



Policy Brief:

Analysing the Extent of Drought Impacts and Key Policy Options in Zambia

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Introduction

The 2023/2024 agricultural production season has been characterized by El Nino induced drought for much of southern African region. The region is thus facing an increasing food insecurity situation due to intense drought. Zambia is among the countries that have been most affected by the drought. In Zambia, the agricultural production season was characterized by higher temperatures, reduced precipitation and general dry conditions, which was expected to result in below-average production in most parts of the country. This prompted the Republican President, His Excellence Mr. Hakainde Hichilema to declare the drought a disaster and national emergency on February 29, 2024. The declaration was meant to trigger a coordinated response to the current and expected food insecurity among the affected and vulnerable groups.

To support the Government's continued efforts to develop an effective and coordinated response to the lingering food insecurity situation, it is critical to provide, in a timely manner, robust data and analytics to facilitate evidence-backed food security policy decisions and response mechanisms. In response to this need the Alliance for a Green Revolution in Africa (AGRA) and the Indaba Agricultural Policy Research Institute (IAPRI) with support from the Ukaid, undertook a study to generate evidence culminating into this Policy Advisory Note.

Purpose

The aim of this Policy Advisory Note is to contribute evidence and data to inform policy decisions and strengthen the ongoing response efforts by the Government.

Data and methods

The study applied both quantitative and qualitative data and analytical approaches to generate evidence. Using data from historical maize production, rainfall and temperature, and remote sensing satellite imagery for vegetation, maize production for Zambia across the 10 provinces was predicted using Machine Learning. Data from the Crop Forecasting Survey and Food Balance Sheet were also utilized in this analysis. These data were supplemented with information from stakeholder consultation meetings and validation workshop held in Lusaka Zambia to share the preliminary results.

Key Findings

The effects of the drought are more severe in provinces that contribute about 60% of the country's maize output (Figure 1), which is expected to lose not less than 70% of the crop on average. These provinces (Central, Eastern, Lusaka, Southern and Western) received below normal rainfall and prolonged dry spells which decimated the crop due to moisture stress. That 60% of the total maize production is from these provinces, historically, indicates the severity of the drought impact on national food production and food security. Besides maize, the drought affected other crops and livestock production, further worsening the food security threat at both national and household levels.

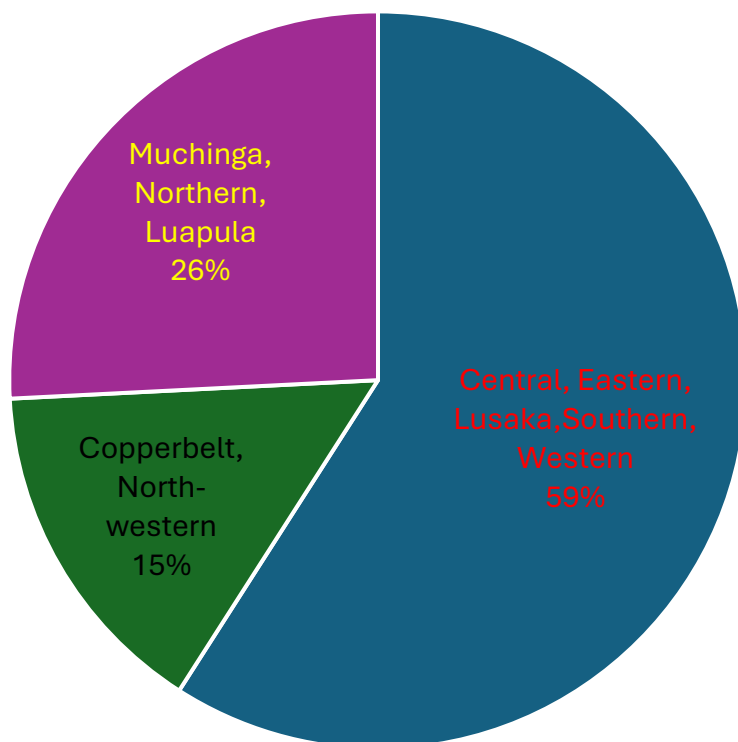


Figure 1. Average contribution of maize production to national output by region
Source: MoA, CFS (2020 – 2023)

Most parts of Zambia practice mixed crop and livestock production systems which helps to compliment each other and cushion the impacts of crop failure on food security. This is because livestock can be sold and income used to purchase other foods. However, the drought has not spared livestock as it has reduced availability of pasture and water of livestock, leaving households with limited options for mitigating and coping with the effects of the drought on food security.

Although, there is uncertainty around the actual production decline, evidence from model results suggests reduction in the range of 22% – 40%, nationally, from the previous season. The CFS preliminary estimates project a 53% decline from previous season. Taken together, the estimates indicate a significant decline in Zambia’s maize production. The expected production decline and food balance projections point to net domestic supply falling short of meeting the staple requirements, including human consumption, strategic grain reserves, and industrial needs by between 800,000 Mt (based on Machine Learning model estimates) and 1.3 million Mt based on CFS estimates.

Estimates from vulnerability assessment by Disaster Management and Mitigation Unit (DMMU) and World Food Programme and other stakeholders indicate 9.8 million people in 84 of the 116 districts are affected by the drought. Out of these, 6.5 million people are in need of assistance and an additional 40,000 people in critical need of food relief.

The evidence is clear that the country needs to make timely decisions to secure maize and close the supply gap and avert food shortages. Zambia has a number of options to close this supply gap. These include boosting domestic production via winter and early maize as well as imports. The first two options are not viable in the immediate terms as production cycle, even for the most early maturing maize varieties may take up to 120 days. Thus, increasing domestic production through these off-season production initiatives is a medium-term response.

For immediate response, imports are the best bet, but depend on the source markets and logistics. Potential source markets include regional and deep sea (international) markets. However, these have to

align with the country’s regulations such as genetically modified organism (GMO) free maize, and other phytosanitary requirements and safety standards. With widespread drought and reduced harvest in the southern African region, there are limited potential import source markets for Zambia.

An analysis of competitiveness of import source markets using import parity price (Table 1) shows that import parity price for all the potential source markets under consideration is higher than the current domestic prices. This implies that it would be more expensive for businesses to outsource the maize grain than buy it locally. However, given the expected deficit situation, Zambia will have no choice but to import maize. Of the possible sources of maize under consideration, Uganda and Tanzania offer the lowest import parity prices.

Table 1. Maize import parity price analysis for potential source markets

Country	Price of Maize (\$/Mt)	Transport, handling and documentation costs (\$/Mt)	Import parity price (\$/Mt)	Duration (days)
Africa				
Zambia	320			
Tanzania	250	100	350	21
Uganda	200	140	340	30
South Africa	290	120	410	21
International				
Mexico	305	300	605	60-90
Brazil	203	350	553	60-90

Source: Own computation using data from Grain Traders Association of Zambia (GTAZ); SAFEX; FEWSNET, ReliefWeb, Selina wamucii

Tanzania has an added advantage of having the shortest lead time for mobilizing imports compared to Uganda. One concern with Uganda is the quality of the grain as the bulk of the maize is likely to be supplied by the smallholder farmers given the low level of private sector investment in maize trade in that country. Table 2 summarizes the potential challenges Zambia is likely to face when importing maize from each of the source market under consideration.

Table 2. Expected challenges for maize imports from potential source markets

Country	Possible challenges during importation
Tanzania	Maize quantities from Tanzania might be limited due to Necrosis disease which affects maize production. Also, imports might be delayed when importing maize from Tanzania because of the rigorous compliance with phytosanitary measures during importation.
Uganda	There are quality concerns with Uganda maize as the bulk of it is expected to be supplied directly by smallholder farmers who have limited capacity to adhere to grades and standards.
South Africa	South Africa is both a GMO and non-GMO country so chances of importing GMO maize are very high as over 80% of its maize is GMO. This will limit import volumes from South Africa
Mexico	Logistical challenges, high transportation costs and long lead time for arranging imports
Brazil	Logistical challenges, high transportation costs and long lead time for arranging imports

Besides grain, maize seed production in Zambia was also affected by the drought with preliminary estimates from the CFS pointing to a decline from previous season's 56,000 Mt to 54,000 Mt. According to the Zambia Crop Forecasting Survey, in the 2022/2023 season, Zambia produced 56,620 Mt of maize seed of which approximately 40,000 Mt was utilized domestically, while the rest was exported. In the current season, seed production is projected to decline to about 54,000 Mt as a result of the drought. Assuming land area planted to maize increases by 22% similar to the increase from 1.8 million hectares in 2022 to 2.2 million hectares in 2023, Zambia will require 35,000 Mt of seed for domestic use. However, maize land area is expected to increase by a larger percentage this year owing to the added production under the early and winter maize programmes. These two programmes will increase seed demand. Thus, domestic seed demand might be close to 40,000 Mt.

The reduced seed production though not likely to fall short of domestic demand will affect exports to the region, with potential for seed shortage in import dependent countries. To cushion this effect, some seed companies, such as SeedCo, have started engaging large scale commercial farms to produce supplemental seed under irrigation to help close the supply gap due to the drought.

Summary

The 2023/2024 production season marks one of the worst droughts Zambia has experienced in decades. Government and other stakeholders have devised response actions to avert food insecurity and enhance the recovery process. However, void of evidence and data, policy decisions to support response efforts become a challenge and may result in delayed decisions and actions. This policy advisory note utilizes evidence and data generated from a robust analysis of the drought impacts to provide policy options. Thus the advisory notes contributes to strengthen the ongoing response efforts by Government.

The effects of the drought are more severe in provinces that contribute about 60% of the country's maize output. This indicates the severity of the drought impact on food production. Although the drought did not affect the northern region and there are prospects for increased harvest, the increase will not be sufficient to offset the expected decline in the southern region. The expected production decline and food balance projections point to net domestic supply falling short of meeting the staple requirements, including human consumption, strategic grain reserves, and industrial needs. Thus, imports will be inevitable to fill the supply gap in the short-term while other innovative medium-to-long-term solutions will be necessary to address the current food security threat and build resilience going forward.

Recommendations

Based on the key findings the following short- and medium-to long-term recommendations are proposed for consideration by the Government:

Short-term

- ❖ **The Government should urgently identify potential import sources and lock in a good price.** Import parity analysis point to Tanzania as the most competitive and convenient source logistically for Zambia. This is extremely important as the demand for maize imports will be high in the region due to expected maize production deficits, which will drive up maize prices in surplus countries.
- ❖ **To curb fears of potential phytosanitary issues from Tanzania, there is an urgent need for Government to provide necessary resources to the Plant Quarantine and Phytosanitary Services (PQPS) to deploy field personnel at the border and on Tanzanian side, if possible, to carry out tests on maize from Tanzania before the maize crosses borders.**
- ❖ **Government should also procure maize testing services from the private sector to expedite the process and avoid delays.**
- ❖ **There is need for clarity on import modalities to improve transparency and certainty in order to attract private investments.** The ongoing efforts to involve private sector to supply

maize to FRA is welcome and commendable. However, there is need for more clarity in terms of what Government intentions are with the proposed 650,000 Mt Government-to- Government imports. The opaqueness of the intentions is creating fears that Government may later offload the maize to a select few millers and Zambia National Service at below market price and undercut private sector.

- ❖ **Allow private sector to transship maize from Tanzania to DRC and Zimbabwe to help decompress the pressure on Zambian maize from neighbouring countries.** This will help stabilize the supply and prices within Zambia and the region. Despite trade restrictions, past experience has shown that informal traders always find routes to smuggle grain across the porous border points. Maize and mealie meal will inevitably flow into DRC, Malawi and Zimbabwe as long as Zambia's price remain below parity.
- ❖ **Allow free flow of maize within the country for efficient stock movement from surplus to deficit regions and avoid price spikes and localized food shortages.** The Government should issue clear guidelines to the security and defense wings to allow all vessels moving maize across the country to pass through check points freely provided they have all the required documentation.
- ❖ **There is a need for the Government to continuously identify and incentivize emergent and commercial farmers with ready-to-go irrigation to produce winter and early maize.** Winter and early maize should become a permanent feature of maize production system in the country. Thus, there is need to draw up clear guidelines, and roles of various stakeholders in winter and early maize production, marketing, and processing.
- ❖ **The FRA should continue to work closely with the DMMU and social welfare department to identify vulnerable households** and provide subsidized maize directly through community sales. This should be flanked by well-targeted social cash transfer programmes to enhance the purchasing power of vulnerable households in areas where markets are functional.
- ❖ **There is an urgent need to develop a well-coordinated and robust monitoring and evaluation system to facilitate tracking of progress, learning and experience sharing.** The food security situation is evolving rapidly and thus the lack of a robust monitoring and evaluation system has potential to delay detection of emerging new trends and formulation of appropriate response actions. Further, a robust monitoring and evaluation system will help enhance accountability, efficient resource use and implementation effectiveness.

Medium- to long-term

- ❖ **Promote and incentivize investment in water harvesting and irrigation.** With the increasing frequency and intensity of dry spells and droughts, irrigation presents one of the best alternatives to rainfed crop production. However, there is need to move with caution to ensure sustainable irrigation planning.
- ❖ **Diversify strategic grain reserve portfolio:** Government should consider a mix of virtual and physical strategic grain reserves. Government should consider taking up grain options on agricultural commodity exchange such as the Zambia Agricultural Commodity Exchange (ZAMACE).
- ❖ **Enhance availability of agricultural production and marketing information system:** Operationalize the Zambia Agriculture Information System (ZAIS) to provide timely agriculture production and marketing data. Timely and accurate agricultural information is critical for policy decision-making. There is need for Government and relevant stakeholders to address the legislative impediments preventing full operationalization of ZAIS.
- ❖ **Support agricultural diversification:** The importance of agricultural diversification cannot be overemphasized. There is need to be intentional and deliberate by implementing supportive policies not only at production but also marketing levels. For example, promoting maize and cassava blended mealie meal to create demand for cassava and spur its production. Rice is another crop with potential to supplement maize given its increasing consumption in the country.

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