Bumper Harvests a Curse or a Blessing for Zambia: Lessons from the 2014/15 Maize Marketing Season

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The Indaba Agricultural Policy Research Institute is a non-profit company limited by guarantee and collaboratively works with public and private stakeholders. IAPRI exists to carry out agricultural policy research and outreach, serving the agricultural sector in Zambia so as to contribute to sustainable pro-poor agricultural development.

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Any views expressed or remaining errors are solely the responsibility of the authors.

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EXECUTIVE SUMMARY

The successive maize bumper harvests experienced by Zambia in recent years mean that the country has to find long lasting and sustainable ways to deal with persistent maize marketing challenges facing the smallholder farmers. The government has continued to struggle with the price-dilemma where they would like to keep the price of maize grain high for the maize producers, while at the same time try to maintain low mealie-meal prices for the consumers. In the process, the government has continued to alienate the private sector, which if promoted would help broaden the market for maize and save the national treasury millions of the Kwacha Rebased (K).

In the 2013/14 agricultural season, Zambia produced a bumper maize crop amounting to 3.4 million metric tons (MT), representing a marketable surplus of 1.9 million MT for the 2014/15 marketing season (CSO/MAL 2014). In responding to this unprecedented harvest, the Food Reserve Agency (FRA) once again departed from its budgeted and announced target of 500,000 MT of maize and ended up buying more than twice the target. This quantity is over 50% of the estimated market surplus reported during the crop forecast survey in 2014.

Despite the government collecting maize from the farmers between July and October 2014, less than 30% had been paid by the end of 2014. With the pledge to pay farmers on time, if elected during the presidential by-election on 20 January 2015, there was urgency for the government to pay farmers at whatever cost. In addition, the massive quantities of maize bought by FRA plus the carry over stock from 2013 continue to pose huge challenges to the country. Government needs to deal with these large FRA maize stocks. If not disposed before the next harvest (April 2015), the stocks will continue to act as a source of uncertainty in the coming 2015/16 marketing season. Furthermore, these stocks would continue to impose a massive financial burden on the treasury as large quantity of the maize will potentially go to waste/spoiled because of inadequate and poor storage.

Several questions arise from this situation: 1) how will the government deal with this huge maize surplus without further destroying the private sector; 2) how can FRA manage the huge stocks without incurring huge storage losses; and 3) what options exist for the government not to continuously repeat the current scenario and mistakes of the past and promote private sector participation in the future?

This paper provides some guidance to the government on how to deal with the current maize stocks as well as provides market oriented solutions/options for future maize marketing in Zambia. We make the following immediate and medium/long term recommendations:

Immediate Recommendations

- To minimize the costs of holding more than 1.2 million MT, the government should seriously consider discounting the FRA price to increase demand for Zambian maize before the next harvest.
- Consider making FRA maize stocks immediately available for purchase by both formal and informal traders, hammer millers, and the general public.
- Consider selling/donating some of the maize to the World Food Programme (WFP) and other similar institutions at discounted price for delivery to disaster hit areas in Africa.

Other Recommendations Required to Promote Sustainable Maize Market Development

- FRA should confine itself to procuring not more than 500,000 MT of strategic maize grain reserves. Furthermore, FRA should concentrate its activities in surplus but uneconomic areas, which are not well serviced by the private sector. Government should announce these measures in good time and stick to the pronouncement. This would encourage effective participation and investment by the private sector.
- FRA should purchase strategic reserves at market prices including buying through the Zambia Agricultural Commodity Exchange (ZAMACE) Warehouse Receipt System (WRS). FRA buying of maize through ZAMACE will lead to an undistorted efficient market.
- FRA should dispose of unused strategic reserves at market prices to both formal and informal sectors as well as selling through the commodity exchange.
- Government should promote and incentivize the private sector in investing in storage facilities, as they are more cost effective. Another option is for government to consider using the private sector to store the strategic reserves to minimize storage losses.
- Government should consider reviewing the country's strategic grain reserve requirement that is purchased through FRA. The current 500,000 MT is considerably more than what the country needs if there is an impending drought. The country is now better placed to deal with any shocks without the need to hold such huge stock levels.
- Government through FRA should seriously consider taking positions/options on commodity exchanges in the region and Zambia (once ZAMACE is operational) for part of the strategic grain reserves. The current reserve of 500,000 MT could be reduced significantly and save the country the huge costs that it incurs today through storage losses.
- Finally yet importantly, the government is commended for announcing an open border maize policy in 2014 and should maintain this policy. Traders always think ahead and plan in the long term so keeping the borders open will enhance their operations and make Zambia a reliable supplier of maize. If the policy is sustained, it will hasten the setting up of the commodity exchange in Zambia and enhance the operationalization of the warehouse receipt system, as well as render available a ready and reliable market for smallholder farmers' produce.

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ACRONYMS

ACTESA	Alliance for Commodity Trade in Eastern and Southern Africa
CFS	Crop Forecast Survey
DRC	Democratic Republic of Congo
FEWNet	Famine Early Warning Network
FRA	Food Reserve Agency
GTAZ	Grain Traders Association of Zambia
IAPRI	Indaba Agricultural Policy Research Institute
KG	kilograms
K	Kwacha Rebased (New Zambian Currency)
mg	milligrams
MT	Metric Tons
SAFEX	South African Futures Exchange
US$	United States Dollar
WFP	World Food Programme
WRS	Warehouse Receipt System
ZAMACE	Zambia Agricultural Commodities Exchange
ZMW	Zambian Kwacha Rebased
ZNFU	Zambia National Farmers Union

1. INTRODUCTION

Zambia in 2014 recorded yet another maize bumper harvest of 3.4 million metric tons (MT). This is the highest ever recorded quantity of maize produced in this country after 2011 and 2010 harvests of 3.1MT and 2.8MT, respectively. Massive bumper harvests create a major challenge for policymakers—often referred to as the *classic food price dilemma*. On the one hand, a large surplus creates pressure to ensure that prices for maize producers do not collapse. Yet on the other hand, policy makers want to pass on the benefits of the bumper harvest to consumers through lower mealie-meal prices. Unfortunately, the government has not been very successful in striking a balance between these two competing objectives mainly because the solutions tend to alienate the private sector through unpredictable policies.

In responding to this unprecedented bumper harvest, the FRA once again departed from the budgeted purchase target of 500,000 MT of maize and ended up buying more than twice that target amount. Based on the 2013/14 Crop Forecast Survey (CFS) results, the marketable surplus from farmers was 1.9 million MT, representing 54% of national maize production. The Food Reserve Agency (FRA) started buying maize from farmers in July 2014 at a price of K70 (US$11.7) per 50kg or US$234 per MT, whilst the private traders were buying at K50 (US$8.4) per 50kg or US$167per MT. By the end of October 2014, the FRA had bought 1,031,303 MT, more than twice the government announced target of 500,000 MT for strategic reserves. The sudden change of policy by government allowing FRA to purchase more than double its planned target had serious implications on the private traders and farmers. It also created a huge government budget deficit as a result of the unplanned and unbudgeted maize purchases.

By the end of December 2014, only 30% of the farmers had been paid for the maize that they sold to FRA and traders reported that they had only bought about 300,000 MT[1] or 26% of the marketable surplus. This meant that the government had to borrow money to finance the unplanned purchases.

The massive stocks held by FRA are a source of uncertainty in the 2015/16 marketing season. In particular, a situation of large stocks of maize purchased in 2014 and carried forward into the 2015/16 marketing season will make private sector actors less willing to buy maize from smallholder farmers, it will undermine the banks' willingness to support commercial maize production and grain storage, and will further continue to impose a massive financial burden on the treasury. If nothing is done immediately to dispose the large maize quantities, a large amount FRA maize will potentially go to waste/spoiled depending on the specific site and storage facility conditions. Storage losses are likely to be significant as a result of the large maize purchases, for example, in 2012/13 marketing season when FRA bought more than the planned quantities, storage loses were estimated to be more than 32%, a waste of limited government resources (Sitko and Kuteya 2013).

Several issues face the country at the moment, in particular, a) how to deal with the more than one million metric tons of maize, b) how to restore private sector market confidence and c) finding resources to clear the maize payment arrears to the farmers without unsettling the financial market. This paper is written to provide some guidance to the government on how to

[1] Interviews with the Grain Traders Association of Zambia (GTAZ).

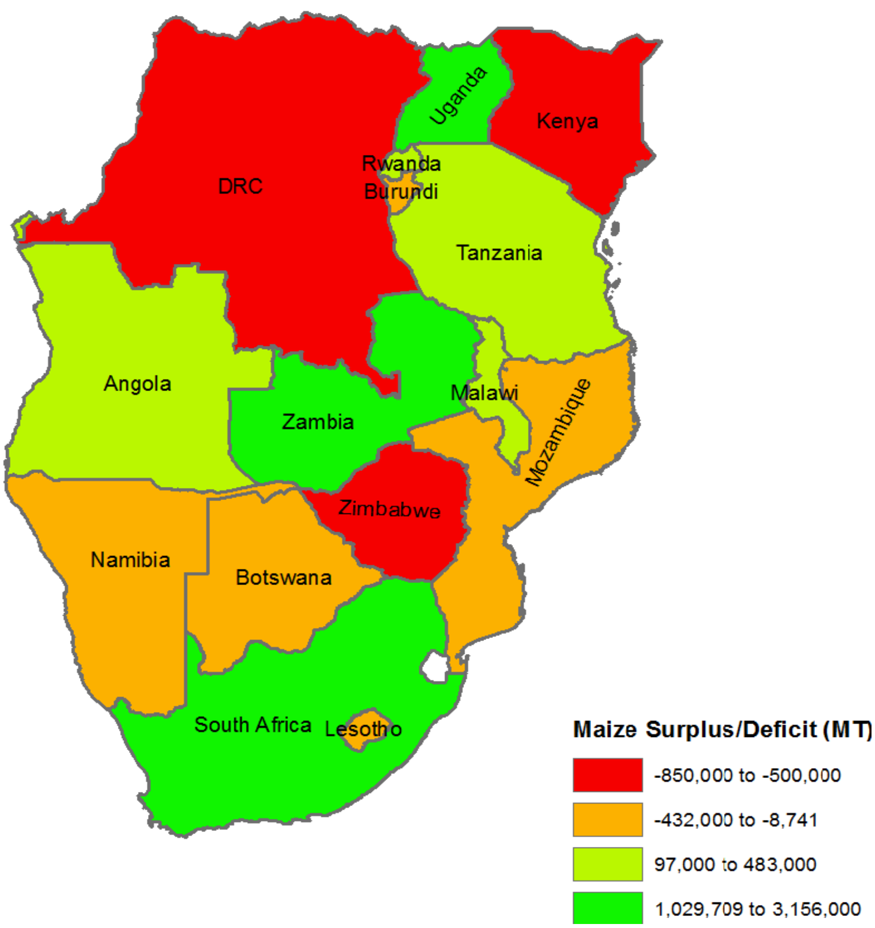
deal with the current maize stocks as well as provide market oriented solutions/options for future maize marketing in Zambia.

The remainder of the paper is organized as follows: Section 2 reviews the regional maize situation. Section 3 looks at private sector lukewarm maize market participation in the 2014/15 marketing season. Whilst Section 4 discusses how to deal with the current maize surplus and any future maize bumper harvests without bleeding the national treasury. Section 5 concludes.

2. REGIONAL MAIZE SITUATION

Generally, the southern and eastern Africa regions in 2013/14 agricultural season experienced good rainfall and as such, most countries in the region had good harvests.(Figure 1) Zambia and South Africa stand out as two countries with the largest maize surplus in the region while the rest of the countries either had deficits or a lean surplus. The Democratic Republic of Congo (DRC), Zimbabwe, and Kenya are the major deficit countries, a market that could potentially be serviced by Zambia. However, export competitiveness can significantly affect the ability of Zambia to profitably serve these markets. For example, interviews with grain traders indicated that although Kenya has a relatively large maize deficit, Zambian maize traders have not been able to tap into this market because transport costs of US$200/MT made it unprofitable. Zambia has not been able to export much of its surplus to these deficit markets. As of October 2014, formal exports from Zambia have only been to Zimbabwe, amounting to 6,790 MT (ACTESA 2014).

Figure 1. Maize Situation in Selected Countries in the Region in the 2013/14 Agricultural Season



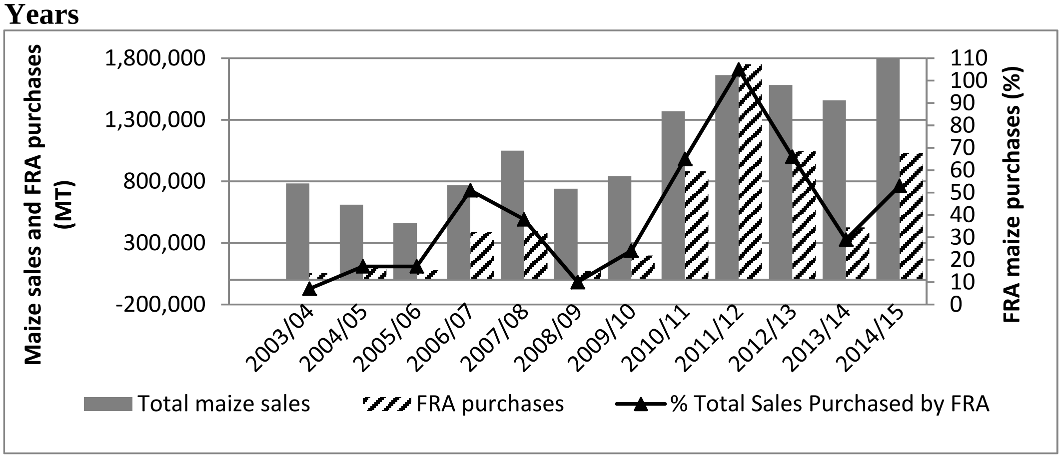
Source of data: SADC 2014.

In comparison, South Africa has managed to export part of its surplus in the region. A total of 242,778 MT of maize has been formally exported by South Africa to regional deficit countries including Zimbabwe, Mozambique, Botswana, Lesotho, Namibia, and Swaziland by early October, 2014 (SAGIS 2014).

Based on ACTESA and FEWSNet reports, the significant amount of the exports and imports of Zambia's maize have been informal (ACTESA 2014; FEWSNet 2014). The major informal cross-border export destinations for Zambia's maize are Democratic Republic of Congo (DRC) and Tanzania. By September 2014, informal maize exports to these two countries amounted to about 4,000 MT, of which 53% went to DRC and the remainder to Tanzania. However, the surplus in 2014 is too big for such type of trade. On the other hand, the country has also been having informal imports from Mozambique and Tanzania not necessarily to fill any maize deficit but to take advantage of the higher prices in Zambia, particularly the high FRA price (ACTESA 2014). For example, the farm gate price of maize per kg in Mozambique, Malawi, and Tanzania ranged from K0.7 to K0.9 per kg compared to K1.2 per kg in Zambia. Thus, Zambian prices were 33-71% more than any country in the region. It is, therefore, not surprising that grain would flow into Zambia despite a record harvest. For example, the movement of maize from neighboring countries into Zambia may help explain why FRA ended up buying more than the anticipated total maize sales during the 2011/12 marketing year (Figure 2). Essentially, courtesy of FRA's above market prices, the Zambian Government unintentionally continues to subsidize farmers and traders in the neighboring countries.

The limited movement of maize into deficit markets in the region is not at all surprising because Zambian maize is not competitively priced relative to the region. FRA purchased its maize stocks at close to import parity levels (i.e., the price needed to buy maize in South Africa and import it to Zambia) rather than export parity (i.e., the price needed to be competitive in regional deficit markets), making Zambia unable to compete for the chronic deficit markets in the region. For example, the FRA floor price was $50/MT above the export parity price to Harare. This pricing makes it difficult for grain traders to compete in the export market because importers in these countries can source maize considerably more cheaply than from FRA. Table 1 shows the indicative regional prices as of February 28, 2015.

Figure 2. Zambian Maize Sales and FRA Purchases from 2003/04 to 2014/15 Marketing Years



Source: CSO/MAL Crop Forecast Surveys (CFS) and Post-Harvest surveys (PHS); 2004 and 2008 Supplemental Survey to the CSO/MACO/FSRP Post-Harvest Surveys.

Table 1. Regional Prices and Zambia Export Parity Prices

	Maize price in	Transport from Zambia to	Duties and Fees	Handling Costs	Export parity price from Zambia to
Zimbabwe (Harare)[a]	290	65	0	10	**215**
South Africa (Randfontein)[a]	214	140	0	10	**64**
Malawi (Lilongwe)[a]	182	80	0	10	**92**
Tanzania (Dar es Salaam)[b]	171	150	0	10	**11**
Mozambique (Beira)[a]	256	120	0	15	**121**
DRC (Lubumbashi)[c]	300	90	0	10	**200**
Kenya (Nairobi)[b]	243	230	0	10	**3**
Angola[d]	183	120	0	10	**53**

Sources: [a]AFGRI, 2015; [b]http://ratin.net/index.php/kenya: [c]WFP country representative (Personal communication); [d]http://angola.opendataforafrica.org/wxgcxde/commodity-prices-forecast-2015-2019-charts-and-tables#Maize%20(US%24%2Ftonne)

This only confirms that Zambian maize is not competitive regionally because with these prices and the current FRA selling price of US$240, the only likely market for Zambian maize is Zimbabwe if transport rates were less than US$70/MT. Therefore, the above market pan-territorial and pan-seasonal pricing by FRA has not helped the country to become competitive in the region, hence the government of Zambia would be forced to offload its purchases at a loss both on the local and regional market.

Therefore, Zambia faces the distinct possibility of having to sell the vast majority of its current maize stocks (1.2 million MT) at a major financial loss in order to avoid experiencing further deterioration of quality of its stock. This is inevitable because continuing to hold such huge stocks when the country is expecting another harvest in May will impose huge costs to the treasury and will continue to act as a source of uncertainty in the 2015/16 marketing season.

3. PRIVATE SECTOR PARTICIPATION IN THE 2014/15 MARKETING SEASON

Policy makers in Zambia continue to ask why the private sector is unwilling to fully participate in the maize market, and when they do participate, they are branded as unscrupulous, briefcase traders who are out to cheat the farmers. Unfortunately, people in government have never looked at their policy choices as the source of the problem. The expanded role of the FRA in 2014/15 marketing season and other maize surplus years in the past has resulted in reduced private sector-led maize market development in Zambia. The unpredictable and ad-hoc government maize marketing policies through the FRA has been making it difficult for the private sector to plan and operate efficiently hence, the decision not to risk their funds and buy maize from the farmers. For example, offloading of maize to a selected few large millers at below market prices by the FRA has always been a source of uncertainty because this hurts other small millers and grain traders who would have bought large quantities of maize in advance at market prices. This creates an uncompetitive environment and makes it difficult for these millers and traders to stock maize grain in the future, as they would not be able to service their loans used to finance the purchase of the maize. As long as the government of Zambia, through the FRA, continues to be a dominant player in the maize market, both through direct procurement and sale operations, and with discretionary trade policy, the private sector will not fully develop nor effectively service the smallholder farmers in the country.

3.1. FRA Market Participation

The FRA maize purchasing patterns in the 2014/15 marketing seasons reveal a number of important factors worth noting. Table 2 shows maize production and sales estimates from all the provinces of Zambia and the actual FRA purchases from these provinces. A few things discernable from this table are as follows:

a. The FRA purchased more than half (54%) of the maize that was expected to be sold by farmers in Zambia.
b. FRA purchased more that 50% of its total purchases from three provinces, Eastern (24.4%), Northern (14.9%), and Central Province (14.5%). According to field interviews regarding production and expected sales statistics from Eastern Province, it may not be surprising that some of the maize purchased by FRA from Eastern Province, particularly from districts such as Nyimba, Petauke, Katete, and Sinda, could have come from Mozambique, as mentioned earlier since FRA price was 71% higher than price in Mozambique.
c. As a proportion of expected sales, FRA bought the highest priced maize from Luapula, Muchinga, Northern, Eastern, Western, and Northwestern Provinces in that order. Using these statistics and with the exception of Eastern Province, this pattern seems to be consistent with the FRA purchasing from outlying areas where there is limited private sector presence.
d. In Eastern Province, FRA clearly crowded out the private sector because it is one province where there is a high private sector presence including large corporations such as Export Trading Group, NWK Agri Services, Zdenakie, Parogate, Cargill, Aliboo, Kesons, and small scale maize traders and assemblers.
e. FRA bought fairly large quantities (35%) in provinces on the rail line (Central, Lusaka, Copperbelt, and Southern) where there is a fair presence of grain traders and millers. Central Province is well positioned to serve the main consuming markets of Lusaka and the Copperbelt and is in close proximity to the export markets in the DRC.

Table 2. Crop Production, Sales and FRA Purchase from the Provinces in the 2014/15 Marketing Season

Provinces	CFS production estimates (MT)	Expected sales (MT)	FRA initial target purchases	FRA Actual Purchases (MT)	Variance from initial target	% FRA Purchases from expected sales
Eastern	745,580	345,864	89,100	251,323	162,223	73%
Northern	283,756	198,087	99,550	154,010	54,460	78%
Central	723,761	495,992	50,600	149,488	98,888	30%
Southern	597,999	264,218	63,850	140,132	76,282	53%
Muchinga	244,978	146,431	65,900	110,397	44,497	75%
Luapula	131,747	87,226	60,450	76,802	16,352	88%
Northwestern	160,866	93,821	35,000	58,240	23,240	62%
Copperbelt	235,416	153,645	15,000	36,985	21,985	24%
Lusaka	148,291	99,809	13,600	35,035	21,435	35%
Western	78,277	27,440	6,950	18,891	11,941	69%
Total	3,350,671	1,912,533	500,000	1,031,303	531,303	54%

Source: CSO/MAL Crop Forecast Survey 2014.

3.2. Private Sector Participation

Private sector participation in the maize market now largely depends on price and quantity purchasing decisions made by the FRA. Evidence has shown that reduced government market participation and predictable policies resulted in more private sector participation in the maize market (Nkonde et al. 2010). In June 2014, the Minister of Agriculture and Livestock announced that FRA was going to buy maize at K70 per 50kg bag, a K5 increase from the previous season. This price was K10-20 above the market price, as most private traders were buying grain in the range of K50-60 per 50kg bag. This price difference and government promising to buy the entire surplus crop meant that most farmers preferred to sell to FRA rather than private traders.

By the third week of purchasing maize, FRA had already met its announced target of 500,000 MT. Given the many parliamentary by-elections at the time and the pressure from the Zambia National Farmers Union there were indications that FRA would not stop buying maize. This unsettled most of the private traders because they were uncertain about the quantities of maize that FRA was eventually going to buy and how it would be disposed.

On 3 September 2014 at an election campaign rally in Vubwi District in Eastern Province, Vice President Dr. Guy Scott announced that the government through the FRA was going to buy the entire maize surplus because the private sector was letting down the farmers (Phiri 2014). Therefore, FRA continued buying maize and at the end of the FRA buying season, the agency had bought 1,031,303 MT, more than double the budgeted target of 500,000 MT. This announcement further discouraged the private sector from participating in the maize market, a situation that was verified through our team's field visits to Eastern, Northern, Muchinga, Copperbelt, and Northwestern Provinces in September 2014. For example, private maize traders with a presence in Eastern Province, Export Trading Group, NWK Agri Services, Zdenakie, Parogate, Cargill, and Keson were not actively buying maize because they were not certain about FRA purchasing targets. In Northern, Muchinga, Copperbelt, and North-western Provinces, there was very limited private maize trading activities; FRA was almost the sole maize buyer in those provinces. Under these uncertain circumstances, it was not surprising that the private traders decided to sit and watch from the sidelines.

In addition, the signals from government on lifting the export ban imposed during the previous season were not well timed. Government had refused to lift or waive the ban when the private sector was receiving requests for maize from Zimbabwe in preference for government-to-government arrangements. By the time government lifted the export ban, the private sector had a lot of carry-over stocks from the previous season. Therefore, they could not buy greater amounts of maize especially since most of the countries in the region had sufficient grains.

Another factor that contributed to low private traders purchases from farmers was that large millers had opted to make their own purchases of maize directly from farmers as opposed to contracting grain traders. At the time of the field visits, most mills in the Copperbelt Province for example, had bought their maize stock that would last them up to February 2015. In addition, given that FRA was holding more than 50% of the maize surplus, millers slowed down purchasing maize directly from farmers or contracting private traders. Instead, they rather strategically waited and lobbied government later in the season for FRA to offload to them subsidized maize. In other words, it would not make a lot of sense for millers and or traders to continue buying maize from farmers knowing that the Zambian government would bear all the costs of storing the maize and later release it at reduced prices.

FRA is holding more than 50% of the maize market surplus in the country, so there is a huge threat that the government will reintroduce the ill-conceived FRA maize subsidies to a few selected millers, which would result into an unbalanced playing field between the millers, especially the informal and small/medium-scale millers. Such an un-leveled playing field would negatively affect the competitiveness in the maize sector in addition to not benefiting consumers (see Kuteya and Jayne 2012). In addition, with limited market opportunities, another problem that is likely to manifest is that FRA will supply maize to the market beyond the prescribed period (end of March 2015) which will result in a producer price crash, a situation that is undesirable especially at a time when the country will have another election in 2016. Therefore, the government needs to make a quick and pragmatic decision to offload the maize on the local market. The maize should not be available only to selected millers but FRA maize stocks should be made available for purchase by both formal and informal traders, hammer millers, and the general public.

4. HOW CAN ZAMBIA EFFECTIVELY DEAL WITH MAIZE SURPLUSES?

4.1. Zambia Maize Market is Highly Concentrated

Maize surplus generation in Zambia is highly concentrated, with only 5.5% of the farmers in 2014 responsible for the supply of 50% of all the maize sold among the smallholder farmers. Such high market concentration is not peculiar with the current season alone but past seasons as reported by Tembo et al. 2010 and Nkonde et al. 2011 just to mention but a few. Also, it is important to note that not all farmers who produce maize sell maize, for example, results from the 2014 crop forecast survey show that only 54.5% of the 1,265,127 maize producers indicated that they were going to sell maize. This means that more than 50% of the 1,470,999 smallholder farmers (maize producers and non-maize producers) did not benefit from FRA purchases. Thus, the majority of the poor smallholder farmers and consumers would be hurt by the FRA above market price because the FRA price tends to push the grain prices up for net buyers and consumers who rely on the market for their grain needs. Table 3, summarizes some key features of the maize market in Zambia for 2014/15 marketing season.

In the past season, FRA has lost more than US$100 million for buying 426,248 MT and storing the maize for at least eight months, plus the costs of the carry over stock from the previous season. All factors constant, and assuming a conservative 15% storage loss, it is likely that between 2014 and 2015 the agency will lose more than US$150 million from storage losses, shrinkage, storage costs, interest payments, and selling the maize at a loss (see Appendix 1 for the calculations of this estimate).

Table 3. Key Features of the Maize Market in Zambia

Percent of maize sales	Cumulative sum of maize sales (MT)	Cumulative number of households responsible for sales	Cumulative percentage of maize sellers	Cumulative number of all house-holds	Cumulative percentage of all farmers	Average land cultivated	Mean number of 50kg bags sold
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)
0	0	-	-	781,024	53.1	.7	0
0%	169,019	322,076	46.7	1,103,100	75.0	.8	10
20%	337,993	445,978	64.6	1,227,002	83.4	1.1	27
30%	506,744	526,342	76.3	1,307,366	88.9	1.4	42
40%	676,183	581,772	84.3	1,362,797	92.6	1.7	61
50%	844,126	619,880	89.8	1,400,905	95.2	2.1	88
60%	1,014,356	647,669	93.9	1,428,693	97.1	2.7	123
70%	1,183,306	666,485	96.6	1,447,510	98.4	3.5	180
80%	1,352,469	679,430	98.5	1,460,455	99.3	4.4	261
90%	1,519,377	686,771	99.5	1,467,796	99.8	6.9	455
100%	1,690,652	689,975	100	1,470,999	100	11.5	1,069

Source: CSO/MAL 2014.

4.2. Immediate Actions to Deal with Current Huge FRA Stocks

As mentioned earlier, Zambia's maize is not competitive on the regional market hence, FRA's current efforts to export maize to neighboring countries especially Zimbabwe would be inadequate to deplete the stocks before the next harvest due to existing transportation bottlenecks, non-competitive FRA price, and insufficient maize demand in the region. Therefore, there is a need to start thinking about other ways of disposing of the stocks in ways that contribute to Zambia's national interests. This is urgent and requires quick government action. The following short-term measures should be considered:

1. Seriously consider discounting the FRA depot price to increase demand for Zambian maize, which is currently not competitive in the region.
2. Consider making FRA maize stocks immediately available for purchase by both formal and informal traders, hammer millers, and the general public. This could be done through FRA setting up fair price distribution centres in high population density areas throughout the country. The majority of poorer households in the urban areas depend on pre-packed mealie meal packs (*pamelas*) which works out to be more expensive than buying the commercially produced 25kg of mealie meal.
3. For the next two months, FRA should consider opening its sheds around the country and sell maize to rural consumers who would like to take grain to local hammer millers. Increasing the sale of maize through the informal traders and hammer millers would have an immediate stabilizing effect on mealie meal prices. In addition, this would promote maize value addition especially among backyard and small-scale poultry producers.
4. Consider swap deals of maize for livestock with countries like Namibia and Botswana or maize for oil or fertilizer with other countries.
5. Consider selling/donating some of the maize to the World Food Programme (WFP) and other similar institutions at discounted price for delivery to disaster hit areas in Africa.
6. Instigate large-scale work for food programmes aimed at maintaining rural feeder roads in expectation of the coming marketing season.

4.3. Limiting FRA's Role in Maize Marketing

Since the early 2000s, the expanded role of the FRA in maize marketing has become one of the major drains of financial resources on the national treasury with very limited impacts on poverty reduction and productivity. This is because government expenditure through FRA has been benefiting larger and relatively well-off households, hence having limited impact on rural poverty reduction. Continued bumper harvests have seen FRA expanding its role beyond buying strategic reserves.

Discretionary and unpredictable FRA intervention is one of the greatest policy problems plaguing the maize marketing system and food security in Zambia because actual and potential government interventions by the FRA generate private sector uncertainties and inaction leading to a cycle of recurrent need for government intervention. Buying beyond the prescribed strategic grain reserves target (currently 500,000 MT) has resulted in farmers getting paid late and making it difficult for the private sector to plan and operate efficiently. Further, FRA offloading maize on the market at a reduced or subsidized price has continued to hurt farmers who produce early maize, grain traders, and all millers who do not have access to price-discounted FRA maize. All this comes at a very huge expense to the treasury and causes headaches for politicians who are concerned about the country's budget deficit. Our estimates to the national treasury for holding the 2014 stock of maize and the 2013 carry over stock is approximately US$150 million (see Appendix 1).

Zambia cannot afford to continue to lose such huge financial resources on a single ineffective program. In the mixed policy environment, the government co-exists with the private sector as an unfairly large competitor, and this hinders the development of the agricultural sector. Complete government withdrawal from the market is neither realistic nor desirable. However, government must avoid policies that crowd out private sector participation, and should instead seek to facilitate market growth as well as make every effort to leverage private sector investments. The government needs to urgently take bold steps and implement the recommendations outlined below to guide the sector to prosperity.

4.3.1. Enactment of the Agricultural Marketing Act

As a matter of urgency, government should review and enact the draft Agricultural Marketing Bill agreed to by stakeholders back in 2011 to guide all private and public agricultural marketing activities in Zambia. The Act will provide guidance on the involvement of government in the maize market, fertilizer, seed, crops, and livestock markets bringing the most needed policy transparency and predictability that will enhance the market for smallholder farmers. The draft bill proposed the setting up of Zambian Agricultural Marketing Council, which would be responsible for formulating the maize and trade policy framework that would clearly define the rules and principles of operations for both government and private sectors. The bill would ensure that Zambia becomes a food breadbasket in the east and southern Africa regions through effective private sector led agricultural market system.

4.3.2. Limit FRA's Role to Strategic Grain Reserves

There is an urgent need to provide clarity on the role and operational modalities of the FRA in the maize market. In accordance with the Food Reserve Act of 1995, the role of the Agency should be limited to purchasing strategic reserves and should stick to prescribed quantities and areas of purchase. Amendment to the Act in 2005 authorizing FRA to participate and engage directly into maize marketing has seen a massive unsustainable expansion of FRA purchases and sales and this has been accompanied by undesirable effects on farmers and the private sector market development.

Government should review the country's strategic grain reserve requirement that is purchased through FRA. The current 500,000 MT is considerably more than what the country needs if there is an impending calamity. The country is now better placed to deal with any shocks without the need to hold such huge and expensive stock levels due to:

- the improved irrigation capacity in the country—commercial farmers at short notice can be contracted to produce maize to fill any anticipated shortfall;
- consumption patterns today are different from many years ago—demand for non-maize food products is increasing;
- the infrastructure to procure and import grain has improved over the years; and

- there are cheaper alternatives compared to physically holding all strategic reserves for at least eight months. For example, the government through FRA could take positions/options on commodity exchanges in the region and Zambia (ZAMACE) for at least half of the current grain reserves. This reduction would save the country the huge costs that it incurs today through storage losses and the opportunity cost of funds tied up in the stocks.

4.3.3. FRA Should Foster Private Sector Market Development

On November 4, 2014, the government through the Ministry of Agriculture and Livestock signed a Statutory Instrument (SI 59) authorizing ZAMACE to perform the functions of the Warehouse Licensing Authority. Among various functions, ZAMACE is envisioned to provide a trading platform for agricultural crops such as maize, soybeans, and wheat. With this function, it is expected that the agency will bring stability and predictability to commodity prices in the sector.

In order to sustain a commodity exchange, there is need for volumes. Therefore, to hasten the operationalization of the commodity exchange in Zambia, FRA could take the lead and buy the strategic reserves requirements through the exchange, an innovation that does not distort the market. The cheapest option would be for FRA to buy a futures contract and only take delivery if the grain is required, otherwise the Agency would pay a much smaller fee for the contract if it decides not to take any delivery. Alternatively, the government would fill its strategic reserves by simply buying from the exchange. Such market-based intervention does not distort the market and would result into more robust private sector maize market development.

Using a local exchange, would help deal with the current fears associated with dealing with foreign commodity exchanges such as SAFEX, in South Africa. The Agency would have the ability to inspect any of the warehouses storing the strategic reserves. This should bring some level of comfort to the policy makers who fear that in case of shortages, grain would not be delivered to the country on time.

In addition, when purchasing the strategic reserves, FRA should do so at market prices. Purchasing the strategic reserves at above market prices results in Zambia pricing itself out of the regional and international market, disadvantages consumers and maize net buyers who constitute more than 60% of the population and discourages private sector participation in the market, the only key to sustainable market development.

4.3.4. Maintaining an Open Border Maize Policy

Government is commended for announcing an open border maize policy in April 2014. If sustained, this will help Zambia become a reliable supplier of maize and other agricultural products such as soybeans, wheat, etc., at all times. Traders always think ahead and plan in the long term. This action will further ease the sustainable operation of the commodity exchange through ZAMACE and effective operationalization of the WRS. This action will render available a ready and reliable market for smallholder farmers’ produce while at the same time reduce the need for Zambia to hold a large and expensive size of the maize strategic reserve.

The stop and go marketing policy has been in variance with the commitments made by Zambia to have consistent and predictable policy environment as outlined in the current government manifesto, national development strategies (revised sixth development program, National Agricultural Investment Plan), and sub-regional and regional agreements. The enactment of the Agricultural Marketing Bill is intended to solve this problem through the creation of the marketing council, which will foster constructive and transparent dialogue with all stakeholders before decisions are made.

4.4. Government Should Promote Private Sector Storage

The Zambian government through the FRA currently have grain storage capacity of over 850,000 MT and has plans of expanding this to 2 million MT by 2018. According to the Grain Traders Association of Zambia (GTAZ), private grain traders have total storage capacity of over 550,000 MT (including 150,000 MT of rented space). In 2013, GTAZ operated 13 certifiable storage sites. However, GTAZ had indicated that by the end of 2015, given the right policy environment, they can potentially invest in 23 certifiable sites in 18 districts and this would bring the total storage capacity under private grain traders to 825,000 MT (GTAZ 2013). Having the right policies in this regard is crucial.

The government should considerably reduce its direct involvement in allocating public funds towards the construction of storage infrastructure, as this would encourage private sector to take the leading role in building additional storage facilities in economically viable areas. Instead, the government would use these resources to invest in more essential public infrastructure, such as building feeder roads, and rehabilitating and maintaining existing rural roads in order to enhance and facilitate local marketing and trade. In addition, storage facilities under the FRA countrywide should be managed under a public-private partnership agreement to stimulate the development of a private sector led storage industry. In particular, the government should consider giving long-term leases to the private sector (traders, storage operators, or millers) to upgrade or rehabilitate defunct storage facilities as well as providing long-term incentives for the private sector to build new storage facilities by facilitating long-term financing facilities to these private entrepreneurs. The development of a vibrant private sector led certified warehouse receipt system would help smallholders who produce a surplus to sell their grain at competitive market prices and access the most needed credit through the system.

4.5. Government Should Promote More Options Other than Only Large Scale Milling Investments

In the recent past government has announced intentions to invest in large scale milling facilities across the country as a way of reducing mealie meal prices. It may not be true that large investments in milling will reduce mealie meal prices particularly in rural areas where they are observed to be highest. If the cost of production and marketing across the maize and mealie meal value chain remains the same, then mealie meal prices will remain the same. One of the options is to keep the maize within the locality of where it is produced by promoting community hammer millers and local maize value addition. The FRA should not price the farm-gate price of maize above the market price.

4.6. Balancing the Political Economy of Proposed Changes

To bring about long lasting changes to the maize marketing issues in Zambia, there is a need for political will at the high level. Many believe that elections are won by granting farmers maize subsidizes, but research evidence using results from past elections suggest otherwise (see Mason, Jayne, and van de Walle 2015). It is not surprising that people may indicate that they would want the government to continue to support programmes such as FRA or the Farmers' Input Support Programme because of their perceived impacts or the expectation that they would benefit someday. However, in a recent survey by Centre for Policy and Trade Development farmers indicated that in their current form the programmes are not reaching the target and need to be reformed.

Unfortunately, not many farmers understand the opportunity cost of having massive programmes of this nature and would not understand when government fails to pay them on time when FRA buys above the budgeted target. Therefore, maintaining the status quo is likely to be politically very costly because the country can no longer afford the continued financial haemorrhage from current operations of the FRA which have had very limited impact on poverty reduction and productivity. The current government need to take the bold decisions and implement reforms that will have far more reaching positive impacts in the agricultural sector. The revised Sixth National Development Plan, aligned to the PF Manifesto, recognizes that agricultural development is critical for achieving inclusive growth and poverty reduction in Zambia and clearly indicates that to attain more inclusive agricultural growth there is an urgent need to address the unbalanced agriculture policies that have favored maize production and disadvantaged the production of other crops.

Using this as a starting point, there is need to inform the farmers that the government is realigning agricultural expenditure to key agricultural growth drivers that can benefit all rural people, such as rural infrastructure (roads, rail, and telecommunication), agricultural research and development, market information, irrigation, and institutions that foster the development of effective markets and complementary services such as agricultural extension and credit. Mainly because the current subsidy programmes have been costly and ineffective at addressing high rural poverty rates and crop productivity as the programmes tended to disproportionately support farmers with larger land sizes and asset endowments and less to poorer farmers. A media campaign aimed at informing the farmers that government through the Ministry of Agriculture and Livestock would be supporting value chains whilst economically disadvantaged farmers would be supported through social welfare programmes via the Ministry of Community Development and Social Welfare.

For example, a deliberate policy to cut the current strategic reserves into half would save the government approximately US$84 million from buying and storing 250,000 MT of maize for eight months (see Appendix 2 for the estimation). This money could perhaps be passed on to the Ministry of Community Development and Social Welfare to implement a social cash transfer programme. This would reach more than 720,000 households (or 3.6 million rural people) with each household receiving K700 (equivalent to ten 50kg maize bags) compared to less than 200,000 farmers if we assume FRA buys from the poorest farmers, or less than 70,000 households if the Agency buys from the top 5% of the households (see columns B and C in Table 2). This innovation would ensure that the private sector is not vilified for failing to help socially disadvantaged farmers especially those in outlying areas who the FRA can deliberately service when procuring the strategic reserves. In addition, such changes would address the FRA late payments to farmers because the Agency would not need to buy beyond the budgeted target and at the same time give confidence to the private sector to invest in the grain market without government interference.

The government can creatively manage the proposed changes through media campaigns. Clearly, laying out the plan with an explanation of how it would benefit various stakeholders would make it easier for government to avoid making contradictory statements or announcements that can in the future lead to policy reversals. Also, strengthening the legal instruments within the context of the Agricultural Marketing Bill and the FRA Act would ensure that no politician could use the maize sector as a campaign tool. In addition, this would protect the government from lobby groups who want government to deliberately intervene in the maize market either through price setting, stock holding, or trading operations without due diligence from the legally binding and institutionalized consultation processes.

5. CONCLUSION

The current challenges of dealing with the 2013/14 unprecedented harvest reveal that there are bottlenecks in Zambia's maize marketing system. Instead of the bumper harvest becoming a blessing to the country, it has become a curse. The discretionary nature of government's interference in maize markets have resulted into private sector's lukewarm participation in maize marketing in the current and past marketing seasons. In particular, government buying maize above the market price, failure to stick to the earlier announced target of 500,000 MT, and the delayed lifting of the export ban of maize have all contributed to the lukewarm buying response by the private sector. The good harvests experienced in most parts of eastern and southern Africa also mean that Zambia has limited export markets in 2015. Regardless, there are still export opportunities in some structurally deficit countries, specifically the DRC, Zimbabwe, and Kenya but this requires Zambia to greatly discount the FRA depot price.

The current mode of purchasing maize through the FRA is not only detrimental to private sector participation but is also costly due to the high storage and financing costs, physical losses as well as the high opportunity cost of holding on to grain for at least eight (8) months. Further, the FRA buying program fails to effectively target the poorer smallholders because the market is very concentrated among the relatively larger and well-off farmers. To allay the concerns of the private sector about FRA's involvement into the future, the government should revert to the original FRA mandate as set in the 1996 FRA act of maintaining strategic grain reserves for the country and the Agency's procurement activities only confined to outlying areas of the country where the private sector finds it difficult to operate.

Discretionary and unpredictable government intervention is one of the greatest policy problems plaguing the maize marketing system and food security in Zambia because actual and potential government interventions generate private sector uncertainties and inaction leading to additional need for government intervention. Therefore, the government should provide a stable and predictable policy framework to hasten Zambia's potential of becoming a regional food basket. This should be done through the enactment of the Agricultural Marketing Bill, setting up of the Agricultural Marketing Council and adhering to the legislation. This bill will help to promote effective coordination between the private and public sector through greater consultation and transparency with regard to changes in FRA purchase and sale prices, import and export decisions, and triggers for release of stocks. Once this legislation is in place, crop marketing will be based on transparent and predictable set of rules and regulations, a situation that is likely to bring in more private investments and participation in the sector.

Finally yet importantly, to bring about long lasting changes to the maize marketing issues in Zambia, there is a need for political will at the high level. Through a structured media campaign, the government needs to make farmers understand the opportunity cost of having massive subsidy programmes. Instead, the government would offer alternative initiatives that will have far more reaching positive impacts in the agricultural sector, especially by realigning agricultural expenditure to key agricultural growth drivers that can benefit all rural people, such as rural infrastructure (roads, rail, and telecommunication), agricultural research and development, market information, irrigation, and institutions that foster the development of effective markets and complementary services such as agricultural extension and credit.

APPENDICES

Appendix 1. Total Estimated Loss to National Treasury through FRA Purchases and Carryover Stocks in the 2014-2015 Marketing Season

Assumptions		
FX Rate 2014	K6.10	US$1
FX Rate 2013	K5.40	US$1
2014 FRA Purchasing Price/50kg bag	K70.00	US$11.48
Purchasing Price/MT	K1,400.00	US$229.51
2013 FRA Purchasing price for carryover stock/MT @ K65/50kg Bag	K1,300.00	US$240.74
Logistics cost/50kg bag (transportation, loading and offloading)	K10.00	US$1.64
Logistics cost/MT	K200.00	US$32.79
Carryover costs/MT/Month*	K48.80	US$8.00
Finance costs/month/MT	K18.30	US$3.00
Storage costs/month/MT	K30.50	US$5.00
Cost of bagging and rebagging/MT	K61.00	US$10.00
Holding period (months) before Gazetted sales	3 months	-
Holding period before next season	5 months	-
Proportion of maize not in FRA bags	75%	-
Losses through poor or inadequate maize storage	15%	-
Maize for export in 2014 based on carryover stock	597,192 MT	-
Indicative maize export parity price, Zimbabwe 2014	K1,281	US$210.00
Indicative maize export parity price, FRA depot price-February 20, 2015	K1,464	US$240.00
Old Crop Discount	0%	-
FRA Purchases July-October 2014 (MT)	1,031,303 MT	-

Appendix 1. con't.

Description	Quantity	Price/Cost per unit	Total ZMW	Total US$
1. Estimated Cost of 2013/14 Carryover Stock*				
Value based on purchase price	597,192	1,300	776,349,600	143,768,444
8 months Carry Costs (Oct '13 to May '14)	597,192	49	233,143,757	38,220,288
Additional carryover stock costs for 60% of stock (June '14 to October '14)	358,315	49	69,943,127	11,466,086
Total Cost of 2013/14 carryover stock			**1,009,493,357**	**181,988,732**
Translated Cost/MT of carryover stock as at end May 2014			**1,690**	**305**
2. Return on Export at Export Parity Prices				
Return on October 2014 Export Parity Price to Harare	597,192	1,281	765,002,952	125,410,320
Less 15% stock losses			114,750,443	18,811,548
Less old crop discount			0	0
Net value of 2013 carryover stock at export parity prices			***650,252,509***	***106,598,772***
3. Cost of new crop purchased July - October 2014				
Value based on purchase price	1,031,303	1,400	1,443,824,200	236,692,492
Logistics costs	1,031,303	200	206,260,600	33,813,213
Estimated 8 months carry costs (Oct '14 to May '15)*	1,031,303	49	50,327,586	8,250,424
Rebagging costs	1,031,303	61	47,182,112	7,734,773
Estimated total costs of new crop purchased July-October 2014			**1,747,594,499**	**286,490,901**
Translated Cost/MT as at end May 2015			**1,695**	**278**
Value of maize by May 2015 based on FRA selling price	1,031,303	1,464	1,509,827,592	247,512,720
Less 15% stock Losses			226,474,139	37,126,908
Net value of 2014 crop			**1,283,353,453**	**210,385,812**
5. Summary of Costs to Treasury				
Total Cost of 2013/14 carryover stock			1,009,493,357	181,988,732
Estimated total costs of new crop purchased July-October 2014			1,747,594,499	286,490,901
6. Total gross Cost			**2,757,087,855**	**468,479,634**
Net value of 2013 carryover stock at export parity prices			650,252,509	106,598,772
Net value of 2014 crop at 2015 February FRA prices			1,283,353,453	210,385,812
7. Gross Revenue			**1,933,605,962**	**316,984,584**
8. Estimated Loss to the Treasury			**823,481,893**	**151,495,050**

Source: Authors' calculations.

Appendix 2. Calculations of FRA Purchases of 250,000 Metric Tonnes for Strategic Reserves Reduction

Assumptions	ZMW	US$
FX Rate 2014	6.10	
2014 FRA Purchasing Price/50kg bag	70.00	11.48
Purchasing Price/MT	1,400.00	229.51
Logistics cost/50kg bag (transportation, loading and offloading)	10.00	1.64
Logistics cost/MT	200.00	32.79
Carryover costs/MT/Month*	48.80	8.00
Finance costs/month/MT	18.30	3.00
Storage costs/month/MT	30.50	5.00
Cost of bagging and rebagging/MT	61.00	10.00
Holding period (months) before Gazetted sales	3	
Holding period before next season	5	
Proportion of maize not in FRA bags	75%	

Description	Quantity	Price/Cost per unit	Total Rebased Kwacha (K)	Total US$
Cost of 250,000 metric tonnes				
Value based on purchase price	300,000	1,400	420,000,000	68,852,459
Logistics costs		200	60,000,000	9,836,066
Estimated 8 months carry costs*		49	14,640,000	2,400,000
Rebagging costs		61	13,725,000	2,250,000
Estimated total costs of purchased crop			**508,365,000**	**83,338,525**
Translated Cost/MT after 8 months in storage			**1,695**	**278**

Source: Authors' calculations.

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