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ASSESSING THE FEASIBILITY OF IMPLEMENTING THE FARMER INPUT SUPPORT PROGRAMME (FISP) THROUGH AN ELECTRONIC VOUCHER SYSTEM IN ZAMBIA

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Key Findings

- A number of problems plague the current Farmer Input Support Programme (FISP), including: late delivery of inputs; distribution of standardized inputs that may not be appropriate for all agro-ecological zones or soil types; crowding out of private sector; poor targeting, and; high cost to the government treasury.
- The Government of Zambia has yet to pilot an e-voucher system for FISP due to concerns that the private sector in rural Zambia lacks the capacity to effectively provide farmers with inputs and that a failure of FISP would have negative consequences for national food security.
- Analysis of existing e-voucher systems in Zambia suggests that e-vouchers can be used to distribute FISP inputs to farmers, particularly in high potential agricultural regions. Moreover, the use of e-vouchers for FISP can effectively address many of the problems that plague the current distribution system.

INTRODUCTION: Since 2002, the Farmer Input Support Programme (FISP, formerly known as the Fertilizer Support Programme) has received the majority of the agricultural budget allocation for poverty reduction. However, during that time rural poverty rates have remained virtually unchanged. Between 2004 and 2010, poverty rates in rural Zambia increased marginally, from 77.3% to 77.9%, despite a significant increase in spending on FISP during that same period.

FISP is plagued by a number of issues that limit its effectiveness as a poverty reduction tool. First, the distribution of FISP inputs to farmers is frequently delayed because of financial and logistical challenges. This results in delayed planting for farmers. Studies suggest that maize yields tend to decline by 1% to 2% for every day a farmer delays planting after the first rain (Nyagumbo 2008). Second, FISP faces issues of poor targeting, with the vast majority of FISP inputs captured by a relatively small minority of larger, wealthier farmers (Jayne et al. 2011).

A third concern is that the standardized FISP input packet is not appropriate for many of Zambia's diverse soil and agro-ecological systems (Burke 2012). Subsidizing inappropriate inputs leads to maize monocropping, even in regions that are poorly suited for it, and low yield responses to fertilizers. Fourth, FISP may have a crowding-out effect on agro-dealers in some regions, as well as on the fertilizer suppliers that do not win FISP tenders[1] (Xu et al. 2009).

Overriding all of these concerns is the cost of FISP to the Zambian Treasury. On

[1] Since its inception, tenders to supply FISP fertilizer have been won by only three fertilizer companies.

average government spends 40% of its entire agricultural budget on FISP (ACF 2009). This severely limits the government's capacity to invest in other poverty reduction and agricultural development programmes.

In February 2009, the government responded to the persistent concerns regarding FISP by commissioning a team to investigate alternative modes of distributing FISP (ACF 2009). Among other programme reforms, the Commission recommended that Government could address many of FISP's shortcomings by adopting an electronic voucher (e-voucher) system for distributing FISP inputs. Despite this recommendation, Government has yet to pilot an e-vouchers system for FISP.

The reluctance on the part of policy-makers to pilot an e-voucher system for distributing FISP inputs is a reflection of two primary concerns. First, agro-dealer networks are not adequately developed and agro-dealers are not sufficiently capitalized to support a programme on the scale of FISP. Second, if major implementation constraints arise, the consequences for national food security could be severe.

Despite these misgivings, the Food and Agriculture Organization (FAO) and the Conservation Farming Unit (CFU) have begun piloting e-voucher systems in Zambia, in an effort to improve the impact of their aid spending. These pilots are scattered throughout the country, covering 37 districts, 55,812 beneficiaries, and 107 agro-dealers. This policy brief assesses the potential for e-vouchers to address some of the persistent challenges facing the current FISP distribution system and the concerns raised by government regarding agro-dealer capacity through an analysis of these pilot programmes.

HOW E-VOUCHERS WORK: E-vouchers use a mobile delivery and tracking system to distribute subsidized products through private-sector suppliers to targeted farmers. This involves a web-based system that can be accessed on mobile phones. This allows for real time registration of beneficiaries and electronic payment to the retail agents who distribute the products.

Under an e-voucher system, beneficiaries are targeted just as they would be under the current FISP system. The beneficiaries then receive a Voucher Scratch Card (VSC), which is linked to their specific National Registration Card (NRC) number. This scratch card entitles the beneficiary to a specified array of agricultural inputs and implements. The cards are redeemed at nearby retail agro-dealer outlets. On confirmation of the transaction, which is done by entering the scratch card number and beneficiary's NRC number through their cellphone, the agro-dealer receives instant payment to their online account.

DATA AND METHODS: Data were collected from beneficiary farmers, implementers, and agro-dealers involved in the FAO and CFU pilot voucher schemes and through other key informant interviews.

Table 1 lists the districts selected for the study. The sampling frame was based on all districts where the voucher system is being piloted, stratified by market accessibility.

Table 1. Selected Districts by Locality

Province	Accessible District	Remote District
Eastern	Petauke	Lundazi
Western	Mongu	Kaoma
Central	Kabwe/Mkushi	-
Northern	-	Chinsali, Mafinga,Isoka
Luapula	Mansa	Chiengi
Southern	Choma	Sinazongwe

Two extension camps were randomly selected from each of the districts and then 25 farmer beneficiaries were randomly selected from each camp. In total 489 farmers were interviewed. For each district, two agro-dealers were also interviewed. In total 26 agro-dealers were interviewed. Key informants included staff from MAL, CFU, and FAO, and the fertilizer importers Omnia, Greenbelt, Export Trading, Bridgeway Commodities, and Nitrogen Chemicals of Zambia, and Zdenakie.

KEY FINDINGS:

Potential Cost Savings: By turning over greater responsibility to the private sector, e-vouchers will lower the cost to the Treasury of implementing FISP. Under the current FISP system, government is responsible for pre-planning, tendering, distributing inputs to satellite depots, selecting beneficiaries, facilitating the collection of cost sharing contributions from farmers, storing inputs, and distributing inputs to farmers. This is both costly and time consuming. A 2010 World Bank report estimates that Agricultural Officers spend 75 to 80% of their time dealing with FISP logistics between August and January. This leaves very little time for them to dedicate to their core work of providing extension advice to farmers.

FISP inputs are also expensive relative to inputs sold by the private sector. The World Bank (2010) did a detailed cost comparison of the FISP costs for the 2007/08 season with private sector benchmarks for some selected provinces. It found that, on average, the FISP input packet was more expensive than buying the same packet from the private sector by ZMK 123,787. This implies that during the course of delivering the 125,000 input packets in 2007/08 the government spent approximately ZMK 15 billion more than would have been the case if they had bought inputs directly from local agro-dealers.

E-vouchers are designed to leverage private sector participation in input distribution, and therefore, can help to eliminate many of the costs currently incurred by the government. Tendering is eliminated, because farmers can choose the inputs they wish to acquire from local agro-dealers. Agro-dealers assume the cost of input storage, while the e-voucher system facilitates the management of payments. Farmers incur the cost of transporting inputs from the agro-dealer to their homes. Consequently, the administrative cost of implementing FISP through an e-voucher is significant lower than the current distribution system. Makunka (2011) finds that the administrative costs for the e-voucher amounts 5% of the entire subsidy budget compared to 35% under the current FISP system.

Timeliness of Input Delivery: The World Bank (2010) identifies several factors that contribute to frequent delays in distributing FISP inputs to farmers, including corruption in the distribution process and inefficiencies in planning, tendering, and procurement.

By eliminating the need for tendering, as well as delegating input distribution to the private sector, e-vouchers have the potential to reduce delays in input distribution. Of the 448 e-voucher beneficiaries interviewed in nine provinces, 68% had received their e-voucher inputs by October and 96% by November. The remaining 4% received their inputs by December. This is a significant improvement over the current FISP system, which in some cases does not deliver inputs to farmers until January (CSPR 2011).

Private Sector Development: One of the key objectives of FISP is to develop private sector input distribution capacity. Yet analyses show mixed results. The World Bank (2010) survey shows that the FISP displaced at least 7% of private sector customers at the district level. Furthermore, Xu et al. (2009) showed a strong crowding-out effect on agro-dealers in areas where the private sector was relatively more active. Because an e-voucher system provides direct purchasing power to farmers, it has the potential to significantly improve local agro-dealer development.

Yet, for e-vouchers to successfully drive local agro-dealer development, two key issues must be addressed. Firstly, the current under-development of fertilizer retail networks in Zambia must be addressed. While seed suppliers in Zambia appear to have developed increasingly sophisticated marketing arrangements in rural areas, and frequently provide agro-dealers with inputs on consignment, fertilizer distribution systems remain stunted. As a result, while the agro-dealers interviewed for this study carried an assortment of seed types and brands, fertilizer availability was limited. Interviews with fertilizer suppliers suggest that a general distrust of agro-dealers and an unwillingness to provide them with fertilizer on consignment limits the development of fertilizer retailing. However, there was general support among fertilizer suppliers for the idea of creating their own fertilizer depots in areas where e-vouchers would be piloted. For this to be successful, government must announce its intended distribution levels in each district well in advance, to permit depot stocking.

The second major challenge is related to government's capacity to ensure that funds are available to immediately compensate agro-dealers when vouchers are redeemed. Under the current FISP system, government frequently relies on loan facilities from input suppliers when procuring inputs. This would be untenable under an e-voucher system. Without immediate repayment to agro-dealers when vouchers are redeemed they will be unable to replenish their stocks. To overcome this government must allocate funds to FISP prior to initiating the distribution of vouchers or it must secure a clearing facility to ensure payment.

Crop Diversification and Input Use: Interviews with beneficiaries and agro-dealers suggest that e-vouchers can effectively address the problems of maize monocropping and inappropriate input use that plague the current FISP system. This is achieved in two ways. First, vouchers can be made flexible to allow farmers to acquire a range of inputs, not just fertilizer and maize seeds. Under the two e-voucher pilot programmes 17 different inputs and implements are being distributed, including veterinary drugs and, potentially, agricultural services, such as tractor hire. Second, because agro-dealers are responsible for distributing inputs they have an interest in ensuring that the inputs they sell are the most appropriate for the prevailing agro-ecological region. In addition, to develop a strong customer base agro-dealers often provide product and extension advice to improve farmers' returns. Sixty-two percent of farmer respondents indicated receiving extension advice from the agro-dealers supplying them with inputs.

Beneficiary Targeting: Beneficiary targeting for an e-voucher FISP would essentially be the same as under the current system. Yet, e-vouchers can improve targeting because they are linked electronically to individual beneficiaries using their NRC numbers. During redemption, the beneficiaries go to the agro-dealer and present their NRC card and voucher. The agro-dealer enters the NRC number and reference pin into the

system. The agro-dealer's bank account is instantly credited and the beneficiary is given the inputs. This ensures that the beneficiaries that are initially identified are the ones that access the inputs. As such, monitoring of recipients and quantities received are improved. Indeed, 96.7% of beneficiary respondents indicate that e-voucher pilot schemes are more transparently targeted than FISP.

Agro-Dealer Density: Agro-dealer capacity and density are major concerns when considering the viability of implementing a voucher-based input subsidy programme. Our data show that in most districts competitive agro-dealer networks exist. The FAO has registered 115 agro-dealers in 31 districts as part of its pilot e-voucher scheme. In addition, the Alliance for Commodity Trade in Eastern and Southern Africa (ACTESA) has trained 1300 agro-dealers throughout the country. However, challenges remain. Our research shows that some remote districts (Sinazongwe and Chiengi) had only one agro-dealer in the district, while many dealers faced challenges in stocking sufficient quantities of fertilizer.

Yet, the low density of agro-dealers in remote regions is not an insurmountable obstacle. Our research shows that when demand is created by a voucher system the private sector tends to respond. For example, farmers reported that agro-dealers from the towns of Choma and Mansa came to Sinazongwe and Chiengi, respectively, to supply inputs to e-voucher recipients who lacked a local agro-dealer.

Although private sector has shown that it will respond to the demand created by e-vouchers, an initial pilot of the FISP though an e-voucher may be most successful in regions where agro-dealer networks are already well developed. Piloting in better-served regions will allow government to learn more about how to implement e-vouchers while lessening the downside risk of initial implementation.

CONCLUSION AND RECOMMENDATIONS:

Our analysis shows that the use of e-vouchers offers significant improvements over the current FISP for the government, farmer beneficiaries, and the private sector. Our analysis suggests that rolling out the system will require the following:

- Undertake a series of start-up planning, organization and training activities. This should include completion of a computerized farmer registry in potential target areas, e-voucher program design/implementation details, and agro-dealer accreditation and farmer sensitization/training;
- Design a geographically phased approach. This is necessary given the variations in terms of agro-dealer concentrations, infrastructure availability, and farmer concentration. Our recommendation is to begin with those areas with high potential for success, i.e., dense agro-dealer network, good infrastructure, prior experience with the system, as well as already existing demand for inputs to ensure initial success and to lower the risk of programme failure during the initial learning phase. These could include Chibombo, Chipata, Choma, Chongwe, Kabwe, Kalomo, Katete, Mkushi, and Mumbwa;
- Donors can assist government to improve the effectiveness of the system by offering training to agro-dealers on agronomic practices and business skills;
- To ensure agro-dealers have sufficient access to inputs on credit from the input suppliers to meet increase demand brought about by a voucher-based FISP system, mobile transaction companies can assume the additional role of facilitating payment to input suppliers by agro-dealers for inputs

received, as well as facilitating ordering of inputs;

- To promote greater private sector response, government should determine and announce well in advance the value of the vouchers, and the list of qualifying inputs in participating districts;
- E-voucher cards should be designed to be flexible, so as to permit farmers to acquire a variety of inputs and to source inputs from various agro-dealers in their region;
- If the FISP is to be implemented through the e-voucher, the government cannot rely on the private sector to carry the debt as they do now. This may require better financial management on the part of government or the development of a settlement guarantee system that allows accounts to be settled in the absence of immediate repayment from the government.

REFERENCES

ACF. 2009. Report on Proposed Reforms for the Zambian Fertilizer Support Programme. Lusaka: Agricultural Consultative Forum.

Burke, W.J. 2012. Determinants of Maize Yield Response to Fertilizer Application in Zambia: Implications for Strategies to Promote Smallholder Productivity. Ph.D. dissertation, Michigan State University.

CSPR. 2011. Assessment of the Implementation and Viability of the Farmer Input Support Program in Zambia: With Case Studies of Mazabuka and Monze Districts. Lusaka: Civil Society for Poverty Reduction.

Jayne, T.S., N. Mason, W.J. Burke, A. Shipekesa, A. Chapoto, and C. Kabaghe. 2011. *Mountains of Maize, Persistent Poverty*. FSRP Policy Synthesis No. 48. Lusaka: Food Security Research Project.

Makunka, Cynthia. 2011. Performance of the Food and Agriculture Organization's Input Voucher Schemes in Zambia: A Case Study of Chongwe and Mazabuka Districts. M.A. thesis, University of Zambia.

Nyagumbo, Isaiah. 2008. A Review of Experiences and Developments towards Conservation Agriculture and Related Systems in Zimbabwe. In *No-Till Farming*, ed. T. Goddard, M. Zoebisch, Y. Gan, W. Ellis, A. Watson, and S. Sombatpanit. Tokyo: The World Association of Soil and Water Conservation (WASWC). Can be accessed at: http://homepage2.nifty.com/waswc/WASWC%20Strage/S-Publication/non-till-book.pdf

World Bank. 2010. Impact Assessment of the Fertilizer Support Programme, Analysis of Effectiveness and Efficiency: Zambia. World Bank Sustainable Development Department Report No. 54864ZM. Washington, D.C.: The World Bank. Agricultural and Rural Development, Africa Region.

Xu, Z., Burke W.J., Jayne T.S. and Govereh J. 2009. Do Input Subsidy Programmes "Crowd in" or "Crowd out" Commercial Market Development? Modeling Fertilizer Demand in a Two-Channel Marketing System. *Agricultural Economics* 40.1: 79-94.

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