



**ACHIEVING MORE WITH LESS: REFORM AND SCALING
DOWN OF FRA & FISP AND BOOSTING SOCIAL PROTECTION**

Policy Advisory Paper

March 2017

Indaba Agricultural Policy Research Institute (IAPRI)

Lusaka, Zambia

Downloadable at: www.iapri.org.zm

Executive Summary

Zambia continues to suffer from a regime of ineffectual subsidies and insufficient social protection. Despite evidence showing how the country's signature farming input and output subsidy programmes i.e. The Farmer Input Support Programme (FISP) and the Food Reserve Agency (FRA) respectively, have failed to spur agricultural diversification, address low agricultural productivity, food security, and stubbornly high rural poverty rates, the country has continued to allocate significant resources towards their implementation. Notably, Zambia is currently grappling with the need to make some tough choices as it seeks to deliver on the Zambia-Plus Recovery Plan proposed by the Minister of Finance. Among other options, the Government should consider how to scale back on discretionary spending whilst supporting economic growth and social development.

Given the sensitivities around subsidies, the Indaba Agricultural Policy Research Institute (IAPRI) is recommending cost effective alternatives that would not burden the Treasury, but still help achieve sustainable agricultural growth and poverty reduction. Maintaining the status quo is likely to be very costly politically given that the country can no longer afford the continued financial haemorrhage from the current operations of the FISP and FRA. The Government needs to make bold decisions and implement reforms that will have more far-reaching positive impacts in the agricultural sector.

Scaling-back FISP and FRA is the right thing to do. Fiscal space created by reductions in expenditure on these programmes should be used to invest in higher return social protection alternatives that can deliver many of the objectives that FISP and FRA were intended to deliver. We propose three alternative programmes that the Government could invest in to deliver on the key objectives of reducing rural poverty, supporting farmers and creating a sustainable and diverse market for farmers' agricultural products;

1. To alleviate poverty, the Government could spend more on Social Cash Transfers (SCT);
2. To reduce malnourishment and promote child development the Government could implement two complementary programs: a) An expanded Home Grown School Feeding Programme (HGSF); and b) Women, Infants and Children Programme (WIC).

The last two programmes will provide direct support in the form of food to the households who need it most, whilst indirectly supporting farmers by providing a reliable local market for a diverse range of agricultural products including grains and livestock products. When delivered alongside reforms to the FISP and FRA this dual support approach will mean continued, better targeted support for farmers alongside improved support for the poorest households in Zambia. Table 1 summarises the opportunities and costs of proposals.

Table 1. – Summary of opportunities and costs of proposals

S/N	Proposal	Saving/(Cost) (US\$)	Objectives of Programme
1	FRA reform: Scale back strategic reserve stock level to 300,000MT from the current 500,000MT	44.7 million	<ul style="list-style-type: none"> Reformed FRA to focus on food security, ensuring less market distortion. Further savings can be made if Government procures the reserves via the commodity exchange with maize stored in certified warehouses.
2	Cap total FISP expenditure at no more than US\$100 million and target at least 500,000 smallholder farmers through a flexible e-voucher.	178 million	<ul style="list-style-type: none"> Reformed E-FISP provides more cost effective and efficient support to farmers, taking account on local conditions and enabling choice and diversification. Promotes competitive private sector input provision.
3	Scale-up SCT beneficiaries by an additional 500,000 beneficiaries	(43.5 million)	<ul style="list-style-type: none"> SCTs focused on poorest and most vulnerable households and target poverty reduction. SCTs have a positive multiplier effect on the economy as cash creates an effective demand for food and non-food products helping local economies to grow.
4	Support 1 million more children via the Home Grown School Feeding (HGSF) Programme.	(8.7 million)	<ul style="list-style-type: none"> HGSF will not only ensure that children have access to regular meals, but also create local markets for a diverse range of farming products
5	Provide nutritious food vouchers to 500,000 women and children	(46.2 million)	<ul style="list-style-type: none"> WIC provides nutritional support to mothers and infants, reducing malnutrition and supporting child development. At the same time the programme provides a market for local farmers.
6	Net saving/(Cost)	124.3.8 Million⁺	<ul style="list-style-type: none"> Savings be invested into key drivers of agricultural growth and other high return programmes

Source: Authors recommendations and calculations from 2017 Budget

Other general recommendations include the need for the Government to re-balance government funding to key drivers of agricultural growth. This reorientation of spending, away from FRA and FISP towards increased investment in public goods including; irrigation development as a means to mitigate drought and improve productivity; crop, soil, and livestock science research and development - to enhance genetic advances and refinements in the adaptation of improved practices and technologies; extension programs, particularly focusing on effective and appropriate input use, and integrated soil fertility management practices to improve soils and raise crop response to inorganic fertilizer delivered; and rural physical infrastructure development, especially feeder roads. In addition, the Government needs to improve the timing of budget releases. Effective monitoring systems need to be designed to increase budgeting transparency and accountability aimed at reducing or eliminating delayed budget releases.

Last but not least, the country needs to enact the Agricultural Marketing Act to guide all private and public agricultural marketing activities in Zambia. 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, the 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. Therefore, the Agricultural Marketing Act will provide guidance on the involvement of Government in the maize market, fertilizer, seed, crops, fish and livestock markets bringing the most needed policy transparency and predictability that will enhance the development of sustainable market for smallholder farmers.

Table of Contents

Executive Summary	i
Acronyms	v
1. Introduction	1
2. Can Zambia Afford to Continue on the Well-Trodden Path of Heavy Input and Output Subsidies?.....	2
2.1 Farmer Input Support Programme.....	3
2.2 Output Subsidies through Food Reserve Agency.....	5
3. FISP and FRA Reforms and Investments into Alternative Effective Social Protection Policies	7
3.1 Reforming the Food Reserve Agency	8
3.1.1 Policy Options/Recommendations to Reform FRA	8
3.2 Reforming the Farmer Input Support Programme	9
3.2.1 Policy Options/Recommendations to Reform FISP	9
3.3 Alternative Cost Effective Social Protection Policies	10
3.2.1 Robust Social Cash Transfers Programme	11
3.3.2 Universal Home Grown School Feeding Programme	11
3.3.3 Women, Infants and Children Programme.....	13
3.4 Opportunities and costs of these proposals.....	13
4. Conclusion	14
ANNEXES	16
References.....	18

Acronyms

CGP	Child Grant Programme
CSO	Central Statistical Office
DHS	Demographic Health Survey
E-voucher	Electronic Voucher
E-FISP	Electronic Farmer Input Support Programme
FAO	Food and Agriculture Organization of the United Nations
FISP	Farmer Input Support Programme
FRA	Food Reserve Agency
HGSF	Home Grown School Feeding
IAPRI	Indaba Agricultural Policy Research Institute
IFAD	International Fund for Agricultural Development
LCMS	Living Conditions Monitoring Survey
MoA	Ministry of Agriculture
PNAE	Programme Nacional de Alimentação Escolar
PRP	Poverty Reduction Programme
RALS	Rural Agricultural Livelihood Survey
SCT	Social Cash Transfer
WIC	Women, Infants and Children
WFP	World Food Programme

1. Introduction

Zambia continues to suffer from a regime of ineffectual subsidies and insufficient social protection. Despite evidence showing how the country's signature farming input and output subsidy programmes i.e. The Farmer Input Support Programme (FISP) and the Food Reserve Agency (FRA), respectively, have failed to spur agricultural diversification and address low agricultural productivity, food security, and stubbornly high rural poverty rates, the country has continued to allocate significant resources to their implementation (see Box 1). Notably, Zambia is currently grappling with the need to make some tough choices as it seeks to deliver on the Zambia-Plus Recovery Plan proposed by the Minister of Finance. Among other options, the Government should consider how to scale back on discretionary spending whilst supporting economic growth and social development. Currently FISP and FRA take up a large chunk of this discretionary spending (about 57 per cent in 2016), as such, the Government needs to carefully consider how these two programmes can be more effectively streamlined.

Box 1: Reality Check

- Rural poverty currently stands at 77 per cent despite billions of Kwacha spent on FISP and FRA (LCMS, 2015)
- Maize production has increased since the implementation of FISP and FRA but mostly at the expense of agricultural diversification. Increases in maize production have mainly been due to area expansion. Maize yields have marginally increased and the level is very low and not commercially or sustainably viable.
- Using the national nutrition indicators (wasting, stunting, and underweight), the CSO's Demographic Health Survey of 2014 reported that 40 per cent of children under 5 are stunted, with 17 per cent being severely stunted. Additionally, children in rural areas are more likely to be stunted (42 percent) than children in urban areas (36 percent)
- The Global Hunger Index Report (2015) ranked Zambia among the three countries with the worst rates of hunger in the World (IFPRI, Welthungerhilfe & Concern Worldwide, 2015).

Not surprisingly, there has been a tug of war regarding how best to resolve the seemingly wasteful spending on agricultural subsidies. One school of thought advocates for the status quo to be maintained, arguing that any responsible government has an obligation to support its farmers to ensure food security and poverty reduction. On the other hand, there are calls for the complete removal of the input and output subsidies arguing that the benefits of the huge billions of Kwacha spent do not match the sector's growth, poverty rates, or productivity growth. Notwithstanding the strong arguments against stopping the subsidy programmes, the political economy of these subsidy programmes usually leads to the status quo position being the most preferred despite the high cost to the nation.

Given the sensitivities around subsidies, IAPRI has been advocating for cost effective alternatives that would not burden the Treasury but help achieve sustainable agricultural growth and poverty reduction. In particular, the

Institute has consistently recommended that the Government move towards private sector led smart subsidy programmes such as; the use of the flexible e-voucher, supporting market oriented solutions such as expanding social cash transfers (SCTs) to the poorest segments of the population, in order to resolve the perceived rising mealie meal prices, as well as managing the strategic reserves through the commodity exchange/warehouse receipts system.

Maintaining the status quo is likely to be politically very costly given that the country can no longer afford the continued financial haemorrhage from the current operations of the FISP and FRA. The Government needs to make bold decisions and implement reforms that will have more far-reaching positive impacts in the agricultural sector. There is usually limited understanding of the opportunity cost of having massive programmes of this nature. At the same time, stakeholders do not understand when (for example) the Government fails to pay farmers on time despite the fact that the FRA often purchases maize at above the budgeted target, or fails to fund the FISP e-voucher program.

Against this backdrop, this paper presents a case for reforming the FISP and FRA by providing alternative approaches that will work better for both individual Zambians who rely on the state for support, and the country as a whole. Throughout the paper, we argue that it is not prudent to maintain the status quo whilst simultaneously articulating alternatives that may enable the Government to scale back the subsidy programme without huge political backlash.

2. Can Zambia Afford to Continue on the Well-Trodden Path of Heavy Input and Output Subsidies?

Given that more than 65 per cent of the Zambian population depends on agriculture, primarily through smallholder production, for their livelihoods and employment (CSO, 2013), growth in the agricultural sector is the clearest avenue through which poverty reduction can be achieved. Nevertheless, the current spending strategy – which consistently prioritises ineffective and costly subsidies - would not achieve this desired growth and poverty reduction. Notably, most of the funds allocated to the sector over the years have been spent on fertilizer subsidies through FISP, and maize price stabilization through the FRA. Together these two programmes have accounted for 30-60 per cent of the total budget between 2003 and 2014 (Figure 1).

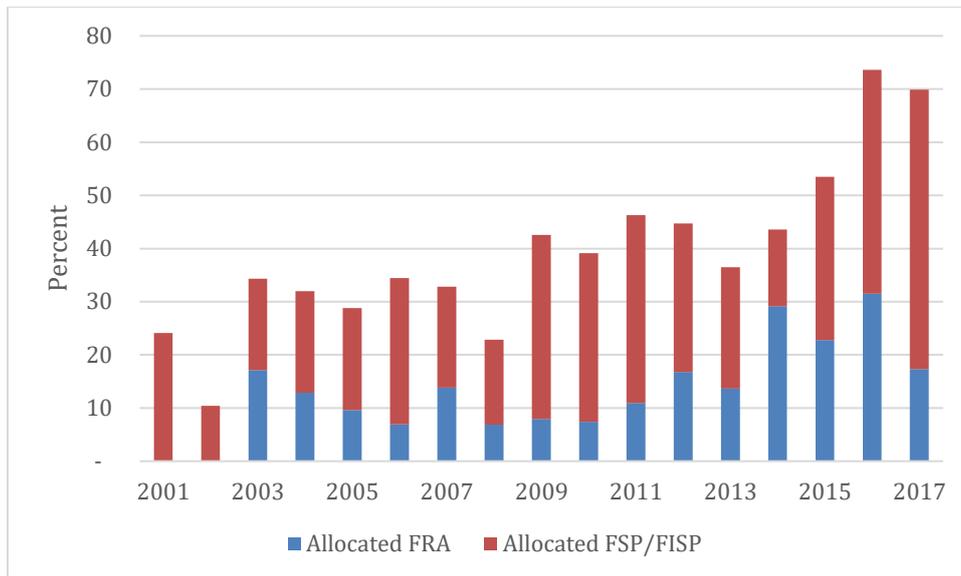


Figure 1. Share of FRA and FISP to total Agriculture Budget Allocations
 Source: MoFNP various years; MAL various years.

2.1 Farmer Input Support Programme

Empirical evidence from IAPRI shows that in contrast to its major objectives (Box 2), FISP has not succeeded in reducing rural poverty as the upfront costs, explicit targeting, and land access requirements to be a FISP beneficiary tend to exclude poorer rural households (see Chisanga and Chapoto, 2015; Mason and Tembo, 2015; Mason *et al.*, 2013). Evidence on the impact of FISP suggests that the programme has had minimal impact on poverty, food security, and smallholder farmers' income due to implementation challenges. This includes late delivery of inputs, with 22 per cent and 35 per cent of farmers reporting late receipt of inputs in 2010 and 2014 respectively (Mason and Tembo, 2015; Mason *et al.*, 2013). Nkonde (2016) reported that, the late receipt of inputs has been associated with a 4.2 per cent reduction in input use efficiency, and production losses of more than 85,000 metric tonnes. In addition, nationally representative farm survey data consistently show that FISP fertilizer and maize seed have been allocated disproportionately to households with relatively large farms and greater asset wealth (Chisanga and Chapoto, 2015).

Under the traditional FISP, the private sector plays a limited role in providing input and output marketing services. Provision of subsidies tends to crowd out commercial fertilizer purchases and in turn affects investments from private sector. Households accustomed to subsidies develop a dependency syndrome as there is little evidence that farmers are graduating after two years of being on the programme.

Box 2: Zambia's Farmer Input Support Program:

Objectives and Reality:

Objectives

- Introduced in 2002 in response to the severe droughts in the 2000/01 and 2001/02 agricultural years, as well as the low loan recovery rates under the (loan-based) Fertilizer Credit Programme.
- Improving household and national food security, incomes, accessibility to agricultural inputs by small-scale farmers through a subsidy and building the capacity of the private sector to participate in the supply of agricultural inputs thereby reducing direct role of Government.
- Implicit goal of poverty reduction given that the programme is classified as a "Poverty Reduction Programme –PRP" and gobbles about 56.3 per cent of PRPs budget or 30 per cent of the agricultural budget.
- Intended beneficiaries targeting criteria:
 - Be a registered small-scale farmer and actively involved in farming within the camp coverage area;
 - Cultivate up to a maximum of 5 ha of land;
 - Have the capacity to pay the prescribed farmer contribution towards the total cost of an input pack.
 - Not concurrently benefitting from the Food Security Pack (FSP) Programme; and
 - Not be a defaulter from any agricultural credit program.

Reality:

- No significant reduction in rural poverty – in fact rural poverty has marginally reduced from 78 to 76 per cent since FISP was established in 2001.
- Despite reaching maize self-sufficiency, yields remain persistently low. Production growth is mainly through areas expansion rather than productivity increases. Maize yields currently, average 2.1MT/h, 138 per cent below the 5MT/ha as per the Malabo Declaration.
- Limited evidence of farmer graduation.
- Poor targeting of support, one size fits all approach hasn't worked.
- Delays in input distribution regularly experienced by farmers.
- Limited agricultural diversification.
- FISP impact on private sector participation. Limited private sector participation under traditional FISP

* *E-voucher implementing manual of 2016/17 has somewhat different targeting criteria in terms of land cultivated. The programme's target was up to a maximum of 2 ha. In addition, the target was extended to livestock farmers i.e. farmers raising 2 to 10 cattle, or 5 to 30 pigs, or 5 to 30 goats, or 20 to 100 chickens.*

In terms of agricultural productivity, the traditional FISP fails to recognize the spatial variability of soil fertility, and climatic conditions in the country. As a result, the traditional FISP uses the blanket fertilizer recommendation of "one-size fits all" as the basis for determining the package size, and in doing so disregards the comparative advantage of different agro-ecological areas. Consequently, we have seen the Government continue investing heavily in Compound D and Urea fertilizer, which is not suitable in large parts of the country where soils are acidic. This has adverse implications on productivity and overall production.

Zambia is now in the process of reforming the FISP to implement the subsidy program through a flexible e-voucher. After years of lobbying for FISP reforms by various stakeholders, the Ministry of Agriculture (MoA) launched the e-voucher program as a pilot in 13 selected districts¹ during the 2015/2016 agricultural season with an initial target of 241,000 smallholder farmers. The pilot was expanded to 39 districts during the 2016/17 farming season. In the 2017 budget speech, the Minister of Finance, Hon. Felix Mutati announced intentions by the Government to roll out the e-voucher to the rest of the country in the 2017/18 season. Unfortunately, the 2017 budget to FISP increased by over 189 per cent as the number of planned beneficiaries surpassed the million mark. Additionally, in the quest to promote agricultural diversification, the MoA budgeting was done by crop. For example, the target beneficiaries for maize alone were set at 1 million farmers. Therefore, reforming FISP will require the Government to cut expenditure on it, and redirect these funds to investments in other key drivers of agricultural growth, such as research and development, extension, feeder roads and irrigation.

The Government needs to acknowledge that FISP alone will not sufficiently energize the agricultural sector, but instead crowds out funding to other key high return investments. The implementation of the traditional FISP alongside E-FISP² has also resulted in people concluding that the flexible e-voucher has been a failure. This has heightened doubts that the e-voucher may not be successful when it is rolled out to the whole country in the 2017/18 agricultural season. IAPRI's E-FISP monitoring activities reveals that, delayed funding due to the current tight fiscal space has led to delays in activating e-voucher cards. This is one of the factors that has led to the pilot programme being labelled a "failure" by advocates of the traditional FISP. However, evidence from the e-voucher system in the first 13 pilot districts shows that delivering the subsidy through the e-voucher helped to crowd-in more private sector participation in inputs distribution to rural farmers (see Kuteya et al., 2016). Participating agro-dealers stocked more diverse inputs in their shops giving farmers an opportunity to purchase inputs of their choice. Thus, a well-managed E-FISP is likely to unlock the potential for agricultural diversification in the country (Kuteya et al., 2016).

2.2 Output Subsidies through Food Reserve Agency

The verdict on the FRA is equally bleak. Decades of government subsidy policies have done little to address the high levels of poverty and inequality within the rural sector given that maize production and sales from smallholder farmers are highly concentrated. Depending on the year, the first 50 per cent of sales from smallholder farmers to

¹ Chibombo, Kabwe, Kapiri Mposhi, Mumbwa and Chisamba in Central Province; Ndola District on the Copperbelt Province; Chongwe district in Lusaka Province; and Chikankata, Choma, Kalomo, Mazabuka, Monze and Pemba Districts in Southern Province

² The difference between the Traditional FISP and E-FISP is the delivery mechanism. The Traditional FISP involves the government physically delivering the inputs (currently limited to fertilizer and seed) sourced from few suppliers through a tender process. Whilst, the E-FISP involves giving targeted farmers an input voucher that can be redeemed electronically through licensed agro-dealers. Delivery of inputs is the responsibility of private sector.

the FRA are made by only 3-5 per cent of farmers, and only around 30 per cent of all smallholder farmers sell any maize to the FRA at all (Chisanga and Chapoto, 2015). In the context of a highly concentrated smallholder maize market, government maize purchases at elevated prices serve to transfer significant treasury resources to a small minority of relatively elite smallholder farmers. Given that most farmers, particularly the poorest farmers, are net buyers of the maize, at the very least, the FRA does nothing to help the majority of the rural poor which is in stark contrast to its mission of “*taking wealth to rural Zambia*” (Box 3).

**Box 3: Zambia’s Food Reserve Agency
Objectives and Reality**

Objectives:

- The Food Reserve Agency (FRA) was created through the Food Reserve Act, Cap 225 of the Laws of Zambia to administer the strategic food reserves, engage in market facilitation, development and management of the national storage facilities.
- The FRA’s mission is to ensure national food security and provide market access for rural based smallholder farmers by maintaining a **sustainable** national strategic food reserve.
- According to FRA, its main objective is to secure national food reserves and take wealth to rural Zambia.

Source: <http://fra.org.zm/about-us/>

Reality:

- Limited market facilitation: FRA in most years has failed to stick to the statutory strategic reserve often buying above the prescribed target, hence, failing to encourage private sector participation.
- Setting FRA prices above the prevailing market prices causes market distortions.
- Interventions aimed at ensuring national food security and taking wealth to rural Zambia have had very little impact on the incomes of the poorest households.
- Increase in the average price levels of maize does not benefit the majority of the rural poor who are not able to produce a surplus.
- FRA buys mostly from larger and relatively better off farmers.
- High pan-territorial and pan-seasonal prices hurt about 30 per cent of rural farmers who are net buyers.
- FRA subsidy to consumers mainly benefit t millers who receive subsidized maize.
- Delayed payments to farmers.
- FRA buying activities curtail agricultural diversification as most farmers tend to follow the market offered by FRA.

Buying beyond the prescribed strategic grain reserves target (currently 500,000 metric tonnes) has resulted in farmers getting paid late, and made it difficult for the private sector to plan and operate efficiently. Further, the offloading of maize by FRA on the market at a reduced or subsidized price continues to hurt farmers who produce early maize; grain traders; and all millers who do not have access to the discounted FRA maize price. These

interventions come at a very huge expense to the Treasury and make it difficult to manage the country's budget deficit. Additionally, the money used to buy grain comes from commercial banks thus imposing an opportunity cost to the growth of other sectors within, and outside agriculture.

There is clearly a crowding out effect in the commercial financial markets created by the Government when they borrow money to finance maize related purchases under the FRA and FISP which could be financed by the private sector. IAPRI estimated that the cost to the National Treasury for holding 500,000 metric tonnes of maize is approximately US\$26.7 million (excluding the procurement costs and FRA related costs) using a conservative storage loss of 10 per cent over a period of 8 months (For details see Annex 1, Table A1). Scaling back the size of the strategic grain reserve and using a combination of physical and non-physical stocks could save the country huge amount of financial resources. Consequently, a portion of these resources could be channelled for use in other socially robust programmes as recommended in this paper.

Similarly, the strategy of selling subsidized maize to millers at subsidized prices with the expectation that consumers will buy mealie meal at lower prices is unattainable. It is more cost effective to empower the poor consumers through SCTs in order for them to be able to afford food in times of high prices. SCTs are less disruptive than targeting a selected group of well-connected millers or traders. Low income urban consumers do not possess enough money to afford formal sector retail prices for commercially packaged maize meal. Instead, they rely on daily purchases of expensive repackaged maize meal (known locally as "Pamela") purchased from vendors in the market (Mwiinga *et al.*, 2003; Mason *et al.*, 2009). Chisanga (2016) shows that maize meal purchased in repacks costs 27 per cent more than the full 25kg bag. Additionally, it was noted that those with little or no income resort to skipping meals or switching to less preferred diets.

3. FISP and FRA Reforms and Investments into Alternative Effective Social Protection Policies

There is irrefutable evidence that FISP and FRA have been costly and ineffective in reducing rural poverty; raising productivity; and encouraging agricultural diversification. It is therefore imperative that the Government considered reforming the two programmes, and begin to invest in alternative strategies. Going forward, a smarter subsidy regime which entails scaling back FISP and FRA allows the release of limited Treasury resources to alternative social protection policies. These alternatives are far more cost effective and can deliver on the key objectives of FRA and FISP more efficiently. Fortunately, the current the Government has the opportunity to fully implement alternatives given its five-year mandate. The recommendations suggested herein take into account the political economy of the current subsidy regime, as well as the Government objectives for implementing FISP and FRA which include market development, increased agricultural productivity and poverty reduction. The

recommendations are structured around two key areas, namely; a) the reform agenda of FISP and FRA, and b) investment into alternative cost effective social protection policies and programmes.

3.1 Reforming the Food Reserve Agency

Discretionary and unpredictable FRA intervention continues to be one of the greatest policy problems plaguing the maize marketing system and food security in Zambia. This is because actual and potential government interventions by the FRA generate uncertainties for the private sector, leading to inaction and a perpetual cycle of recurrent need for government intervention. The Government therefore needs to consider reforms to the Agency in order to achieve food security and poverty reduction at the least cost. We make specific recommendations below.

3.1.1 Policy Options/Recommendations to Reform FRA

- A. In order to create space for other effective social protection programmes, the Government needs to review the size of the country's strategic grain reserve. We propose that the Government reduces the physical stock level of the strategic reserve, as well as its procurement and management. In particular, the physical reserve should be scaled back to 300,000 metric tonnes³ (MT) from the current statutory 500,000MT and save the country approximately US\$ 44.7 million from buying and storing the extra 200,000MT (see Table A1 for computation of the saving). In addition, the strategic reserve stock should be procured and stored on behalf of the Government by the private sector through the commodity exchange and warehouse receipts system. The FRA's role would therefore be to ensure compliance by all those involved in the procurement and storage of the grain. Zambia can draw lessons on how to engage the private sector in the management of the strategic grain reserves from Ghana and Tanzania (see Mulungu and Chilundika, 2016)
- B. Where a well-managed early warning system incorporating both private and public stakeholders exists, the current 500,000MT is considerably more than what the country needs if there's an impending shock. The current Stocks Monitoring Committee is too ad-hoc and poorly equipped to deal with a long-term food security strategy. It is important to note that Zambia 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 can be contracted at short notice to produce maize to fill any anticipated shortfall. Further, consumption patterns today are different from many years ago, with demand for non-maize food products

³ Before 2013, the statutory maize strategic reserve was 300,000 MT based on monthly human and industrial demand of 100,000 MT per month for at least three (3) months before imports could arrive in the country. The irrigation capacity of the country then was limited.

increasing. Finally, improvements in infrastructure over the years imply that it may be cheaper to procure and import grain as compared to physically holding all strategic reserves for at least eight months.

- C. A well-managed strategic grain reserve and price stabilization policy allowing for clear triggers for maize purchases and releases by FRA needs to be formulated. This would allow normal seasonal price fluctuations to take place, which is a key ingredient for encouraging private sector investments into the agricultural sector. The failure to have clearly established price stabilization policy causes panic and knee-jerk policies with few winners and many losers.

3.2 Reforming the Farmer Input Support Programme

The Government is commended for piloting the E-FISP and delivering input subsidies through a flexible e-voucher. Despite the teething problems facing the pilot programme, the upscaling of the E-FISP is most welcome given its potential to help kick start sustainable agricultural diversification, and private-sector led input market development. This would in the long run reduce the Government's discretionary expenditure on agricultural inputs. Nevertheless, as indicated earlier the FISP programme (both the traditional FISP and E-FISP, have become too large gobbling ZMW 2.58 billion or approximately US\$258 million equivalent to 52.6 per cent of the MoA Budget) and are crowding out other cost effective public investments which have high potential to increase productivity and sustainably reduce rural poverty in Zambia.

3.2.1 Policy Options/Recommendations to Reform FISP

- A. As a first step, the Government needs to acknowledge that FISP has achieved sub-optimal impacts on raising agricultural productivity, agricultural diversification, and reducing rural poverty. This would then allow for the programme to be scaled back over time to prioritise other cost effective social protection alternatives to be implemented. Therefore, going forward, there is need to boldly cut the overall spending on FISP and cap it to no more than US\$105 million or not more than 20per cent of the agriculture budget and reach 500,000 smallholder farmers. Based on the 2017 budget, this will save the country up to US\$178 million. A scaled back FISP delivered via the e-voucher system will improve targeting, diversification, and crowd in private sector participation.
- B. The E-FISP should prioritize some investment in soil testing that allows for identifying appropriate fertilizers for each agro-ecological region, and ensure extension officers are adequately trained and provided with enough and timely resources to enable them to disseminate this information effectively.
- C. The identified shortcomings of implementing the e-voucher during the pilot phase need to be addressed if the programme is to be successfully rolled out to the whole country (see Annex 2). Specifically, the Government will need to:
 - a. Commit to the e-voucher now, so all the actors in the system, from banks to local agriculture dealers have time to properly prepare;

- b. Begin re-educating farmers now to ensure they understand the voucher and limit abuse of the system; and,
 - c. Ensure the activation process works effectively and that funds are in place to enable farmers to use the cards in-time for the 2017 season. In particular, there is need to eliminate all human elements from all processes that can be automated.
- D. We can see from examples of where the implementation has worked well, for example in Southern province that the e-voucher is beginning to change behaviour and has been well received by farmers. Specifically, where the conditions above have been met, the e-voucher has:
- a. Crowded in more private sector participation in agro-input distribution, thereby reducing public expenditure on the delivery of private goods such as fertilizer and seed;
 - b. Ensured timely delivery and access to inputs by smallholder farmers;
 - c. Allowed farmers to buy inputs of their choice and started to develop agricultural diversification; and,
 - d. Reduced leakages through better targeting.

3.3 Alternative Cost Effective Social Protection Policies

Scaling-back FISP and FRA is the right thing to do, but in isolation reducing expenditure on ineffective agriculture subsidies will not deliver the objectives stated in Boxes 2 and 3. Fiscal space created by reductions in expenditure on these programmes should be used to invest in higher return social protection alternatives that can deliver many of the objectives that FISP and FRA were purported to be delivering.

IAPRI propose three alternative programmes that the Government could invest in to deliver on the key objectives of reducing rural poverty, supporting farmers and creating a sustainable and diverse market for farmers' agricultural products. So, in contrast the Government's current approach, there is a case to reinvest the saved resources. To alleviate poverty the Government could spend more on Social Cash Transfers (SCT), to reduce malnourishment and promote child development the Government could pursue an expanded Home Grown School Feeding Programme (HGSF) as well as provide nutrition support via a Women, Infants and Children Programme (WIC). In the latter two examples, direct support in the form of food would be provided to the households who need it most, whilst indirectly supporting farmers by providing a reliable local market for a diverse range of agricultural products including grains and livestock products.

When delivered alongside reforms of the FISP and FRA this dual support approach will mean continued, better targeted support for farmers alongside improved support for the poorest households in Zambia.

So, what should these new programmes look like, and why do we think they will be a success?

3.2.1 Robust Social Cash Transfers Programme

The SCT received a huge boost in the 2017 budget, increasing by 82.8 per cent from ZMW302 million to ZMW552 million (US\$30.2 million to US\$55.2 million). However, even at this level, SCT is still just a very small fraction of what is allocated to FISP, about 19.3 per cent in the 2017 budget. Further scaling-up SCT is desirable given that an additional US\$43.5 million for example, would mean that an extra 500,000 beneficiaries would be reached at the current levels of the monthly grant⁴.

Unlike FISP which targets food production among farmers, SCT tackles food-entitlement failures indirectly, by providing cash to both farmers and non-farmers. Hence, unconditional SCT can be used as an effective alternative to FISP because the programme stimulates demand for local goods and services, as most of the cash is spent on locally purchased goods. Further, SCT stimulates enterprises in rural areas enabling the poor to protect themselves and their assets against shocks, act as a support for development of human capital, in addition to enabling them to defend their long-term income-generating potential (Samson 2009). In so doing SCT improves agricultural productivity – due to increased spending on agricultural inputs – in contexts where the primary constraint was working capital rather than land.

Furthermore, the unconditional SCT has been found to have a positive effect on improving consumption and reducing poverty among participating households (Van Ufford *et al.*, 2016). In addition, SCT has been shown to improve the nutritional status, health, and number of school going children. Another recent evaluation of Child Grant Programme (CGP) by Handa *et al.*, (2016) showed that the increase in consumption observed among households receiving the SCT was close to the per capita value of the transfer, as is the expectation among very poor households. Consumption patterns among recipients also showed increased dietary diversity from starchy foods to protein containing foods (Chisanga and Zulu-Mbata, 2016). Additionally, due to SCT funds being spent locally in the communities where they were disbursed in, economic activities in the local area were strengthened. SCTs are also linked to improved climate resilience among beneficiaries (Asfaw *et al.* 2016).

3.3.2 Universal Home Grown School Feeding Programme

The school feeding programme implemented by the Government of Zambia in collaboration with the World Food Programme (WFP) is acknowledged as an effective initiative that can simultaneously address the marketing challenge that farmers face, address the high malnutrition rate in school-age going children, and encourage school

⁴ Beneficiary households are entitled to 70ZMW per month which they receive on a bi-monthly basis as a sum of 140 ZMW. Beneficiary households with persons living with disabilities receive double the amount i.e. 280 ZMW.

enrolment and attendance. Therefore, if the FRA is scaled down, funds saved could be channelled to a universal HGSP⁵. The programme is multi-sectoral incorporating agriculture, education, health and nutrition, local government and finance. Notably, the African Union (AU) has recommended the HGSP as a tool for food security and poverty reduction (Kalaluka, 2016).

Currently, the HGSP Programme covers 38 Districts in 9 Provinces of Zambia. A total of 1,052,759 beneficiaries are targeted with grains (maize), pulses (beans and cowpeas) and cooking oils for a total of 182 days. The total cost of procuring the commodities in 2017 is estimated at K87.2 Million (US\$8.72 Million), translating into about ZMW95 (US\$9.5) per child per year (WFP, 2015; ILO, 2016). There is a total of 3.4 million school going children in rural areas in Zambia, so doubling the number of children supported by the programme – would mean that 61 per cent of the rural school going children would benefit – which would cost an additional US\$8.72 million each year excluding management costs. The bulk of this money would go directly to farmers who were providing the food to the schools – promoting local markets and diversification at local level.

The benefits of the current HGSP include the enhancement of smallholder farmer's productive capacity by linking them to a predictable market – in this case the school. By purchasing food requirements locally, the program promotes participation of local smallholder farmers in value chains through market mechanisms. Farmers are reached through cooperatives, and capacitated with skills in crop aggregation to guarantee quality assurance. Through this approach, schools provide local farmers with a predictable outlet for their products, leading to a stable income, more investments and higher productivity. Due to the diversity of food requirements, the school feeding programme encourages food diversification as markets are provided for with diverse foods other than just maize.

Zambia can learn from one of the most celebrated school feeding programme in Brazil.⁶ School feeding in Brazil is a universal right of students enrolled in public basic education and a duty of the State, granted by the Constitution (Sidaner *et al.*, 2013). The Brazilian programme is exemplary in its scope, reaching more than forty-five million students, with an allocated budget of some US\$1.9 billion for 2012, which is equivalent to US\$ 44 per student per annum.

⁵ The Home Grown School Feeding Programme, is a social safety net which use food as a value transfer to schoolchildren recognizing that school health and nutrition are fundamentals for child development and significant input into a child's learning

⁶ Established in the 1950s, the PNAE is one of the most important strategies of Brazil's food and nutrition security policy. Its large coverage and innovative design act to strengthen family farming, while promoting access to adequate and healthy diets in all public schools. For more details on the evolution of the PNAE in Brazil, see Otsuki and Arce (2007).

3.3.3 *Women, Infants and Children Programme*

Savings from the FISP and FRA could also be spent on a social protection programme that deals with health, malnutrition and agricultural marketing problems. Despite increased interventions on nutrition under-nutrition still remains a widespread problem. Zambia suffers from some of the highest levels of under-nutrition in the world. The most affected are women in the reproductive age group, and children below the age of five years. Hundreds of thousands of children and women suffer from one or more forms of malnutrition, including low birth weight, wasting, stunting, underweight, and multiple micronutrient deficiencies such as; vitamin A, iron, zinc, and iodine deficiencies. Under-nutrition is responsible for 52 per cent of all deaths occurring in children below the age of five in Zambia (UNICEF, 2009; DFID, 2011).

Introducing a programme that deals with malnutrition among pregnant women, infants and children programme would create a market for a variety of agricultural commodities and products, as well as provide nutrition education and supplemental nutritious foods to help keep poor pregnant women, new mothers, infants and children under 5, healthy and strong. The target families could receive a variety of healthier choices in their food items, including; fresh milk, eggs, fruits and vegetables, whole grains, and infant foods. All these products can be supplied by local farmers.

The WIC programme has been implemented in the United States of America since 1972 and over the years the program has greatly expanded. The existing body of research shows various impacts of the program on child health and household food security. For example, studies have shown that the programme improves birth weights and increases women's prenatal care (Bitler and Currie, 2004; Hoynes, Page, and Stevens, 2011; Kreider, Pepper, and Roy, 2014). Hanson and Oliveria (2009), estimated that the farm sector received almost US\$1.3 billion from the sale of commodities that are used in producing the US\$4.6 billion in WIC retail food sales.

Notably, introducing this programme in Zambia would not be to the scale of that in the USA, but would offer significantly cheaper support than current agriculture subsidies. Providing this programme to an estimated 250,000 women and 300,000 children would cost US\$46.2million if the support is at the same level as the current SCT, ZMW70 (or US\$7) per recipient per month. The bulk of this money would flow directly to farmers who were producing food for the programme, providing more indirect support to the industry whilst delivering improved nutrition outcomes for Zambian women, infants and for malnourished impoverished Zambian children.

3.4 **Opportunities and costs of these proposals**

There is clearly a strong economic and social case for reform that is set out in the previous sections. Re-focussing support away from ineffective agricultural subsidies toward cost effective social protection policies will deliver better social outcomes in Zambia. However, in proposing these alternatives, we must also determine if these proposals

are affordable. With the Government committed to economic recovery through the Zambia Plus plan, and a potential support package from the IMF, Zambia is likely to face a period of fiscal constraint. Proposals for reforms need to be affordable in addition to delivering improved outcomes for Zambian citizens.

Table 1 sets out the financial opportunities created by reforming the agricultural subsidies and provides some indicative costs for new social protection programmes. This clearly shows that the approach advocated for in this paper is affordable, will help constrain spending, in addition to delivering improved support to those Zambians who need it most.

Table 1. – Summary of opportunities and costs of proposals

S/N	Proposal	Saving/(Cost) (US\$)	Objectives of Programme
1	FRA reform: Scale back strategic reserve stock level to 300,000MT from the current 500,000MT	44.7 million	<ul style="list-style-type: none"> Reformed FRA to focus on food security, ensuring less market distortion. Further savings can be made if Government procures the reserves via the commodity exchange with maize stored in certified warehouses.
2	Cap total FISP expenditure at no more than US\$100 million and target at least 500,000 smallholder farmers through a flexible e-voucher.	178 million	<ul style="list-style-type: none"> Reformed E-FISP provides more cost effective and efficient support to farmers, taking account on local conditions and enabling choice and diversification. Promotes competitive private sector input provision.
3	Scale-up SCT beneficiaries by an additional 500,000 beneficiaries	(43.5 million)	<ul style="list-style-type: none"> SCTs focused on poorest and most vulnerable households and target poverty reduction. SCTs have a positive multiplier effect on the economy as cash creates an effective demand for food and non-food products helping local economies to grow.
4	Support 1 million more children via the Home Grown School Feeding (HGSF) Programme.	(8.7 million)	<ul style="list-style-type: none"> HGSF will not only ensure that children have access to regular meals, but also create local markets for a diverse range of farming products
5	Provide nutritious food vouchers to 500,000 women and children	(46.2 million)	<ul style="list-style-type: none"> WIC provides nutritional support to mothers and infants, reducing malnutrition and supporting child development. At the same time the programme provides a market for local farmers.
6	Net saving/(Cost)	124.3.8 Million+	<ul style="list-style-type: none"> Savings be invested into key drivers of agricultural growth and other high return programmes

Source: Author's recommendations and calculations from 2017 Budget

4. Conclusion

In a liberalized market economy, the private sector is expected to effectively serve the needs of the millions of rural farmers and urban consumers, whilst the Government is expected to provide a conducive environment and regulatory framework to benefit all stakeholders. Unfortunately, with a history of government intervention, the

private sector in Zambia has often been blamed for failing to be responsive to the smallholder farmers' needs. The perceived failure of the market has led the Government of Zambia into spending colossal amounts of money on FISP and FRA. However, this paper has presented a case for reforms and consideration of re-investment of public resources into more cost-effective, and multi-faceted social protection programmes which crowd-in the private sector.

Other general recommendations include the need for the Government to rebalance government funding to key drivers of agricultural growth. This reorientation of spending, away from FRA and FISP towards increased investment in public goods including; irrigation development as a means to mitigate drought and improve productivity; crop, soil, and livestock science research and development - to enhance genetic advances and refinements in the adaptation of improved practices and technologies; extension programs, particularly focusing on effective and appropriate input use, and integrated soil fertility management practices to improve soils and raise crop response to inorganic fertilizer delivered; and rural physical infrastructure development especially feeder roads. In addition, the Government needs to improve the timing of budget releases. Effective monitoring systems need to be designed to increase budgeting transparency and accountability aimed at reducing or eliminating delayed budget releases.

Last but not least, the country needs to enact the Agricultural Marketing Act to guide all private and public agricultural marketing activities in Zambia. 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, the 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. Therefore, the Agricultural Marketing Act will provide guidance on the involvement of the 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.

ANNEXES

Annex 1:

Table A1: The cost to the National Treasury for holding 500,000 metric tonnes by FRA

Description	Unit	Quantity	Price/Cost per unit ZMW	Total ZMW	Total US\$
1. Cost of new crop purchased July - October 2016					
Value based on purchase price	MT	500,000	1,700	850,000,000	85,000,000
Logistics costs	MT	500,000	200	100,000,000	10,000,000
Estimated 8 months carry costs (Oct '16 to May '17) *	MT	500,000	90	45,000,000	4,500,000
Rebagging costs	MT	500,000	100	37,500,000	3,750,000
Estimated total costs of new crop purchased July-October 2016				1,032,500,000	103,250,000
Translated Cost/MT as at end May 2017				2,065	207
2. Value of 2016 Crop at May 2017 Export Parity Prices*					
Export Value by May 2017 based on Export Parity Price to Harare	MT	0	2,600	0	0
FRA maize sold at cost local market price		500,000	1,700	850,000,000	85,000,000
Less 10% storage losses				85,000,000	8,500,000
Net value of 2016 crop				765,000,000	76,500,000
3. Summary of Costs to Treasury					
Estimated total costs of new crop purchased July-October 2016				1,032,500,000	103,250,000
Gross Cost				1,032,500,000	103,250,000
Net value of 2016 crop				765,000,000	76,500,000
Gross Export Revenue				765,000,000	76,500,000
LOSS				267,500,000	26,750,000

Note: The following assumption are used in computing the above costs to the Treasury: a) Exchange rate 1US\$/10ZMW; b) 2016 FRA Purchasing Price/50kg bag at 85 ZMW; c) Logistics cost/50kg bag (transportation, loading and offloading) at 10ZMW; d) finance cost per month at 40ZMW/metric tonne; e) storage losses estimated at 10per cent.

Annex 2:

2015/16 E-Voucher Pilot Implementation Challenges

- ✚ Delayed submission of beneficiaries lists to the MoA Programme Coordinating Office resulting in delayed delivery and activation of e-cards;
- ✚ Rising fertilizer prices due to the depreciation of the Kwacha that nearly made the e-voucher less attractive to the traditional FISP. Government had to top-up the value of the voucher from 1,400 to 2,100 Kwacha, inclusive of farmer contribution of 400 Kwacha;
- ✚ There were cases in Central province of deliberate effort by some MoA staff to derail the implementation of e-voucher pilot in support of the traditional FISP. MoA's quick action to discipline renegade staff solved the problem;
- ✚ Reported selective activation of e-cards, a problem that led to delayed access of inputs by some farmers;
- ✚ Reported incidences of farmers surrendering their non-activated cards to agro-dealers to access inputs in advance. This could have led to some farmers being disadvantaged as some agro-dealers might have redeemed the cards in the absence of the farmers;
- ✚ The charging of a redemption fee of 7 Kwacha affected some farmers as they could not use the full value of the e-card; and
- ✚ E-voucher redemption system did not have the capability to identify the type of inputs redeemed by farmers limiting the usefulness of data captured. The inability to identify the inputs redeemed makes it impossible to map the demand for various inputs, information that will be useful for input suppliers and monitoring the extent to which the programme is helping unlock agriculture diversification.

References

- Bitler, M. P., & Currie, J. (2004). Does WIC Work? The Effects of WIC on Pregnancy and Birth Outcomes, (310).
- Chisanga, B. (2016). Options for Zambia's Maize and Mealie Meal Industry During El Nino Years. Presented at a Public Discussion, Lusaka, Zambia.
- Chisanga, B. and Chapoto, A. (2015). Under-appreciated Facts about Zambia's Agriculture. In Zambia Agriculture: Past, Present and Future (eds Chapoto A and Sitko J. S). Indaba Agricultural Policy Research Institute. Lusaka, Zambia: IAPRI.
- Central Statistical Office (CSO). (2013). 2012 ZAMBIA LABOUR FORCE SURVEY REPORT. Lusaka, Zambia: CSO.
- CSO/MAL/IAPRI. (2015). 2015 Rural Agricultural Livelihood Survey (RALS). Central Statistical Office, Ministry of Agriculture and Livestock and Indaba Agricultural Policy Research Institute. Lusaka, Zambia: CSO, MAL, IAPRI.
- CSO/MAL/IAPRI. (2012). 2012 Rural Agricultural Livelihood Survey (RALS). Central Statistical Office, Ministry of Agriculture and Livestock and Indaba Agricultural Policy Research Institute. Lusaka, Zambia: CSO, MAL, IAPRI.
- FAO, IFAD, WFP. (2014). The State of Food Insecurity in the World: Strengthening the Enabling Environment for Food Security and Nutrition. FAO. Rome.
- Handa, S., Seidenfeld, D., Davis, B., and Tembo, G. (2015). The Social and Productive Impacts of Zambia's Child Grant. *Journal of Policy Analysis and Management*..
- Hanson and Oliveria, V. (2009). Economic Linkages between the WIC Program and the farm Sector. Economic brief number 12. United States Department of Agriculture, Economic Research Service. Washington, USA: USDA.
- Hoynes, H., Page, M., & Stevens, A. H. (2011). Can targeted transfers improve birth outcomes?. Evidence from the introduction of the WIC program. *Journal of Public Economics*, 95(7–8), 813–827. <http://doi.org/10.1016/j.jpubeco.2010.12.006>
- ILO.(2016). Integrated Framework (Basic) Social Protection Programmes.
- Kalaluka, E. (2016). Home Grown School Feeding (HGSF): An opportunity for community growth and prosperity
- Kreider, B., Pepper, J., & Roy, M. (2014). Does the Women, Infants, and Children Program (WIC) Improve Infant Health Outcomes?
- Kuteya, A., Lukama, C., Chapoto, A., & Malata, V. (2016). Lessons Learnt from the Implementation of the E-voucher Pilot. Indaba Agricultural Policy Research Institute No. 81. Lusaka, Zambia. IAPRI.
- Mason, N, Jayne, T.S., Chapoto, A., and Weber, M.T. (2009). Staple Food Consumption Patterns in Urban Zambia: Results from the 2007/2008 Urban Consumption Survey. Food Security Research Project Policy Brief No. 36. Lusaka, Zambia: FSRP
- Mason, N., T.S. Jayne, and R. Mofya-Mukuka. (2013). A Review of Zambia's Agricultural Input

- Subsidy Programs: Targeting, Impacts, and the Way Forward. IAPRI Working Paper no. 77. <http://fsg.afre.msu.edu/zambia/wp77.pdf>.
- Mason, N. and Tembo, Solomon.T. (2015). Do Input Subsidy Programs Raise Incomes and Reduce Poverty among Smallholder Farm Households? Evidence from Zambia. Working Paper 92. IAPRI. Lusaka, Zambia.
- Ministry of Agriculture and Livestock (MAL). Various Years. Ministry of Agriculture and Livestock Budget Allocations and Expenditure. Lusaka, Zambia. MAL.
- Ministry of Finance and National Planning (MoFNP). Various years. Government of the Republic of Zambia's yellow book. Lusaka. Zambia. MoFNP.
- Mulungu, K and Chilundika, N. (2016). Zambia Food Reserve Agency Pricing Mechanisms and the Impact on Maize Markets. Consumer Unity and Trust Society, Jaipur, India: CUTS. Available at http://www.cuts-ccier.org/CREW/pdf/Zambia_Food_Reserve_Agency_Pricing_Mechanisms_and_the_Impact_on_Maize_Markets.pdf
- Mwiinga, B., Nijhoff, J.J., Tschirley, D., Weber, M.T., Jayne, T.S., Arlindo, P., Tembo, G and Shaffer, J. (2003). Enabling Small-Scale Maize Marketing and Processing to Assure Supplies of Low-Cost Staples. MSU Policy Synthesis No. 66. East Lansing: Michigan State University.
- Nkonde, C. (2016). Suitability of Design and Implementation of FISP and FRA: What is FRA and what is the Food Security Pack?. Presented at the FAO and SPW Seminar in Lusaka, Zambia
- Otsuki, K and Arce,A.. (2007). Brazil: A desk review of the National School Feeding Programme. Rural Development Sociology Group, Wageningen, University.The Netherlands.
- Samson, M., 2009. Social cash transfers and pro-poor growth. Promoting pro-poor growth: Social protection, pp.43-59.
- Sidaner, E., Balaban, D., and Burlandy, L. (2012). The Brazilian school feeding programme: an example of an integrated programme in support of food and nutrition security. *Public Health Nutrition*, 16(06),.989-994.
- Sidaner, E., Balaban, D. and Burlandy, L., (2013). The Brazilian school feeding programme: an example of an integrated programme in support of food and nutrition security. *Public Health Nutrition*, 16(06),.989-994.
- Van Ufford, P.Q., Harland, C., Michelo, S., Tembo, G., Toole, L., and Wood, D. (2016). The role of Impact Evaluation in the Evolution of Zambia's Cash Transfer Programme. In B. Davis, S. Handa, N. Hypher, N.W. Rossi, P. Winters, & J. Yablonski (Eds). *From Evidence to Action: The Story of Cash Transfers and Impact Evaluation in Sub-Saharan Africa*. Oxford University Press. Oxford. United Kingdom.
- WFP.(2015). Saving Money by Linking Katete's Schools to FRA Storage Depots. WFP: Lusaka, Zambia.