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HOW WILL THE PROPOSED CROP MARKETING AUTHORITY AFFECT FOOD MARKET PERFORMANCE IN ZAMBIA? An ex Ante Assessment to Inform Government Deliberation

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BACKGROUND: Concerns about the poor performance of the smallholder agricultural sector of the economy has led to a proposal to create a parastatal organization to be known as the Crop Marketing Authority (CMA).

The major crop marketing problems faced by Zambia's small-scale farmers are perceived by many to be low prices and low production of staples, leading to problems of low real incomes of smallholder households and food shortages perceived to result from inadequacies of the markets for staple crops and agricultural inputs. The CMA is envisioned to help smallholders overcome perceived problems of (1) high costs of marketing, (2) poor access to markets, (3) market concentration leading to exploitative practices by traders, and (4) low prices that result from points 1-3.

OBJECTIVES: This policy synthesis highlights some of the key messages contained in the full report with the same title.¹ It aims to summarize the rationale and objectives of the CMA and the possible consequences of adopting the proposed legislation. We also identify alternative or additional measures that the government could take to overcome constraints in crop marketing.

Although the CMA Concept Note refers to food crops in general, and highlights the importance of not focusing entirely on maize, we realize that maize will inevitably be the biggest tradeable food commodity that the CMA will handle. For that reason, the analysis focuses on maize marketing.

The proposed role and activities of CMA: The CMA Concept Note states that the CMA will provide crop marketing support in areas with commercial potential, in partnership with the private sector, and by administering reserve stocks, without imposing major costs on the treasury. Crop marketing activities would focus on providing crop marketing opportunities in areas with "commercial potential," where the private sector is not sufficiently active. The CMA Concept Note also specifies that in selecting commodities and purchase areas, ". . . the economic viability of production and marketing of specific crops will be considered, under competitive and commercial terms. Areas in which it is unprofitable for farmers to grow maize will not be selected, but in such areas alternative crops can be identified and considered, thus promoting crop diversification."² The stated anticipated benefits of the CMA are: (1) to provide smallholders with a market for their food commodities; (2) nurture the development of private sector capacity and (3) increased marketed output of food commodities for the supply of major consumption centers to meet expanding food requirements.

CMA is also intended to maintain strategic reserve stocks sufficient to ensure market supplies in Zambia for three months. Given that the private sector also holds stocks implies that CMA would only need to store the balance between what the private sector is likely to stock and the estimated market requirements. The intended benefits would include improved national-level food security and reduced inter-seasonal supply and price instability. Although the CMA Task Force has proposed not to include input and credit delivery as part of CMA's mandate, there

¹ Nijhoff et al. 2003. *How Will The Proposed Crop Marketing Authority Affect Food Market Performance in Zambia? An Ex Ante Assessment to Inform Government Deliberation*. FSRP Working Paper No. 7. Lusaka.

² For details, see Concept Note on the Crop Marketing Authority submitted to MACO by the CMA Design Task Force on 11 March 2003.

are others who have insisted that it be included. This may include distribution of credit in the form of fertilizer, similar to the role played by the Food Reserve Agency since 1997.

The potential geographical areas for increased marketed maize output by smallholders are spread among 36 districts. One objective of some who promote the CMA proposal is to improve the level of grain production among smallholders. Analysis of Post Harvest Survey data (1999/00 production year) on district-level maize production and marketing patterns of small- and medium-scale farmers provides some indication of where increased market potential might arise.³

For analytical purposes, we categorize Zambia's districts into the following four categories:

1. Producers in net-purchasing districts, i.e., districts where more maize is purchased than sold, implying an importation of maize into the district. These districts already receive relatively high market prices since the sellers are competing with grain imported from outside the district. In these districts where import parity prices prevail, a commercially-oriented CMA could not expect to increase prices to surplus producers. Its impact on maize production would therefore be very limited.
2. Districts where maize is not the primary staple crop in either production or consumption and where little is bought or sold are assumed to be in areas not well suited to grain production (otherwise they would produce more for their own use) or in areas where maize is culturally a less important crop.
3. Districts that were self sufficient and consumed relatively high quantities of maize per capita were assumed to have a proven capacity to produce grain and would become net exporters of grain with better market prices.
4. Districts that are already net exporters are assumed to have clear capacity to produce grain and to be already connected to the market and could be expected to expand marketing activity even further with higher prices.

Categories three and four would provide expanded production and marketing potential. There were 36 such districts in Zambia in 1999/00, a relatively good production year (see Table 1).

³ The PHS is an nationally representative annual survey of roughly 7,500 small- and medium-scale farm households in Zambia, conducted by the Central Statistical Office, Lusaka.

Of the 36 districts with a potential for increased maize production, 22 districts may be potentially able to supply maize at a profit to other districts. These 22 districts are mostly located in Central, Copperbelt, Lusaka, Eastern and Southern provinces. A major function of the CMA is to provide marketing services as a supplement to the private market to assure market access to smallholders. How big an opportunity is there for a CMA to profitably extend marketing services? We do not know for certain. In order to obtain an estimate, district-level (median) maize prices received by smallholder farmers in each district were compared with median prices in every other district. Using transport and handling rates and estimated CMA operating costs, a calculation was made to determine all of the district pairs for which the difference in prices was greater than the transfer costs between these districts, making it potentially profitable to have moved grain from low- to high-price districts.

According to this analysis, of the 36 districts with a potential for increased volumes of maize production (from categories 3 and 4 as described in the previous section), 22 districts appear to be potentially able to supply maize to other districts at a profit (see Table 1). The existing positive price differentials suggest that some trading opportunities may have at least temporarily existed but were left unexploited. These 22 districts are mostly located in Central, Copperbelt, Lusaka, Eastern and Southern provinces, which is largely where the private sector has been known to concentrate its operations. However, this does not mean that all areas within those 22 districts are well served by markets.

For the remaining fourteen districts with physical productive potential to supply maize to the market, the transfer costs exceed the expected marketing margins. Under these conditions, these districts cannot foster a maize business for the CMA without running financial losses. Complementary investments in the infrastructure (such as roads and communications) and farmer service organizations may be required to make these districts profitable suppliers of maize. Alternative strategies other than direct government participation in buying and selling crops may offer more cost-effective options. The same is true for the 52 districts we judge as being unlikely to expand production because of unsuitable soil or rainfall conditions and/or because it is not possible to raise producer prices above import parity levels already prevailing in deficit production areas without incurring financial trading losses. The costs and benefits of offering subsidized producer prices is examined later in the paper.

The marketed surplus in rural areas is small and concentrated. In 16 of the 22 districts with some potential to expand production, less than 5,000 MT of maize is typically marketed in a given year. How will this affect CMA buying operations? The total rural smallholders' maize surplus in 1999/00 was 145,000 MT, or only 17% of total smallholder maize production. The majority (91%) of that surplus originated from Central, Eastern, Southern and Copperbelt provinces, mainly servicing the Copperbelt and Lusaka markets. Marketed sales were highly concentrated, with 10% of these households selling 90% of the maize marketed by the small- and medium-scale sector.

Because farmers sell maize over a number of months at different places within districts to a multitude of buyers (including neighboring households), the quantities handled by any one marketing agent would be very small. This has important economic significance since the costs of handling and transporting are much higher for small quantities. With small individual transactions and small total sales, relatively few buyers can profitably participate in a given area. Of very practical importance for implementing a program of district purchasing by CMA is the question of how many of the districts have sufficient quantities to support a major purchasing agent in the district? The available data shows that during the 1999/00 production season, a good production year, smallholders in only eight out of the 22 districts with maize trade potential made enough combined maize sales to fill at least one CIDA shed (5,000 MT). These eight districts are Chibombo, Mkushi, Mumbwa, Petauke, Choma, Kalomo, Monze and Mazabuka. All other districts had much more limited potential with combined sales of less than 5,000 MT. In an average or adverse production year, the quantities to be marketed would be even lower. The introduction of a CMA buying station intent on competing for enough grain purchases to break even, if successful, would appear to leave little room for large regional private market competitors in most districts.

Is commodity price support an option for CMA to promote production and income improvements for smallholder farmers? Any program intervention resulting in higher maize prices to sellers of maize would directly benefit only a small proportion of farmers. Only 27% of the small- and medium-scale farm holdings sold any maize in the 1999/00 season. These maize sellers are the better off farmers. Attempts to support prices can have an unsettling impact on commodity markets, possibly increasing marketing costs by creating additional uncertainty among private traders, and artificially narrowing the

trading margin between buying and selling prices. Simply announcing a support price based upon an assumption of future funding by the government would change the plans of traders. If the funds to support the announced price level could not be secured, those traders acquiring grain, based upon the announcement, would be left holding the bag. Traders in turn would be less inclined to participate in the market, which would reduce competition, or would require a higher margin to deal with the increased uncertainty. Therefore, the operation of a grain price support program would be inconsistent with the objective of promoting and facilitating an efficient competitive private market.

Grain marketing policies need to recognize the sources of marketed maize and take into account the structure of the rural and urban maize market. Urban smallholders and commercial farmers are more important sources of maize supply to urban areas than rural smallholders. The focus in the CMA proposal and the discussions about the policy seem to focus exclusively on the smallholder farm sector, paying little attention to the importance of production of staple crops by commercial farmers and urban growers in meeting urban demand. The production decisions of commercial farmers especially will influence and be influenced by any CMA actions affecting market supplies and prices. Because commercial farmers generally have greater capacity to respond to changes in incentives, they can be very important in any policy intended to deal with prices or production and supply instability. A good example is the 2002/03 maize harvest, where commercial farmers responded to market demand and produced 411,000 MT of maize, which is a significant portion of urban demand. In addition, some 50,000 MT of maize is estimated to be produced by urban smallholders.

The problem of inter-seasonal variations in production and food security, and the scope of inter-seasonal reserve stocks. The objective of the national food security reserve is to ensure cereal supplies in the country for a total of at least three months, which is the period that provides enough lead time to organize local or imported supplies in case of food emergencies. A specific function of the reserve is also to "sell and buy stocks of selected crops as and when the market requires," suggesting that the reserve is used as a market stabilization mechanism.

Food emergencies are part of the production instability problem, which is in turn caused not only by the weather, but also by market policies and input subsidies. If maize production is to become more stable, it should only be promoted in economically

and agriculturally suitable areas. Crop production in general could be increased and much of the instability in production could be reduced by modifying cropping patterns and practices. Increased production of sorghum, millets, sweet potatoes and cassava, and the rapid and widespread adoption of conservation farming technology are ongoing trends that require further encouragement. Subsidized fertilizer, which is essentially free to those not repaying fertilizer loans, adds to risk and instability. Farmers should not be encouraged to grow maize with free fertilizer in drought prone areas. Another factor contributing to production instability is price risk. During a deficit season, prices increase and encourage more production. When the increased production the next year results in a surplus, there is a risk that prices will be depressed. In order to mitigate the risk of depressed market prices, which can be a subsequent disincentive to plant maize again the next season, farmers require export opportunities for their maize in surplus seasons and require an assurance that any import subsidies or other interventions will not disadvantage them. This will only work if free imports and exports are consistently allowed.

How have the government, donors and the private sector coped so far, without the food reserve facility that is proposed? Recent food emergencies have been dealt with by a combination of efforts by the government, private sector, and donors, without using large physical reserve stocks. Despite the name, food emergencies do not occur overnight. They are identified in advance, during the growing season, always with several months' notice. Therefore, CMA's recommended capacity to ensure food supply for three months while imports are arranged, may be unnecessarily large. Donors and the government typically intervene to cater for the needs of vulnerable groups, mainly in rural areas. As indicated above, improved policies could actually reduce the number of households at risk. The needs of the market have been met through commercial imports by the private sector, sometimes in conjunction with the government. Again, improved policies and procedures could enhance an already existing commercial capability and market coverage of the private sector. Hence, it seems that Zambia has the potential to become food self-reliant without the need to become food self-sufficient. A policy of food self-reliance would focus on the ability to meet any food shortfalls on both the domestic and international markets, while having the economic capacity to do so by producing the mix of commodities that maximizes agricultural growth and stability, thereby reducing the susceptibility to food security risk. Food self-reliance would therefore require little or no costly physical reserves, but rather a financial buffer as well as an

active private sector, stimulated by incentives to operate to full capacity.

If the government requires some form of reserve, it could consider holding a financial buffer. If the objective is to secure and guarantee physical availability of maize outside Zambia, but within the region, the South African Futures Exchange (SAFEX) offers suitable instruments such as white and yellow maize futures contracts and options.

Although the above arguments suggest market-led national food security management, could there still be a legitimate role for the government to facilitate market supplies? The marketing channels supplying small-scale traders, hammer millers, and retailers with maize grain, typically become very thin later in the season when local smallholder production becomes depleted. In recent years, import channels were not well designed to supply these informal channels, and imported maize was channeled exclusively through large mills (see FSPR Policy Synthesis No. 5 and No. 6). As a result of this, low-income consumers, who prefer hammer milled meal, had no choice but to purchase more expensive industrially milled meal. To meet the needs of the poor, there may be a legitimate role for the government to facilitate the supply of maize to informal markets in small lots to supply the small traders and hammer millers. In deficit years, the government could facilitate the importation of maize, while in surplus years the government could facilitate local supplies, when needed.

Is input and credit distribution the answer to increasing smallholder farmers' crop production and incomes? Is it an appropriate function for the CMA? A recent review of the fertilizer sector by MACO/FSRP (see FSRP Working Papers No. 4 and 5) suggested that fertilizer distribution alone is not the "silver bullet." Furthermore, past experience has shown that input and credit delivery are a drain on scarce government resources, and has the potential to divert those same resources away from CMA's crop marketing capability as well as investments needed to develop the agricultural sector.

NAMBOARD's demise and FRA's failure to achieve its original food reserve mandate are examples of how input provision linked to credit resulted in trading losses and eroded working capital for crop marketing functions. It is not at all clear how the CMA would avoid the political interference in the distribution of fertilizer as experienced under the FRA and the Agricultural Credit Management Programme before it.

Aspects of financing. Budget allocations from the government may become CMA's constraining factor. Going by past budget allocations for FRA and the extremely limited disbursements that were actually made (rarely exceeding K10 billion in one season), CMA's scale of operations in the first seasons may not exceed 50,000 MT of maize. The important implication here is that it is crucial for the government to encourage the private sector to participate in the market.

SUMMARY OF FINDINGS: From the analysis it appears that the scope for CMA to boost maize production and marketing among smallholder farmers is limited in terms of geographical coverage as well as volume. Boosting production through long term price support (including free fertilizer distribution) in areas where production would otherwise be unprofitable, may exacerbate production instability and periodic food crises, and is not in the interest of long term food security and smallholder welfare. If CMA is to boost food crop production with the aim of stabilizing urban food supplies, production of maize by urban smallholders and commercial farmers (who sell more maize onto markets than smallholder farmers) is to be encouraged. This can only be achieved by providing incentives to producers, including access to export markets in surplus seasons to avoid the domestic market collapsing, and reduced government market interventions to reduce traders' risks. At the moment, it is unclear how or whether food reserve stocks can be managed in a way that doesn't make it the object of patronage activities and erode the private sector's participation in the maize marketing system.

Alternatives for consideration of scarce state resources to address the grain marketing problems of small-scale farmers:

1. Undertake a range of public investments that reduce the costs of marketing in smallholder areas. These include road investments, supporting the development of the transportation sector through reducing taxes on fuel (there is currently a 45% tax on diesel fuel in Zambia), imported spare parts, and capital equipment. Other improvements involve helping to rehabilitate the railway system and integrate it with operations in South Africa and Tanzania.
2. Make a greater commitment to collecting and disseminating reliable grain market information in the country. The existing commitment to the Agricultural Marketing Information Centre is weak. The Ministry staff assigned to AMIC is frequently moved to other positions after being trained in the operation and management of the system, which impedes progress

and requires extra donor resources to keep the system functioning. The development of a reliable and efficient market information system is an important role for government in a market-oriented economy.

3. Reduce the use of ad-hoc export restrictions, that make investment in holding grain stocks or investing in marketing facilities too risky to undertake.

4. Avoid undertaking activities that erode traders' willingness to invest in the grain marketing system. Unless government policy changes to one in which the government is to handle all of the smallholders' grain, then the private sector's capacity should be promoted. Government operations that compete with the private sector, but do so in a way that artificially squeezes the spatial and temporal price spreads that they face, are likely to erode the private sector's participation in markets.

5. Many of the food supply problems appear to be due to the selection of inappropriate cropping patterns and practices. Would investment in selected research, extension projects designed to identify and promote improved cropping patterns and practices return more than comparable investment in the CMA?

Public support of agricultural research and extension systems is required to generate more fertilizer-responsive varieties and more appropriate application recommendation domains would help to reduce the costs of grain production by smallholder farmers. This would help to overcome some of the marketing problems that make maize production (and fertilizer use on maize) unprofitable in some areas of Zambia (e.g., Donovan et al., 2002).

These are only examples of relevant questions. Raising these questions does not represent an argument for or against the proposed CMA, only an argument for an informed policy decision.

REFERENCES

Donovan, C., M. Damaseke, J. Govereh, and D. Simumba. 2002. *Framework and Initial Analyses of Fertilizer Profitability in Maize and Cotton in Zambia*. FSRP Working Paper No. 5. Lusaka.

Mwiinga, B., J.J. Nijhoff, T.S. Jayne, Gelson Tembo, and James D. Shaffer. 2002. *The Role of Mugaiwa in Promoting Household Food Security: Why it Matters Who Gets Access to Government Maize Imports*. FSRP Policy Synthesis No. 5. Lusaka.

Nijhoff, J.J., T.S. Jayne, Billy Mwiinga, and James D. Shaffer. 2002. *Markets Need Predictable Government Actions to Function Effectively: The Case of*

Importing Maize in Times of Deficit. FSRP Policy Synthesis No. 6. Lusaka.

Nijhoff, J.J., Gelson Tembo, James D. Shaffer, T.S. Jayne, and Julius Shawa. 2003. *How Will the Proposed Crop Marketing Authority Affect Food Market Performance in Zambia? An Ex Ante Assessment to Inform Government Deliberation*. FSRP Working Paper No. 7. Lusaka.

Ministry of Agriculture and Cooperatives, Agricultural Consultative Forum, Food Security Research Project. 2002. *Developments in Fertilizer Marketing in Zambia: Commercial Trading, Government Programs, and The Smallholder Farmer*. FSRP Working Paper No. 4. Lusaka.

Ministry of Agriculture and Cooperatives. 2003. Concept Note on the Crop Marketing Authority. Paper submitted to MACO by the CMA Design Task Force.

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Table 1. Districts with Profitable CMA Maize Trading Potential and Districts with Maize Supply Potential where Trade Appears Unprofitable

Province	District with profitable maize trading potential	Profitable trade destination(s)	Districts with maize production potential but where trade is unprofitable
Central Province	Chibombo	Southern, Copperbelt	Serenje
	Kapiri Mposhi	Copperbelt	
	Mkushi	Copperbelt, Southern	
	Mumbwa	Southern, Copperbelt	
	Chingola	Copperbelt	
Copperbelt	Chililabombwe	Copperbelt	Chingola
	Kalulushi	Copperbelt	Luanshya
	Kitwe	Copperbelt	Masaiti
	Lufwanyama	Copperbelt	Mufulira
	Mpongwe	Copperbelt	
Eastern Province	Nyimba	Southern, Lusaka, Central, Copperbelt	Chipata
	Petauke	Southern	Chadiza Katete Mambwe
Luapula Province			Milenge
Lusaka Province	Chongwe	Southern, Lusaka	
	Kafue	Southern, Lusaka	
Southern Province	Choma	Southern	
	Kalomo	Southern	
	Mazabuka	Southern	
	Monze	Southern	
	Namwala	Southern, Lusaka, Copperbelt	
Northern Province	Mbala	Northern	Kasama Mpika Nakonde
	Mufumbwe	Northwestern	Kasempa
	Mwinilunga	Northwestern	

Source: Based on analysis presented in Nijhoff et al. 2003. *How Will The Proposed Crop Marketing Authority Affect Food Market Performance in Zambia? An Ex Ante Assessment to Inform Government Deliberation*. FSRP Working Paper No. 7. Lusaka.