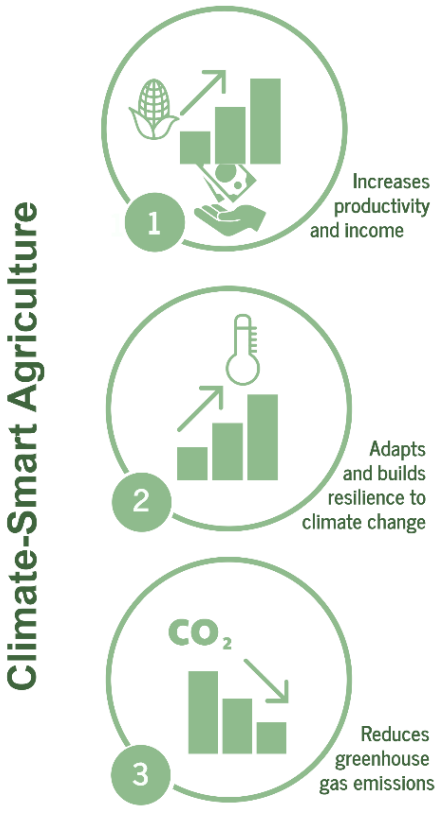
Countries in East Africa are also affected by El Niño (warm) and La Niña (cool) events in the tropical Pacific. The most recent El Niño (2014-2016) and La Niña (2016-2017) have impacted on agriculture in Uganda. In other areas of Africa, El Nino is associated with warm and dry conditions, but in East Africa, El Nino is associated with enhanced rainfall. The increased rainfall can lead to flooding, outbreak of water-borne diseases and landslides (Relief Web, 2016). Although the El Niño has receded, the impact of the higher- than-average temperatures and the lower-than-average rainfall continue to be felt.

These environmental factors are further complicated by low value addition to agricultural produce and limited market access, weak implementation of agricultural laws and policies, and weak public agricultural institutions.

AGRICULTURE IN DEVELOPMENT

Agriculture remains one of the most effective pathways out of poverty. Gross domestic product (GDP) growth that originates in agriculture is approximately four times more effective in reducing poverty than GDP growth that originates in other sectors (World Bank, 2008). The risk which climate change poses to the sector thus has significant implications for poverty-reducing capacity.

In this context, CSA is critical for food security and development. It is an approach that can help reduce the negative impacts of climate change and can increase the adaptive capacity of farming communities to long-term climatic trends (FAO, 2010).



Climate Related Policy and Practices

Eastern and Southern African countries generally have policies on agriculture and climate change, and do recognize the impacts of the latter on the former. Some countries have developed National Climate Change Policies, while other countries have National Adaptation Programmes of Action (NAPA) in place, and/or National Climate Change Response Strategies.

INTERNATIONAL ENVIRONMENT

As a non-Annex I party to the Paris agreement, Uganda has no obligations to reduce GHG emissions, but has an obligation under the UNFCCC Paris Agreement to report on the anthropogenic sources and sinks of GHGs, and to identify measures to minimize the impacts of global climate change.

Uganda has submitted its nationally determined contribution (NDC) to the convention and this was ratified in September 2016. In its NDC, Uganda states its intention to implement a series of policies and measures in the energy supply, forestry, and wetland sectors, conditional on international support.

The aim of these policies and measures is to reduce overall GHG emissions by 22% by 2030, based on a business-as-usual (BAU) scenario.

Regionally, Uganda is implementing the Comprehensive Africa Agriculture Development Programme (CAADP) Framework (2010), which emphasizes sustainable land and water management for improved agricultural productivity through research, technology adoption and dissemination, and agricultural GHG emissions reduction. Uganda submitted its CAADP compact in 2010, and has developed a National Agricultural Investment Plan (NAIP).

NATIONAL POLICY ENVIRONMENT

Uganda has, since 2015, had a National Climate Change Policy (NCCP) in place, which is derived from the Constitution and reflects Uganda Vision 2040. The priorities in the NCCP have furthermore been integrated into the Second National Development Plan (NDP II) 2015/16 – 2019/2020.

In addition to this, Uganda has a National Adaptation Programme of Action (NAPA),

as well as a National Adaptation Plan (NAP) in the process of being developed.

In terms of priority sectors and actions for adaptation to climate change, the agriculture sector is listed in Uganda's NDC, and CSA is specified as one of the priority adaptation actions within this sector.

Uganda's National Agricultural Policy was launched in 2011, and the Agriculture Sector Strategic Plan was approved in 2016.

CSA POLICIES & PRACTICES

There is currently no specific CSA policy or strategy in place in Uganda. However, the Agriculture Sector Strategic Plan identified CSA as a cross-cutting concern and has identified six core CSA actions (see insert on the following page).

Selection of national policies, plans and strategies in Botswana related to CSA

National Agricultural Policy	The National Agriculture Policy is aimed at translating high level national obligations (for example the National Development Plan) into policies and strategies to enable their achievement. The policy guides all agriculture and agriculture related sub-sector plans, policy frameworks and strategies existing and those to be formulated in future.
Agriculture Sector Strategic Plan	Implementation of the ASSP will spur growth in the agriculture sector through the establishment of effective linkages to and exploitation of existing and potential local, regional and international markets
National Climate Change Policy	Provides a clearly defined pathway for dealing with the challenges of climate change within the socio-economic context of Uganda, and looks ahead to the opportunities and benefits of a green economy.

CSA CORE ACTIONS IDENTIFIED IN THE AGRICULTURE SECTOR STRATEGIC PLAN

- **Increasing agricultural productivity through climate smart agriculture** practices and approaches that consider gender.
- **Increasing the resilience** of agricultural landscapes and communities to the impacts of climate change.
- **Increasing the contribution of the agricultural sector to low carbon development pathways** through transformation of agricultural practices.
- **Strengthening the enabling environment** for efficient and effective scaling up of climate smart agriculture.
- **Increase partnerships and resource mobilization** initiatives to support implementation of climate smart agriculture through collaborations with available initiatives including funds targeting the promotion of climate conservation activities.
- **Provide technical support to farmers** and other stakeholders including civil society organisations designing and or implementing climate related interventions at all levels in the agriculture sector. This includes setting up climate smart villages to do demonstrations of CSA approaches.

Uganda has examples of traditional agricultural practices that can be deemed climate-smart, and the Agriculture Sector Strategic Plan has positioned CSA as a key priority and, if well implemented, position Uganda to benefit significantly from increased implementation of CSA.

The Transboundary Agro-ecosystem Management Project (TAMP) is one example of CSA practices implemented in Uganda. The project is supported by the Global Environmental Facility and implemented by the FAO in conjunction with the Ministry of Agriculture, Animal Industry and Fisheries.

TRANSBOUNDARY AGRO-ECOSYSTEM MANAGEMENT PROJECT (TAMP)

The Transboundary Agro-ecosystem Management Project (TAMP) aims at combating land degradation through the use of CSA practices that ensure sustainable land productivity. Through the Farmer Field Schools (FFS) approach, the farmers have been able to clearly identify the problems and priorities and how they can attempt to provide solutions. As a result, farmers in Uganda have been able to integrate CSA principles to ensure improved productivity and minimum soil loss. Below are examples of sites where farmers have successfully adopted CSA principles as part of TAMP.

Katongelo Watershed Management – Kyebe

The Kyebe site is steep, stony, and extremely difficult to manage. Farmers here have recognized the importance of ensuring sustainable management of their resources and improving productivity of crops.

CSA management at Kyebe is based on the integration of different principles, including mulching, use of trenches to prevent run-off, harvesting water, and the use of various combinations of intercropping to ensure good ground cover.

Kiruhura Watershed Management – Sanga

Sanga is an area where the management of natural resources is at advanced level. The principles of CSA are very well integrated to ensure minimum soil loss and improved productivity. Nearly all the banana plantations are very well mulched and there are various combinations of intercropping. Many farmers grow crops and also keep cattle; such farmers have well-organized paddocks and established pastures.

Lablab – sometimes called dolicos beans – is a species of beans the farmers produce as a forage, but it also provides live mulch and improves soil organic matter. On steep hills, many farmers have planted trees to combat erosion. Because of the effective integration of these types of CSA practices, soil erosion is largely under control and the land appears to be very productive.

Rubangano Watershed Management – Mwizi

The terrain of this area is hilly, but the land is generally fertile. Farmer Field Schools have considerably improved farmers' understanding of the problems associated with farming in this area.

The main CSA practices that have been incorporated to combat the challenges of planting on steep slopes include mulching, planting grass strips and trees, terracing, and making trenches in combination with the grass strips. These techniques improve water infiltration and retention, and also decrease soil erosion.

Elephant grass from the strips is cut and used as animal feed, while the animal droppings are collected for use in the preparation of organic fertilizer.

Gaps and Challenges in Climate-Smart Agriculture

POLICY GAPS

Climate-smart agriculture is context- and location-specific; therefore, implementation of CSA in Uganda's agricultural system should use existing policy instruments as a launch pad. Current agricultural and related sectoral policy instrument objectives resonate with a CSA framework to address food security in a sustainable manner that results in adaptation to and mitigation of climate change. The Agriculture Sector Strategic Plan clearly positions CSA as an important mechanism for improving the sector's performance and sustainability.

Institutional coordination is crucial for achievement of the integration required for effective implementation of CSA at scale. The Ugandan government has committed to developing frameworks that will improve inter-ministerial and local government coordination; enhance partnerships with private sector and civil society organizations; and strengthen coordination with development partners.

RECOMMENDATION Prioritize actions to ensure coordination between sectors to accelerate the implementation of the Ugandan Agriculture Sector Strategic Plan, and its contribution to Uganda's approach to dealing with climate change.

KNOWLEDGE SHARING, CAPACITY BUILDING, AND EXTENSION

Although Uganda has a well-developed agricultural research system, use of modern science and climate smart technologies in agricultural production is still limited.

Inadequate research–extension–farmer linkages to facilitate demand-driven research and increased use of improved technologies constrain efforts to increase agricultural productivity as farmers continue to use outdated and ineffective technologies. The role of research should be re-oriented to support innovations that facilitate the transition to CSA by smallholder farmers.

RECOMMENDATION: Farmer-extension-research linkages must be strengthened. Participatory platforms for engagement will strengthen the research sectors capacity to understand farmers' needs, and enable extension services to provide researchers with insights to address challenges on the ground.

Extension services that include climate applications for agriculture will help farmers to make better and informed decisions. Climate applications include seasonal weather forecasts, monitoring and early warning products for drought, floods and pests and disease surveillance. These products and services would increase the preparedness of the farmers, well in advance.

RECOMMENDATION: Identify context-appropriate technologies and climate applications through participatory approaches to increase farmers' preparedness and ensure more widespread uptake.

INVESTMENTS AND FINANCIAL FLOWS

Uganda has indicated in its NDC that as much as 70% of the budget required to meet its contribution to reducing climate change will need to be externally funded. Public and private sectors as well as public-private partnerships will play a critical role.

RECOMMENDATION: Closely monitor the impact and success of CSA activities in Uganda to understand the potential of initiatives to contribute to agricultural transformation and livelihoods, and attract increased investment.

Robust agro-advisory services would catalyse private sector investment in priority areas such as weather-based index insurance and associated infrastructure.

RECOMMENDATION: Invest in developing robust extension services that can catalyse private sector investment in priority areas such as weather-based index insurance.

Mapping CSA Policy and Practice in Africa

This policy brief is an output emanating from a larger study conducted in collaboration between the Food, Agriculture and Natural Resources Policy Analysis Network (FANRPAN) and the Earth System Governance Project, on policies for climate-smart agriculture. The Earth System Governance Project is an international social science research network in the area of governance and global environmental change.

The study was funded by the Norwegian Agency for Development Cooperation (NORAD) and the African Capacity Building Foundation (ACBF).

The research project consisted of a comparative assessment of relevant CSA policies and practices in 15 countries across Eastern and Southern Africa. The research was commissioned by FANRPAN to analyze the barriers and opportunities for promoting CSA in sub-Saharan Africa. This means agriculture that (i) increases productivity and income, (ii) adapts and builds resilience to climate change, and (iii) reduces greenhouse gas emissions where needed.

FANRPAN commissioned CSA Policy scoping studies through the work of national consultants and assessed the responsiveness of policy frameworks in 15 Eastern and Southern African countries (, Botswana, Democratic Republic of Congo, Kenya, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, South Africa, Swaziland, Uganda, Tanzania, Zambia and Zimbabwe).

The main objectives were to:

- Conduct a comprehensive review of the existing CSA policies at national level,
- Analyze gaps in the existing policy frameworks,
- Assess the CSA technologies, innovations and practice (as well as untapped opportunities),
- Identify key stakeholders in CSA,
- Identify relevant policy recommendations, and
- Develop and share policy recommendations at national and regional levels.

The study processes included review of existing documents and interviews with key informants from a wide range of organizations. In all countries, national policy dialogues were convened to a) share the draft CSA scoping study report outputs with stakeholders; b) validate the outputs from the draft CSA scoping study report; and c) solicit policy recommendations from stakeholders. The draft reports were reviewed externally, and both recommendations from the national dialogues and external reviewers were incorporated into the CSA scoping study's final reports.

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About FANRPAN

The Food, Agriculture and Natural Resources Policy Analysis Network (FANRPAN) is an autonomous regional stakeholder driven policy research, analysis and implementation network that was formally established by Ministers of Agriculture from Eastern and Southern Africa in 1997. FANRPAN was borne out of the need for comprehensive policies and strategies required to resuscitate agriculture. FANRPAN is mandated to work in all African countries and currently has activities in 17 countries namely Angola, Benin, Botswana, Democratic Republic of Congo, Kenya, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Uganda, Zambia and Zimbabwe.

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