Key Points

1) The size of the Strategic Grain Reserve (SGR) needs to be revised down from the current size of 500,000 MT in order to reflect the changing nature of the economy, streamline the role of the FRA and drive the growth of the maize sector. We propose that the size of SGR should be in the range of 150,000 MT and 350,000 MT, based on lead times of three and five months respectively.

2) Food security can be ensured at these reduced levels: firstly, increases in per-capita income have changed consumption patterns, reducing the demand for maize, and increasing food self-sufficiency; and, secondly, the private sector’s capacity to participate in securing strategic grain reserves and respond to shocks in a short time, due to increased investment.

3) Owing to increased capacity of the private sector, the FRA reforms should promote private sector-led growth by procuring grain through the Zambia Agricultural Commodity Exchange and managing grain storage through public-private partnerships. Increased private sector involvement in grain procurement is more efficient and cost-effective which help to reduce the cost burden on the Government and drive growth in the sector.

4) To enable effective private sector participation and ensure maize market stability, the grain reserves stocks rotation should be predictable and done preferably before harvest in April-May. Currently, releases often undercut producers and their unpredictability damages private sector confidence and reduces their involvement in the market.

5) Finally, the price stabilization role of the SGR is questionable as time and again, research has proved that releasing maize stocks to millers does not lower the price of mealie meal and does not benefit the targeted beneficiaries (i.e., the poor). The government should consider dropping this function or re-allocating resources towards other programmes aimed at protecting the vulnerable groups could be more beneficial.

6) The government’s debt position makes this an opportune time to make these changes to the SGR as they achieve twin goals of reducing government spending and promoting private sector-led growth in agriculture, while better delivering the objectives of the SGR to ensure food security and serve producers and consumers.

INTRODUCTION: The SGR has the primary objective of ensuring food security but is also a market intervention tool to reduce farmers’ price risk stabilise prices for consumers. There are common problems with grain storage reserves across all countries that use them, not just Zambia. Reserves are inefficient, with high levels of grain wastage due to poor stock rotation practices and have been shown not to stabilise prices, especially when export bans are in place (see Mason, Jayne and Myers 2015; Wright and Cafiero 2011). Moreover, the
reliance on the SGR is detrimental to Zambia’s economy as Government spending crowds out private sector led growth and is a burden on the Treasury which the country can ill afford.

We review the performance of the SGR against the objectives of food security and correcting the market, while considering the demands of the government’s fiscal consolidation programme and the opportunities of private sector-led growth.

Presently, the Zambian Strategic Grain Reserve (SGR) stands at 500,000 MT of maize. This allocation was established in 2014 based on population estimates at the time, a monthly national consumption requirement of 100,000 MT, and a lead time of up to five months, and is now outdated.

We have revised this allocation to reflect the changes in the economy since 2014 and propose that the SGR should be between 150,000 and 350,000 MT and provide a methodology for year-on-year revisions. This estimate reflects changing consumption patterns as starchy staples have declined as a proportion of total expenditure for Zambia (Chisanga and Zulu-Mbata 2017) and the increased local production, trading, and processing capacity in the economy due to increased private sector investment.

We propose a suite of reforms to the operation of the FRA to promote private sector led growth that create a step change from crowding out to crowding in investment. Increased private sector participation can reduce the cost burden on the government and drive growth in the sector to achieve its potential.

It is important that these proposals are considered during this time of austerity as Zambia manages its increasing public debt. Revising the size of the SGR and reforming the FRA will reduce the budget deficit, estimated at 7% of Gross Domestic Product, and promote further growth of the maize sector, while meeting the objectives of ensuring food security and price stability for the country.

DATA AND METHODS: This study used both qualitative and quantitative research methods in its research and used data provided by the Ministry of Agriculture, Central Statistical Office (CSO) and Indaba Agricultural Policy Research Institute (IAPRI). See the study for full information on the data and methods used.

KEY FINDINGS:

1) Failure to Achieve Price Stabilization: Although one of the functions of the SGR is maize price stabilization, generally, there is no significant relationship between the Zambian SGR and maize grain prices. This finding is supported with past research by Kuteya and Jayne (2012) which shows that contrary to popular belief, subsidized maize grain does not influence retail maize meal prices in Zambia. This poses a serious policy question around the price stabilization role of the FRA. In 2011, the Zambian Government heavily subsidized the price of maize sold by the FRA to maize millers with the hope of reducing consumer retail maize meal prices. However, these benefits were not passed along to consumers as maize meal prices failed to come down, mainly because of the lack of competition within the maize milling sector (Kuteya and Jayne 2012; Kuteya and Sitko 2015).

2) Enhanced Private Sector Capacity in Grain Storage: According to the Grain Traders Association of Zambia (GTAZ), the presence of the private sector in grain trade, warehousing and aggregation in the last decade has continued to expand such that currently, their grain storage capacity is around 950,000 MT, worth over ZMW 300 million investments with plans to invest in further grain storage countrywide. This increased capacity reduces the reliance on the FRA and should be encouraged by streamlining its role.

3) Inconsistent and Damaging Stock Releases: Sometimes the SGR stock in Zambia is released at a wrong time mainly due to under-reporting of stocks from grain traders and other institutions that hold stocks. The other cause for ad-hoc stock releases is due to the strong lobbying from millers whose business is built around FRA maize such that they rarely secure maize directly from farmers. Grain releases help to reduce storage costs incurred by the Agency. However, grain releases by the FRA should be
done cautiously in such a manner that there is no
disruption of the local market competition. A
clear roadmap for stock releases by the Agency
is one way to develop and encourage private
sector participation in grain marketing which is
one of the objectives of the FRA. With regards
to stock rotation, it is important to rotate the
SGR stock on a regular basis to avoid quality
deterioration of the grain. The appropriate
time for stock rotation is around April/May when the
next harvest is starting to come in.

4) Economic Need to Revise the Size of the
Grain Reserve: In establishing the optimal
SGR size, we applied the Food and Agriculture
Organization of the United Nations (FAO)
estimates of requirements for maize for the
Southern African Development Community
(SADC) member countries. These estimates are
between 88 and 98 kg per capita per year and
this gives an average of 93 kg per person per
year. The 93 kg per person per year is equivalent
to 255g per capita per day.

Other assumptions used in Annex A to calculate
the size of the SGR were based on Lynton-
Evans (1997), CSO literature and interviews
with key informants. According to the 2017
Global Hunger Index (GHI) scores by rank,
Zambia at 38.2 percent of its population
suffering from hunger is among the countries
with alarming levels of hunger. Using this
percentage, we find that about 6.5 million
(38.2% of 17 million estimated Zambian
population for 2018) of the Zambian population
is affected with hunger.

Using different lead times to mobilize additional
grain supplies, at three months and based on the
objective of meeting local shortfalls in the
supply of maize grain for human consumption,
the suggested optimal SGR size comes to
149,175 MT. At four months it gives 198,900
MT while at five months it is 248,625 MT (see
Table 1). If we add industrial requirements
(stock feed and breweries) to the above
objective we obtain 208,845 MT; 278,460 MT
and 348,075 MT at three-, four- and five-months
lead time, respectively (Table 1).

CONCLUSIONS/RECOMMENDATIONS:
As SGR is outsized for ensuring food security
and creates, rather than corrects, inefficiencies
in the market, we find that the FRA can better
achieve its objectives by minimising
intervention in the sector. The study finds that
there is a significant opportunity to reform the
SGR to ensure food security and better serve
producers and consumers while reducing
government spending, stimulate private sector-
led growth.

Firstly, the FRA needs to revise the size of the
SGR to reflect changing population dynamics,
vulnerability, and consumption patterns in the
country. We have identified that the ideal SGR
size should be between 150,000 and 350,000
MT, dependent on lead times, down from the
current size of 500,000 MT which is outside the
recommended range.

In view of the continuous and rapidly changing
parameters which include consumption
patterns, size of the population and the time
taken to import food, we recommend periodic
reviews of the SGR. The FRA can review the
size of the strategic grain reserve in
collaboration with the Early Warning Unit and
the Disaster Management and Mitigation Unit.

Secondly, the SGR itself should be restructured
to include virtual reserves. Government should
procure reserves from registered gain traders
through ZAMACE, thereby reducing transport,
handling and storage costs while promoting
investment in the sector. Results from field
interviews with key stakeholders in agriculture
suggest private sector capacity could allow for
40% of the SGR to be held by registered grain
traders.

Thirdly, the FRA should make reforms to its
operating model to become more efficient and
cost-effective by taking advantage of increased
capacity in the private sector and further
stimulating it. The following options are
proposed:

i. Improve stock rotation and release practices.
   Government should commit to rotating stock at
the optimal period before harvest, ideally between January and May, preventing the FRA undercutting producers; and should provide a road map for releases, creating certainty for investors.

ii. Reduce direct government involvement in grain storage in order to reduce harvest losses, promote storage coverage across the country and minimise government spending. Government should consider managing FRA storage facilities public-private partnership (PPP) agreements and incentivizing investment by private sector by facilitating loans to private sector storage providers.

iii. Provide off-take guarantees to producers so that they can access commercial loans for investment in their businesses.

REFERENCES


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Any views expressed or remaining errors are solely the responsibility of the authors.
## Annex A. Calculations to Determine the Size of the SGR by Objective

<table>
<thead>
<tr>
<th>SGR major objective</th>
<th>Assumptions</th>
<th>Calculations</th>
<th>Suggested optimal SGR size (MT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>To meet local shortfalls in the supply of maize grain for human consumption</td>
<td>• Vulnerable population estimated at 6.5 million.</td>
<td>6.5x10⁶ x 0 days x 255g</td>
<td>149,175</td>
</tr>
<tr>
<td></td>
<td>• Lead time required for food imports to reach the country at three months (90 days).</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Maize consumption requirements at 255g per capita nutritional level per day.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lead time to mobilize additional grain supplies at four months (120 days).</td>
<td>6.5x10⁶ x 120 days x 255g</td>
<td>198,900</td>
</tr>
<tr>
<td></td>
<td>Lead time at five months (150 days).</td>
<td>6.5x10⁶ x 150 days x 255g</td>
<td>248,625</td>
</tr>
<tr>
<td>To meet maize grain deficit for human consumption plus industrial requirements (stock feed and breweries)</td>
<td>• Vulnerable population estimated at 6.5 million.</td>
<td>6.5x10⁶ x 90 days x 255g x 1.4g</td>
<td>208,845</td>
</tr>
<tr>
<td></td>
<td>• Lead time required for food imports to reach the country at three months.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Cereal consumption requirements at 255g per capita nutritional level per day.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Industrial requirements at 1.4g per day.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lead time to mobilize additional grain supplies at four months.</td>
<td>6.5x10⁶ x 120 days x 255g x 1.4g</td>
<td>278,460</td>
</tr>
<tr>
<td></td>
<td>Lead time at five months.</td>
<td>6.5x10⁶ x 150 days x 255g x 1.4g</td>
<td>348,075</td>
</tr>
</tbody>
</table>

Source: Authors’ own calculations