

PARLIAMENT PRESENTATION



**SUBMISSION TO:
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RESOURCES**

**GOVERNMENT MEASURES TO ADDRESS THE IMPACT OF CLIMATE
CHANGE ON FOOD SECURITY IN ZAMBIA: A FOCUS ON MAIN
CROPS**

POLICY MONITORING AND RESEARCH CENTRE

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INTRODUCTION

The impact of climate change on food security has been widely discussed in many political and academic circles worldwide. Models on the global climate show that Sub-Saharan Africa will be amongst some of the most highly affected regions of the world. It is widely anticipated that there will be decline in agricultural productivity for as high as 20% on staple food crops thus increasing high levels of poverty and food insecurity, with the rural areas being the most hit.

The past three or four decades have seen Zambia experience a higher number of deviations in its rainfall patterns and an increase in drought events, especially in most of Zambia's agro-ecological zones 1 and 2 in Southern and Central Provinces. This has resulted in a decrease in the staple food crop yields such as maize and shows a strong correlation to these weather events. It is therefore important that the agronomic methods that farmers are using to produce country's important staple food crops coupled with the effects of climate change on productivity are investigated as a step up measure to improving food security in Zambia.

BACKGROUND: CLIMATE CHANGE AND FOOD SECURITY IN ZAMBIA

As depicted in the Auditor General's report, Government has recognized the risks that climate change poses to national food security. In the Seventh National Development Plan (7NDP) and the draft Eighth National Development Plan (8NDP), climate change mitigation and adaptation measures have been mainstreamed into the plan.

The audit conducted by the AG's office established that mainstreaming activities related to climate change in the agricultural sector were generally not being implemented effectively. These included:

- Early Warning activities;
- Agricultural research;
- Adoption of Conservation Agriculture;
- Extension services;
- Monitoring
- Sensitization and awareness of climate change adaptation techniques and mitigation.

CHALLENGES FACED IN MAKING ZAMBIA FOOD SECURE IN THE FACE OF CLIMATE CHANGE

1) LACK OF MAINSTREAMING OF CLIMATE CHANGE MEASURES IN PROGRAMMES

The audit established that while documents showed that the Ministry of Agriculture had integrated climate change adaptation measures in their plans and programmes, inspections and an analysis of records revealed that programmes budgeted for to enhance mainstreaming were not implemented. There was little prioritization by Ministry of Agriculture of activities related to mainstreaming.

2) INEFFECTIVE EARLY WARNING SYSTEMS

It was established that the early warning system for the agriculture sector in the country was not effective and not operating at full capacity. The meteorological department's observation network (both atmosphere and surface) was limited in its capacity to produce accurate information. There were only 41 manual stations and 85 automatic stations in the whole country out of the required 116 minimum automatic stations.

3) POOR PEST MANAGEMENT SYSTEMS

Most districts were prone to frequent pest attacks on crops. All farmers interviewed, stated that they had continuous pest invasions in the 2017/2018 and the 2018/2019 farming seasons owing to high recorded temperatures. The main prevalent pests alluded to were stalk bora and the fall army worm (FAW).

In further interviews with staff at the Ministry of Agriculture, it was established that there was no integrated pest management system operated by the Ministry and no effective early warning/forecasting system for pests.

The audit established that there was low adoption of conservation agriculture despite Government having promoted it for over two (2) decades. The following were the reasons for low adoption of CA:

- Lack of Capacity of Farmers to Adopt Conservation Agriculture.
- Non-Institutionalization of Conservation Agriculture.
- Conflicting Information on Conservation Agriculture.
- Duplication of Targeting and Operational Areas by Conservation Agriculture providers.
- Inadequate Planning of Conservation Agriculture Activities.

4) A LACK OF RESEARCH PRIORITIZATION.

The objective of the Ministry of Agriculture to mainstream climate change into its policies and plans has been achieved to the extent of planning only. However, the Ministry has not addressed and facilitated the implementation of the mainstreamed activities as can be seen in the findings chapter.

- The aspiration of the Ministry to implement climate smart agriculture technologies that would help with improving agriculture productivity and enhance food security has not been achieved. While the Ministry planned and budgeted for activities such as conservation agriculture promotion, irrigation development, research, crop diversification promotion and farm mechanization, the activities were not prioritized in the budget.
- The Early Warning component which is key in helping farmers plan and avoid hazards has not been effective. While the Zambia Meteorological Department (ZMD) had made strides in providing climate data to different stakeholders on a timely basis using different platforms, ZMD

could not provide localized early warning information for the agricultural sector as observation networks, both atmospheric and surface, were limited.

- The Ministry had not developed a regulatory framework or a coordination mechanism through which the private players such as the Conservation Farming Unit (CFU) and other stakeholders can operate effectively. This would in turn allow for effective and economical implementation of conservation agriculture, harmonization of information to farmers and ensure accountability and continuity of programmes in the event that the private player exits.

RECOMMENDATIONS AND IMPLEMENTATION MEASURES

Recommendation 1

There is need for need for the Ministry of Agriculture to prioritize funding towards Climate Smart Agriculture technologies, improve timeliness and the rate of delivery of Conservation Agriculture activities if they have to improve food security.

Implementation Measures

- Formulate equitable climate-smart agriculture policies
- Design climate smart agricultural interventions to be gender inclusive
- Assess whole-farm trade-offs and synergies
- Support farmer-to-farmer and community wide social learning
- Learn what drives the adoption of climate smart agriculture across different scales
- Target pathways to scale out climate smart agriculture technologies to farming communities
- Prioritize among climate-smart agriculture options and benefits for greater impacts
- Invest in climate smart soil and land health through Agro-forestry
- Monitor climate smart agriculture interventions with a real time participatory tool

Recommendation 2

The MoA needs to demonstrate commitment to its plans by prioritizing support to activities that are intended to increase food security in the face of climate change.

Implementation Measures

- Promote mainstreaming of climate change issues into policies, plans and strategies at all levels in order to account for Climate Change risks and opportunities in decision making and implementation.
- Strengthen mainstreaming of climate change, response and sustainable recovery from climate-related disasters (recent 2021/2022 season droughts).
- Promote **Strategic Environmental Assessments (SEAs)** as a tool for integration of low emission principles.
- Promote mainstreaming of gender into all climate change programs under the Ministry of Agriculture.
- The Ministry of Education needs to facilitate mainstreaming of climate change and food security issues into the school curricula.
- Develop and implement codes/standards to promote adaptation and mitigation in Agri-

infrastructure development.

- Promote integration of climate change considerations by local authorities

Recommendation 3

Government needs to consider using FISP to enable more farmers affected by climate change to scale up the adoption of Conservation Agriculture technologies as the country transition to the agriculture comprehensive programme.

Implementation Measures

- Prioritize the transition from the traditional FISP to the electronic voucher system (e-Voucher), which allows more farmers to select agricultural inputs or technologies of their choice.
- Further expand the range of crops included in the FISP.
- Increase the budgetary allocation to FISP in the national budget
- Attach conservation farming and climate adaptation as a prerequisite for farmers to be on FISP
- Increased funding towards extension services to reach a minimum ratio of 1 extension officer to 400 farmers unlike the current ratio of 1 extension officer to close to 1000 farmers.
- Expedite development of the Agriculture Comprehensive Programme that will respond to these identified weaknesses in FISP

Recommendation 4

There's a need for irrigation development in the country. This can be achieved by developing and promoting the appropriate irrigation technology and building Zambia's national capacity to benefit from this technology.

Implementation Measures

- Facilitate development, transfer and promotion of access to affordable, environmentally sound irrigation technologies.
- Encourage protection of local innovation and intellectual property rights.
- Facilitate establishing of climate technology centers/networks.
- Provide incentives for development and transfer of appropriate climate-related technologies.
- Promote private sector investment for irrigation
- Facilitate for the creation of the irrigation development fund to respond to the diverse needs of farmers in developing appropriate and sustainable irrigation technologies

Recommendation 5

Ministry of Agriculture needs to prioritize research by ensuring enough resources are allocated to foster research and development (R&D) and to improve understanding and decision making in responding to climate change and its effects on food security.

Implementation Measures

- Support higher learning/research institutions on climate related applied research.
- Promote R&D looking to understand climate change's effects on food security.
- Facilitate R&D and demonstration of climate-friendly technologies for mitigation and adaptation.
- Promote the development of climate smart technologies (drought resistant/tolerant varieties and early maturing varieties)

- Promote use of indigenous knowledge/local innovation on climate change.
- Promote private sector participation on funding for research through well targeted tax incentives on inputs required to conduct research in different facets of research.

Recommendation 6

There is need for the Ministry of Agriculture and other stakeholders to develop a comprehensive homogenous information-sharing platform. This is necessary to promote communication and dissemination of climate change and food security information - and to enhance awareness and understanding of its impacts.

Implementation Measures

- Facilitate climate change advocacy, communication and awareness.
- Facilitate ease of access to information on climate change and its effects on food security in Zambia via social media and other platforms (radio, community meetings)
- Strengthen climate change education, training and public awareness.
- Develop and implement an information generation and sharing mechanisms for climate change.
- Promote involvement of local authorities and traditional leaders in climate change education/ public awareness including indigenous knowledge.
- Promote dissemination of research findings.

BEST PRACTICES IN OTHER AFRICAN COUNTRIES

A report done by the Food and Agricultural Organization (FAO) has named Tanzania, Uganda, Kenya and Malawi as some of the countries which have made progress in implementing climate smart technologies in Africa among others. The succeeding passages will depict lessons which Zambia can draw from two of these countries; Tanzania and Uganda.



Tanzania

The report found that Agriculture is an essential pillar of The United Republic of Tanzania's economy, and a key driver of rural development. It also recognized that in responding to climate change challenges on food and nutrition security, the United Republic of Tanzania has undertaken various efforts at the national level, including the development of the National Adaptation Programme of Action (2007), the National Climate Change Strategy (2012), the Agriculture Climate Resilience Plan (2014–2019), and the National Climate-Smart Agriculture Programme (2015–2025), together with the Nationally Determined Contributions (2016) submitted to the United Nations Framework Convention on Climate Change (UNFCCC).

In addition, a Climate-Smart Agriculture (CSA) guideline was framed based on the aforementioned documents, reiterating the government's commitment to make the agricultural sector climate-smart by 2030. This guideline is an instructive tool that highlights key climate change and agricultural risks in the United Republic of Tanzania and provides information on mainstreaming climate change adaptation and mitigation objectives within rural development.

More particularly, it provides guidance on how this could best be achieved through the implementation of the CSA approach, in line with other policies related to agriculture sectors, food and nutrition security, and climate change.



Uganda

As part of their Climate Smart Agriculture implementation efforts, the Ugandan government in partnership with the International Centre for Tropical Agriculture (CIAT) carried out a project on 'Increasing food security and farming system resilience in East Africa through wide-scale adoption of climate smart agriculture practices' which was funded by the International Fund for Agriculture Development (IFAD) and aimed to improve food security and farming systems resilience of smallholder mixed crop-livestock farmers in East Africa while mitigating climate change. The project, whose strength was in combining participatory and systematic approaches, built on the effectiveness of climate smart technologies by generating a scientific basis for strategic targeting of locally appropriate practices.

Spatially explicit monitoring and modelling of land health and organic suitability as well as multi-dimensional trade-off analysis was conducted to identify locally appropriate Climate smart technologies. Biophysical field surveys and gender disaggregated socio-economic surveys were done to assess socio-economic processes in landscapes to better understand opportunities for climate smart technology scaling.

The most promising climate smart practices were implemented and appraised at local level to identify perceived benefits and barriers of adoption. Using demonstration plots managed by farmers and demonstration trainings with local partners such as non-governmental organizations in Northern Uganda, as well as smart monitoring combining ICT tools, knowledge on CSA was increased among smallholder farming communities which led to greater adoption of locally appropriate climate smart technologies for improved food security. Through strategic policy and development partnerships, climate smart activities were up-scaled and out-scaled in Uganda.

The learning alliance approach, promoted by the project, was used for sharing knowledge, tools, approaches and policies for wide-scale adoption of CSA technologies. The project was able to make significant contributions to the ways in which Uganda and other countries in East Africa are addressing agricultural adaptation to climate change. By working directly with decision makers, the researchers were able to share knowledge, change attitudes, and enhance people's capacities.

The learning alliances have bridged coordination gaps across sectors and between central and local governments, making policy formulation more “bottom up” by involving district level policy implementers and local community in national policy formulation. They provide coordinated climate change engagement and improve skills for adaptation planning, which promotes the creation of climate change policies that are resilient and gender-responsive.



LESSONS ZAMBIA CAN LEARN

The Tanzanian example in comparison to Zambia goes to indicate that Zambia is on course in terms of planning, as can be seen in the mainstreaming of climate change in the seventh and eighth National Development Plans as well as in the National Agricultural Policy (NAP). The missing link seems to be the lack of prioritization in implementing the activities which are mainstreamed in these national plans. Thus, it is important for government to put in place a framework to ensure that mainstreaming does not just end at planning but is carried all the way and implemented. This may require an increased budgetary allocation to the agricultural sector.

On the other hand, the Ugandan scenario indicates that coordinated efforts are imperative in achieving climate smart objectives. If policies and plans to mainstream climate change are to be achieved, there is need for synchronization of all major players in the sector such as Researchers, Zambia Meteorological Department, Non-Governmental Organizations and Extensions Officers among others. As observed in the Auditor Generals’ report, efforts towards climate smart responses are being done by various stakeholders, a prominent example is the work by the Conservation Farming Unit (CFU) which has been on-going for decades. The major challenge seems to be the lack of coordination among players in the sector. There is therefore, need for the government through the ministry to put in place frameworks for the interaction of all stakeholders in the implementation of the various climate smart activities. For example, through coordination, information from the meteorological department could reach extension officers timely thereby, ensuring that the early warning is given and farming operations tailored in a timely fashion based on the information which would have been received in good time to facilitate for adequate planning. Further, coordination, could ensure for example the integration of the work of CFU, conservation farming that is, as a prerequisite for benefiting from the farmer input support program which can greatly push the adoption of conservation farming. As appreciated in these examples, the need for coordination among the multi stakeholders in the sector cannot be over emphasized.

CONCLUSION

In conclusion, it is encouraging to note that even though there is still room for improvement, there is a policy framework already in place as evidenced in national plans such as the seventh and eighth National Development Plans and the National Agricultural Policy. Nonetheless, there is need to strengthen existing policies by expediting the implementation of these plans through integrated approaches and coordination across the agricultural sector if Zambia is to benefit from them. In addition adequate funding to facilitate for smooth implementation of the plans is imperative in supporting Agricultural Smart Technologies.



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