



# FANRPAN

Food, Agriculture & Natural Resources Policy Analysis Network



POLICY BRIEF 21/2017

## CLIMATE-SMART AGRICULTURE IN ZIMBABWE

### 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). Zimbabwe holds great potential for CSA, but this needs to be further explored.

Although the country has traditional agricultural practices as well as research-based programs and techniques that

have CSA qualities, CSA promotion requires concerted action from multiple actors to allow for context-specific approaches to be designed, implemented, and monitored.

### KEY RECOMMENDATIONS

**ONE:** Develop a legal instrument (policy) that promotes CSA and offers a clear, scalable, inclusive, and standalone framework for CSA implementation.

**TWO:** Provide women with knowledge and training opportunities and promote their active involvement in the planning and implementation of CSA.

**THREE:** Develop and disseminate relevant knowledge products that increase understanding and uptake of CSA amongst stakeholders at all levels.

**FOUR:** Closely monitor the impact and success of CSA projects to understand the potential of initiatives to contribute to agricultural transformation and livelihoods, and to attract increased investment.



**POPULATION** Total population of 16 million; approximately 70% live in rural areas (Trading Economics, 2017).

**ECONOMY** Real GDP growth was low at 0.5% in 2016, with slight increases projected for 2017 and 2018 (African Economic Outlook, 2016).

**POVERTY** 20% of the population lives below the international poverty line (World Bank, 2017a).

**AGRICULTURE IN ECONOMY** Currently approximately 11% of GDP is from agriculture (World Bank, 2017b). Most rural inhabitants are dependent on rain-fed smallholder agriculture (NDC, 2015).

**CLIMATE CHANGE** Zimbabwe is a low carbon emitter (less than 0.05% of global emissions) (NDC, 2015).

# Context Overview

## AGRICULTURE IN ZIMBABWE

Maize is the staple food crop in Zimbabwe, with millet, wheat, and barley also grown for the local market. Groundnuts/peanuts and soya beans are also commonly grown. Tobacco is Zimbabwe's most valuable crop.

Cattle are the main livestock animal and beef is the single largest agricultural product. Cow's milk and animal hides are also important sources of income for farmers.

## 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 Zimbabwe, 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 Zimbabwe's First National Communication to the United Nations Framework Convention on Climate Change (UNFCCC) notes that the country is expected to be 2°C warmer by 2080.

**A comparative assessment (FANRPAN, 2017) reveals that the impacts of climate change are already being perceived both**

by formal experts and by rural populations across Eastern and Southern Africa, including Zimbabwe.

**The effects of climate change are evident in Zimbabwe's increasing variability in rainfall patterns,** high average temperatures, and increased frequency and extremity of droughts and floods. Furthermore, Zimbabwe faces multiple environmental management challenges that include pollution, poor waste management, deforestation and land degradation, and veldt fires. It is also susceptible to perennial floods and droughts.

**Countries in Southern 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 Southern Africa, including Botswana (UN News Centre, 2016). Although 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 lack of infrastructure, inadequate markets, lack of support services, and limited access to water systems.

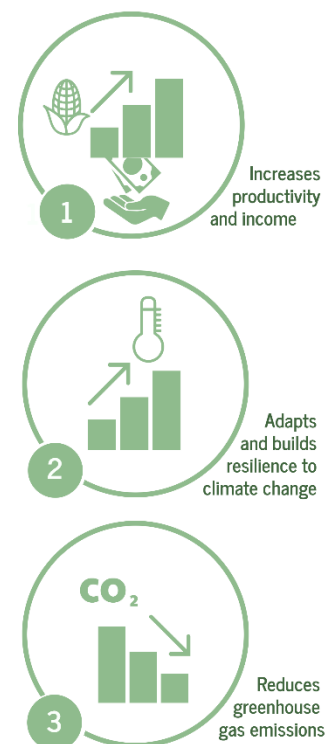
## AGRICULTURE IN DEVELOPMENT

**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-Smart Agriculture



# Climate-Related Policy Environment

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, Zimbabwe 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 warming and climate change.

Zimbabwe has submitted its nationally determined contribution (NDC) to the convention and this was ratified in August 2017. In its NDC, Zimbabwe states its intention to reach a 30% per capita carbon intensity reduction by 2030, based on a BAU (business-as-usual) scenario. This reduction is conditional and subject to the availability of international support in the form of finance, technology, and capacity building.

Regionally, Zimbabwe is implementing the Comprehensive Africa Agriculture Development Programme (CAADP) Framework (2010). Following the signing of the CAADP Compact in 2013, the Zimbabwe Agricultural Investment Plan

(ZAIP) (2013–2018) was finalized to take the CAADP process forward at country level.

## NATIONAL POLICY ENVIRONMENT

The Zimbabwe Agenda for Sustainable Socio-Economic Transformation (ZimAsset) is an economic blueprint crafted in 2013 providing the overall development agenda for Zimbabwe, including its future food and nutrition security.

Zimbabwe has a National Climate Change Response Strategy, and is in the process of developing a National Climate Change Policy. The strategy notes that ZimAsset recognizes the impact of climate change on agriculture and highlights the need for a climate change policy as a key result area. However, several sectoral policies in Zimbabwe that have implications for climate change exist, but few take climate change adequately into consideration.

The last official agricultural policy produced by the Zimbabwe Ministry of Agriculture, Mechanization and Irrigation Development (MAMID), was produced in 1995. The revised 2012 draft policy has yet to be finalized, and makes little mention of the impact of climate change on agriculture.

Many other important policies do not take climate change into consideration at all. Examples include the Zimbabwe

Agricultural Investment Plan, the National Industrial Development Policy, and the National Trade Policy.

There is a clear need for a more articulated focus on climate change issues in Zimbabwean policy, including in policy related to agriculture.

## CSA POLICIES

There is currently no specific CSA policy or strategy in place in Zimbabwe.

Zimbabwe's NDC states that in view of the high energy sector GHG emissions, its mitigation strategy is focused on the energy sector. In terms of adaptation, the agriculture sector is identified as a key focus area, and the promotion of CSA is specifically mentioned.



# Existing CSA Practices

There are many CSA activities that are being implemented by government, international research organizations and universities, and NGOs. CSA technologies and practices are undertaken by several state actors in Zimbabwe.

## SEED PRODUCTION

The Department of Research and Specialist Services of Zimbabwe has fully supported CSA activities and collaborated with the International Maize and Wheat Improvement Center (CIMMYT) by providing oversight of drought-tolerant germplasm and seed production. Working together with the Crop Breeding Institute (CBI), the department has offered training to crop-breeding specialists and farmers.

## DROUGHT-TOLERANT MAIZE FOR AFRICA (DTMA)

In the last five years, CIMMYT and the CGIAR's Research Programme on Maize have bred and tested heat-tolerant varieties of maize suited to the local environment. In the 2015/16 season, CIMMYT conducted on-farm variety trials of heat-tolerant maize in Zaka and Chiredzi Districts, Masvingo, where farmers were able to harvest where all other varieties had failed. These varieties are expected to improve the country's food security.

## CONSERVATION AGRICULTURE

The Department of Research and Specialist Services (DR&SS) – the Zimbabwean national research agency – is involved in several partnerships and projects that incorporate Conservation Agriculture (CA). CA has the potential to increase farm-level productivity while conserving natural resources, improve resilience of farmers through crop diversification, increase crop yields through better agronomic practices and better varieties, as well as improve the nutritional quality of grain-based foods.

The Food and Agriculture Organization (FAO) and other development partners supported more than 20,000 households in over 15,000 districts to implement CA between 2005 and 2010 (Marongwe *et al.*, 2011). Yields were observed to increase progressively over the years, and the physical structure of the soil also improved. Since then there has been increased adoption of CA due to the benefits.

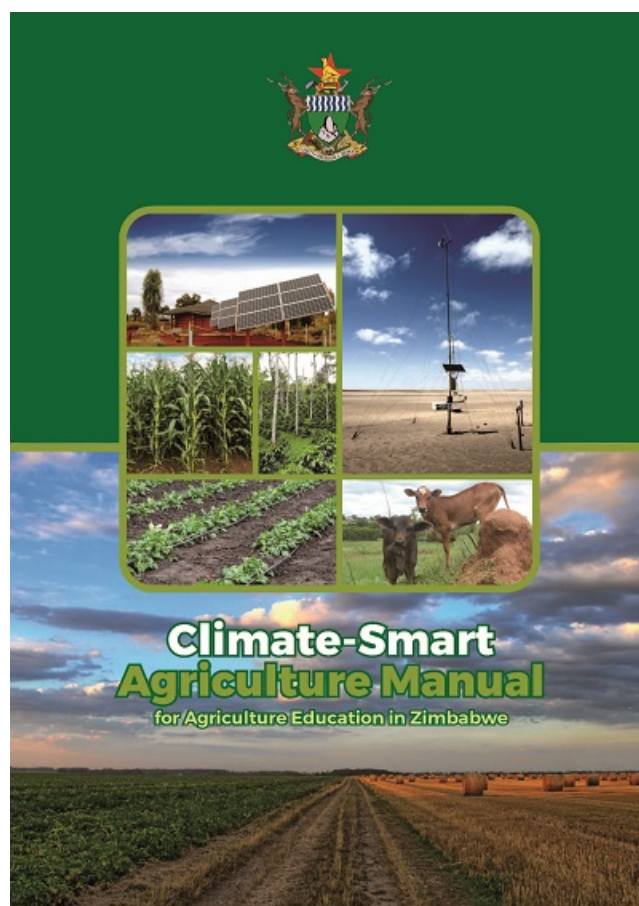
The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) has a number of CSA projects which promote

CA in order to capitalize on soil moisture enhancement complemented by microdosing.

## PROMOTION OF CSA IN ZIMBABWE

A new publication, *Climate-Smart Agriculture (CSA) Manual for agricultural education in Zimbabwe*, was published in 2017 and seeks to address the country's vulnerability to climate change coupled with unsustainable farming practices and lack of training of extension officers on climate change issues.

The Manual describes technologies that are in line with CSA principles i.e. food production adaptation and mitigation – all associated with the agriculture sector. Some of the CSA concepts discussed are: zero tillage, raised bed planting, crop residue management, crop diversification (horticulture, mushroom cultivation), agroforestry, water management (drip irrigation), rangeland management, advisories based on improved weather forecasting and ICT, general capacity building and knowledge sharing, energy management and efficiency, as well as fisheries and aquaculture.



# Gaps and Challenges in Climate-Smart Agriculture

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## POLICY GAPS

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Despite awareness, climate change issues in Zimbabwe have not yet been mainstreamed adequately into sectoral policies. It is important that climate change strategies be complemented by a current and pro-CSA agricultural policy, which should include (a) best practices that need to be up scaled, (b) strategies for financial mobilization, (c) gender aspects, (d) effective institutional arrangements, and (e) linkages with other sectors.

**RECOMMENDATION:** Develop a legal instrument (policy) that promotes CSA and offers a clear, scalable, inclusive, and standalone framework for CSA implementation.

The implementation and enforcement of existing legislation and policies in Zimbabwe is hampered by a lack of good governance, including lack of transparency and accountability, and weak coordination and cross-sectoral cooperation. The problem of enforcement is a key question in tackling the environmental challenges in Zimbabwe, due to the lack of human and financial resources.

A CSA policy framework (as proposed above) should clearly articulate how coordination will take place in between sectors and stakeholders in order to improve the effectiveness of implementation efforts.

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## KNOWLEDGE SHARING, CAPACITY BUILDING, AND EXTENSION

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A strong emphasis must thus be placed on building the capacity of extension workers, producers and other stakeholders in the use of CSA technologies. Towards this end, knowledge sharing products should be designed to suit each category of stakeholder. A positive example is the 'Climate-Smart Agriculture (CSA) Manual for agricultural education in Zimbabwe' developed in 2017.

**RECOMMENDATION:** Develop and disseminate relevant knowledge products that increase understanding and uptake of CSA amongst stakeholders at all levels.

In Zimbabwe, 70% of agricultural labor is provided by women (Madzwamuse, 2010). This role is increasing as a result of migration out of rural areas by men and young people in search of employment. Despite this, the contribution of women smallholders often goes unrecognized. As a result, women farmers face barriers in their ability to adopt CSA practices, including unequal access to credit, technology, and agricultural inputs, as well as to capacity-building (Perch and Byrd, 2015).

The integration of gender into CSA also means understanding how gender, and thus the adoption of CSA practices, will evolve together with climate change

over time. Gender-responsive actions are an essential element of the uptake of CSA practices.

**RECOMMENDATION:** Provide women with knowledge and training opportunities and promote their active involvement in the planning and implementation of CSA.

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## INVESTMENTS & FINANCIAL FLOWS

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For developing countries, changing patterns of climate finance represent an opportunity as well as a challenge. To successfully access and effectively use increasing volumes of international CSA financing, Zimbabwe will have to ensure that they build the evidence base and the institutional capacities needed to secure larger-scale CSA investments.

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

# 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 practices (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 (i) share the draft CSA scoping study report outputs with stakeholders; (ii) validate the outputs from the draft CSA scoping study report; and (iii) solicit policy recommendations from stakeholders. The draft reports were reviewed externally, and recommendations from both the national dialogues and the 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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141 Cresswell Road, Weavind Park 0184, Private Bag X2087, Silverton 014, Pretoria, South Africa  
Telephone: +27 12 804 2966. Facsimile: +27 12 804 0600. Email: [policy@fanrpan.org](mailto:policy@fanrpan.org) . Website: [www.fanrpan.org](http://www.fanrpan.org)