WHAT DOES CLIMATE CHANGE MEAN FOR ZAMBIA’S AGRICULTURE?

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Making Agriculture Work for Northern Province: Facts & Strategies Dialogue Agenda
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Outline

- Definitions
- Climate change in Sub-Saharan Africa
- Climate change in Zambia
- Zambia’s policy approach to climate change
- Adaptation options
- Constraints to adaptation
- Conclusions
- Recommendations
Definitions

**Climate Variability and Climate Change**

**Climate Variability**
Short term: (years to decadal) rises and falls about the trend line (El Nino Southern Oscillation, ENSO)

**Climate Oscillations**
Multi-decadal oscillations in regional climate: (e.g. Pacific Decadal Oscillation, PDO, North Atlantic Oscillation, NAO)

**Climate Change**
Long Term Trends or major shifts in climate: (centuries)
Definitions cont’d
Definitions cont’d

Vulnerability and Resilience

Source: Practical Action 2017
Science of climate change
Climate change in Sub-Saharan Africa

The highest warming rates happened during the last 2 decades

Temperature rise is expected to exceed over 2°C

These scenarios are projected under current continued high emissions and ambitious mitigation targets

Niang et al. (2014)
Climate Change and Africa: What do we know?

- Low adaptive capacity

- Traditional knowledge will not be sufficient to face climate change impacts

- The main research needs for the continent include:
  - better understanding of climate variability and change;
  - Inter-sectoral studies on impacts of climate change e.g. agriculture, nutrition, and natural resources;

(Niang et al., 2014)
Impacts on the agricultural sector

Niang et al. (2014)
Sub-Saharan Africa is expected to have reduced agricultural yields.

* A key criterion in climate change – carbon emissions – can also help agriculture by enhancing photosynthesis in many important (...) crops such as wheat, rice, and soybeans. The science, however, is far from certain on the benefits of carbon fertilisation.*

This map represents the case of beneficial carbon fertilisation processes.

Source: Cline W., 2007, Global Warming and Agriculture.
The frequent incidences of drought and floods Zambia has been experiencing can be attributed to a changing climate (SNAP, 2016).

The most vulnerable agro-ecological zones in Zambia are zone I and zone IIb, both of which have high risk of drought.

Zone III in Northern province experiences the highest rainfall, although this pattern has produced leached and acidic soils. Mulenga and Wineman (2014)
Climate change in Zambia: What is the evidence?

- Farmers are aware of climate change and are adapting to its impacts (Mulenga et al. 2014; Nyanga et al. 2011)

- Zambia’s temperature will increase further by 2°C and rainfall is projected to decrease by 8-10% (Dlamini, 2015).

- The sector is vulnerable to climate change because it is mostly rain-fed and highly dependent on maize (Kanyanga et al. 2009)
Climate change in Zambia: What is the evidence? Cont’d

- Yield change for maize under climate change shows gains of up to 25 percent in the northern region and a yield loss of sometimes more than 25 percent over the rest of the country.

- It is anticipated that farmers may try to open new agricultural land in areas currently not being used or abandon areas being used to cope with changing climate (Kanyanga et al. 2009)

- Inadequate information on the impacts of climate change on Fisheries and Livestock
Zambia’s policy response to climate change

- **Second National Agricultural Policy (2017)**
  - Highlights the main and anticipated impacts of climate change
  - Outlines the framework to integrate climate change into the overall development agenda in the agricultural sector

- **National Climate Change Policy (2017)**
  - Provides the structure and coordinating authority of climate change implementation in the country
Adaptation options

- Enhancing smallholder access to credit and other critical production resources for livelihood diversification
- Strengthening institutions at local, national, and regional levels to support agriculture (including early warning systems) and gender-oriented policy
- Agronomic adaptation responses (e.g. agroforestry, conservation agriculture)
- Technological adaptation responses (e.g. stress-tolerant crop varieties, irrigation etc.)
Constraints to adaptation

- Limited skills and knowledge to adapt by farmers
- Inadequate climate financing at both institutional and individual levels
- Low adoption levels of various adaptation strategies
- Limited infrastructure for climate resilience
- Inadequate climate variability and change research
Conclusions

- Climate Change is happening in Zambia and farmers are aware of its impacts and are autonomously adapting.

- Zambia has a comprehensive policy framework that can guide adaptation planning across the sectors.

- Financing continues to be a challenge for adaptation implementation.

- Key knowledge gaps by farmers and country specific climate models/data continue to be a barrier in resilience planning.
Recommendations

- There is need to scale up financing mechanisms to enable implementation of adaptation plans e.g. utilising the National Designated Authorities.

- Investing in research particularly for:
  1. Country specific climate models
  2. Interdisciplinary studies
  3. Integration of indigenous knowledge into adaptation planning
Recommendations cont’d

- Providing extension to farmers on available adaptation options and best practice in the face of climate variability and change
THANK YOU