## DECLARATION

I, Cynthia Makunka, declare that this dissertation

a) Represents my own work;

b) has not previously been submitted for a degree at this or another University; and

c) Does not incorporate any published work or material from another dissertation.

Signed:.....

Date:.....

## Approval Certificate

This dissertation of Cynthia Makunka is approved as fulfilling the partial requirements for the award of the degree of Masters of Public Administration (MPA) by the University of Zambia.

| **Signed:** | **Date:** |
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## Abstract

This study focused on evaluating the performance of the Food and Agriculture Organisation's Input Voucher Scheme as a method of agricultural input procurement and distribution in Zambia. Zambia, like most developing countries is dependent on agriculture. Agriculture faces numerous challenges ranging from natural shocks to poor agricultural policies. To revamp agriculture in Zambia, the Government in 2000 introduced a subsidy, then called Fertilizer Support Programme (FSP), which has since changed its name to Farmer Input Support Programme (FISP). According to Mbozi (2009), despite the high investment by government/FISP and Non Governmental Organizations' subsidy schemes, the increase in agricultural production does not seem to correlate with the cost of programme investment. This phenomenon has been attributed to low efficiency in input service delivery perpetuated by direct procurement and distribution coupled with poor extension messages. It is said that the current approaches to input support by government and other partners which are inefficient are contributing to poor production that is experienced by the farmers in the country.

The Food and Agriculture Organisation (FAO) has used the Input Voucher Scheme as a way of redressing the problem of inefficiency. The Input Voucher scheme involves training of the beneficiary farmers in Conservation Farming techniques after which the agricultural inputs are given to these farmers through the voucher cards. Although the Food and Agriculture Organisation (FAO) voucher scheme approach has been offered as an alternative there is no evaluation that has been conducted on it so far to establish its effectiveness and efficiency. The local experiences on the FAO Input Voucher Scheme have not been adequately documented and Government's hesitation to implement the voucher system is to some extent attributed to lack of adequate information on the voucher scheme performance locally. The local scholarly pieces of work that have been done so far focus only on Seed Fair Voucher, which is different from the Input Voucher Scheme being referred to in this study. The study is a very important pre-requisite and requirement to the researcher's obtainment of a master's degree in Public Administration.

The overall objective of the study was to establish to what extent the use of input voucher scheme has contributed towards the alleviation of perceived shortcomings associated with late delivery of inputs, cost of programme implementation and low production and productivity. The key concepts for this study are input distribution, accessibility and sustainability. Input distribution is the mode by which inputs are obtained by the provider and made available to the

beneficiaries. Input access is the mode by which the farmer beneficiary acquires the inputs, in the desired quantities and at the right time. The availability of inputs to the individual farmer refers to the physical existence of the inputs from the reliable source. Sustainability of food security refers to a dimension – a timeframe over which period is being considered. All the above elements are inter-related in that the distribution will determine the level of availability and access of inputs by the farmer.

The study was in two districts, Chongwe and Mazabuka which were selected purposively. Various instruments were used to collect secondary data while primary data was collected through scheduled questionnaires and interviews from the farmers (sampled randomly) and key informants (selected purposively). Structured questionnaires were used to get quantitative data from 240 farmers. The interview schedule was used to get qualitative data from FAO (three), MACO (20), Conservation Farming Unit (two) and agro-dealers (eight). Additionally, qualitative data was collected through focused group discussions on about 80 farmers. The overall total sample size for the study was 353. The qualitative data was analysed using Constant Comparison and quantitative data was analysed using Statistical Package for Social Sciences (SPSS) software.

In brief, the study found out that the logistics and administrative costs of Input Voucher Scheme were lower when compared with FISP's Direct Procurement and Distribution System. On the other hand, both production and productivity among Input Voucher Scheme recipients was slightly better than non beneficiaries. Lastly, the Input Voucher Scheme also seemed to have increased access to and choice of farming inputs by farmers, while also increasing income levels. The FISP was also found to be better at delivering inputs closest to the farmers' door steps compared to the Input Voucher Scheme.

Therefore, the Input Voucher Scheme may need to refocus on how the issue of easy access to inputs at farm gate could be addressed given an understanding that the FISP is relatively better in terms of facilitating easy access to inputs at farm gate. A Longitudinal Study is recommended because studying the effects out of only 2 years may not be enough.

## Dedication

To my mum, Saraphina Mulobe Kazembe Makunka and my late father, Mr. Hilary Makunka.

Special dedications also go out to my supportive husband, Jim Belemu, whose love and confidence in my abilities has been my pillar of strength throughout this program.

I would also like to make some dedication to my beautiful daughter Beenzu Belemu, who had to stay without me while I dedicated my time to this study.

Lastly, to Ms Loveness Chitambo, who has always served my home earnestly, thereby allowing me time to focus my attention on this programme.

## ACKNOWLEDGEMENTS

Through the process of my course and my research, I have learned countless things about the art of doing research and the process of asking questions. I am heartily thankful to my supervisor, Professor Jotham Momba, whose encouragement, guidance and support from the initial to the final level, this process enabled me to develop an understanding of the subject. I owe my deepest gratitude to Professor, Jotham Momba. Many thanks also go to Dr. Thomson Kalinda and Mr. Chrispin Kapunda who read and provided valuable input to this study. I would like to acknowledge the support given by the staff of the Department of Political and Administrative Studies, University of Zambia. My hearty thanks also go out to my friend Elizabeth Kanjela and my 2009 classmates for being my peer support network. However, errors, omissions or limitations in this final work are mine alone.

I am deeply thankful to all the farmers, staff of the Ministry of Agriculture and Cooperatives at both Headquarters and district level in Chongwe and Mazabuka, Conservation Farming Unit and Food and Agriculture Organisation who were very cooperative in sharing their experiences with me, as well as offering me good advice on the research question. I would like to thank my family members for their encouragement, love and for always being just a phone call away. Special thanks to my husband, Jim, who has made many sacrifices over the past two years. He has kept me grounded and has offered his love and support without conditions.

Special tribute also goes to my mother for her prayers over my life. Above all, I wish to give thanks to the Almighty God for his mercy and grace on my life and for giving me all the abilities and life to live my dreams. God, I sincerely thank you, for making things possible in my life.

Cynthia Makunka, University of Zambia, 2011

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## List of Abbreviations and Acronyms

| | |
|---|---|
| ACF | Agriculture Consultative Forum |
| ADP | Animal Draft Power |
| CA | Conservation Agriculture |
| CARE | CARE International |
| CASPP | Conservation Agriculture for Increased Production and Productivity |
| CEO | Camp Extension Officer |
| CFU | Conservation Farming Unit |
| CSO | Central Statistics Officer |
| CRS | Catholic Relief Services |
| DACO | District Agriculture Coordinator |
| DPD | Direct Procurement and Distribution |
| EU | European Union |
| FAO | Food and Agriculture Organization of the United Nations |
| FISP | Farmer Input Support Programme |
| FSP | Fertilizer Support Programme |
| FRA | Food Reserve Agency |
| GRZ | Government Republic of Zambia |
| ITF | Input Trade Fair |
| MACO | Ministry of Agriculture and Cooperatives |
| MDGs | Millennium Development Goals |
| MoFNP | Ministry of Finance and National Planning |
| MMD | Movement for Multiparty Democracy |
| NGO | Non Governmental Organisation |
| NRC | National Registration Card |
| RNE | Royal Norwegian Embassy |
| SV &F | Seed Voucher and Fairs |
| UNIP | United National Independent Party |
| ZNFU | Zambia National Farmers' Union |
| ZVAC | Zambia Vulnerability Assessment Committee |

# CHAPTER ONE

## *INTRODUCTION*

### *Study Background*

This study was aimed at establishing the extent to which the use of the voucher system for input support under the Food and Agriculture Organization (FAO) and Ministry of Agriculture and Cooperatives (MACO) alleviates the difficulties associated with late delivery of inputs, quality of inputs and cost of distributing agricultural inputs in Zambia, using Mazabuka and Chongwe districts as case studies. This introductory chapter has two components. The first contains background information to the study, statement of the research problem, research objectives and research questions. The second component outlines the research strategy, that is, the study methodology, description of the target population, research design, data collection, and analysis strategy to be taken into account during data collection.

Zambia, like most developing countries, in Sub-Saharan Africa, has its population concentrated in rural areas. According to Hambulo (2009), 90 percent of the people are dependent on agriculture, as their main source of livelihood. The Economic Commission for Africa (ECA) (2009), identified agriculture as the lead sector for economic growth and specifically in meeting the first goal of the Millennium Development Goals (MDGs) which is aimed at eradicating extreme poverty and hunger. Despite this, in Zambia, according to the Poverty Reduction Strategy Paper (2000), it seems that the agricultural population is highly characterised by extreme poverty levels. According to the Living Conditions Monitoring Survey of 1998, as quoted by the Central Statistics Office (CSO) (2003), 70.9 percent of the rural population which is dependent on agriculture is classified as living in extreme poverty whose capacity to acquire agricultural inputs such as fertiliser, seed and agrochemicals remains low. As a result of poverty in Zambia, agricultural production has been fluctuating since independence. The other factors that have been cited as exacerbating low production in Zambia are the adverse effects of fluctuating weather patterns, such as drought and/or floods and declining soil fertility due to poor farming practices. In addition, although the economic liberalisation was meant to create a suitable environment for greater private sector activity, boost agriculture production and investment, this has not been realised, especially for agriculture dependent livelihoods. Instead, the policies resulted in a hostile environment for the agricultural dependent households leading to food and nutrition insecurity. These

constraining factors consequently resulted in declining small-scale agricultural productivity and poor household food and nutrition security in the agricultural based provinces in Zambia. The Economic Commission for Africa (2009) indicated that to address the low productivity, poor household food and nutrition insecurity, it is being advocated that agriculture should get a more prominent place in Zambia's development agenda.

In the Zambian context, the greatest problem which the agricultural sector is facing in relation to increasing production and productivity are the difficulties smallholder farmers are experiencing in terms of accessing agricultural inputs. This is mostly due to the high cost of agricultural inputs, which most of the small rural farmers cannot afford. In an attempt to develop the agricultural sector, a wide variety of different policies, programmes, projects and other activities have been implemented by different stakeholders, such as Government Ministries, International Agencies, Non Governmental Organisations, Commercial Organisations, Donors and the rural people themselves. For the Zambian Government, Input subsidy and maize market intervention policies have been a longstanding major focus. According to Claassen (1991), from the mid 1970s to the early 1990s, the Zambian government financed a universal fertilizer subsidy, subsidized smallholder credit and controlled maize prices. However, this system began to break down with partial market liberalization and cash flow difficulties in the late 1980s and early 1990s. The system of agricultural subsidy completely collapsed as a result of continuing pressure for and partial implementation of liberalization and structural adjustment policies is said to have had constrained government expenditure, and substantial devaluation which resulted in high local fertilizer prices. Consequently, fertilizer use and national maize production fell.

The Zambian Government and donors responded to the decline in maize production with a variety of interventions of subsidizing maize production in form of fertilizer and seed subsidy inputs coupled with intermittent interventions in maize markets. This saw the birth of the Fertilizer Support Programme (FSP) in the year 2000, which has been getting the largest proportion of the budget in the agricultural sector. However, according to Mbozi (2009), despite the high investment by FSP and Non Governmental Organisations on agriculture, the rate of increase in agricultural production does not seem to correlate with the cost of programme investment. The lack of correlation between input and output in the agricultural sector has mostly been attributed to late delivery of inputs to farmers. Currently, most of these inputs that are distributed in the rural areas by NGOs and by the Government are centrally procured from the urban areas, and as such require time to be delivered to the various locations. As a result, sometimes the inputs are delivered late and this affects the crop

yield, thereby also affecting programme investment negatively. Additionally, the central procurement of inputs tends to promote agro markets for the urban vendors at the expense of the local ones. Central procurement done in one district with a view to distributing to other districts, affects the demand of the recipient districts. Central procurement usually supplies the farmers who may have been the potential clients for the local agro-dealer in the recipient districts, hence discouraging local agro-dealer development. As a result of supplying local farmers with inputs that are sourced from outside their locations , the local markets for agro inputs become very weak or die out completely, making it very difficult to access inputs for the farmers who are not targeted by the Non Governmental Organisations and Government programmes. The weak agro markets in the rural areas could also be cited for the reluctance for farmers to graduate from FSP and other Non Governmental Organisations' interventions, for fear of the difficulties in accessing inputs coupled with the high cost. Moreover, this style of input management was perceived as contradicting or hampering government's plan on market liberalization and as such the centralized procurement and distribution, has lately received a lot of criticisms. The Zambian government, which is the major distributor, has been contemplating to change from direct procurement to the voucher procurement. However, the lack of concrete proposal on the transformation and capacity seems to have been a constraining factor. It is in the context of the above limitations that the voucher scheme was introduced by Food and Agriculture Organisation in collaboration with the Ministry of Agriculture and Cooperatives. The voucher scheme is an indirect method of input procurement and supply system that uses local agro-dealers to supply inputs to the local farmers. It is purported that the use of voucher promotes efficiency in the provision of agricultural inputs to farmers. The FAO programme is also using the voucher to promote agricultural extension message on conservation agriculture.

### *Statement of the Problem*

Efforts have been made by the Zambian Government and the donors to increase food security in the country through input subsidy to the small scale farmers. However, in spite of all the efforts, there is some level of dissatisfaction of the supply system of inputs that uses the direct procurement and distribution. It is said that the massive investments made in the input subsidy support appear not to increase agricultural productivity. It is, therefore, perceived that the voucher scheme could be a solution to the problems facing the direct input supply system. Subsequently, in 2009, the Food and Agriculture Organisation (FAO) implemented the voucher input scheme in an attempt to address the low production associated with the direct

procurement system. However, the viability of the FAO voucher scheme has not yet been conclusively proved, hence, this study focuses on evaluating the FAO voucher performance in Mazabuka and Chongwe districts.

### *Purpose of the Study*

*General Objective*

The overall objective of this study was to establish the efficiency of the FAO input voucher scheme and the extent to which it has contributed to the improvement of performance of the agriculture sector and increased farmer satisfaction in Mazabuka and Chongwe districts.

*Specific Objectives of this study were:*

1. To establish the operation of the FAO input voucher scheme in the two districts and its administrative costs in comparison with the direct procurement and distribution.
2. To establish the extent to which the voucher scheme enhanced crop production and productivity.
3. To assess the extent to which the voucher scheme has increased access to and choice of farming inputs by farmers.
4. To assess the extent to which the voucher system has increased income levels and farmer satisfaction in the scheme.

### *Rationale*

It is very important to acknowledge that even though the projects are designed to achieve certain objectives, it is not automatic that implementation follows suit. As such, policy analysts strongly recommend that the programme be evaluated to ascertain adherence or deviation from the planned goals. This may be true also for the FAO Voucher programme which has not been adequately documented and evaluated. Currently, there is no evaluation that has been conducted on the FAO Voucher programme, hence, the study is timely and its results will be very useful in broadening the knowledge on the programme performance which is very critical to the donors, FAO and government policy makers. Through this study, the Ministry of Agriculture and Cooperatives (MACO) could also benefit from the data which may be vital in the implementation of the government subsidy programme. The study also is very important in that it is a pre-requisite and requirement to the researcher's obtainment of a master's degree in Public administration.

### *Conceptual Framework*

The main aim of the study was to establish the extent to which the use of the voucher system promoted efficiency in the distribution of agricultural inputs which eventually result in increased production. In this context, there is need to clearly understand the main concepts of the research and how they interlink with each other. The Government of Zambia and donor aid agencies have been involved in distributing subsidized agricultural inputs to farmers.

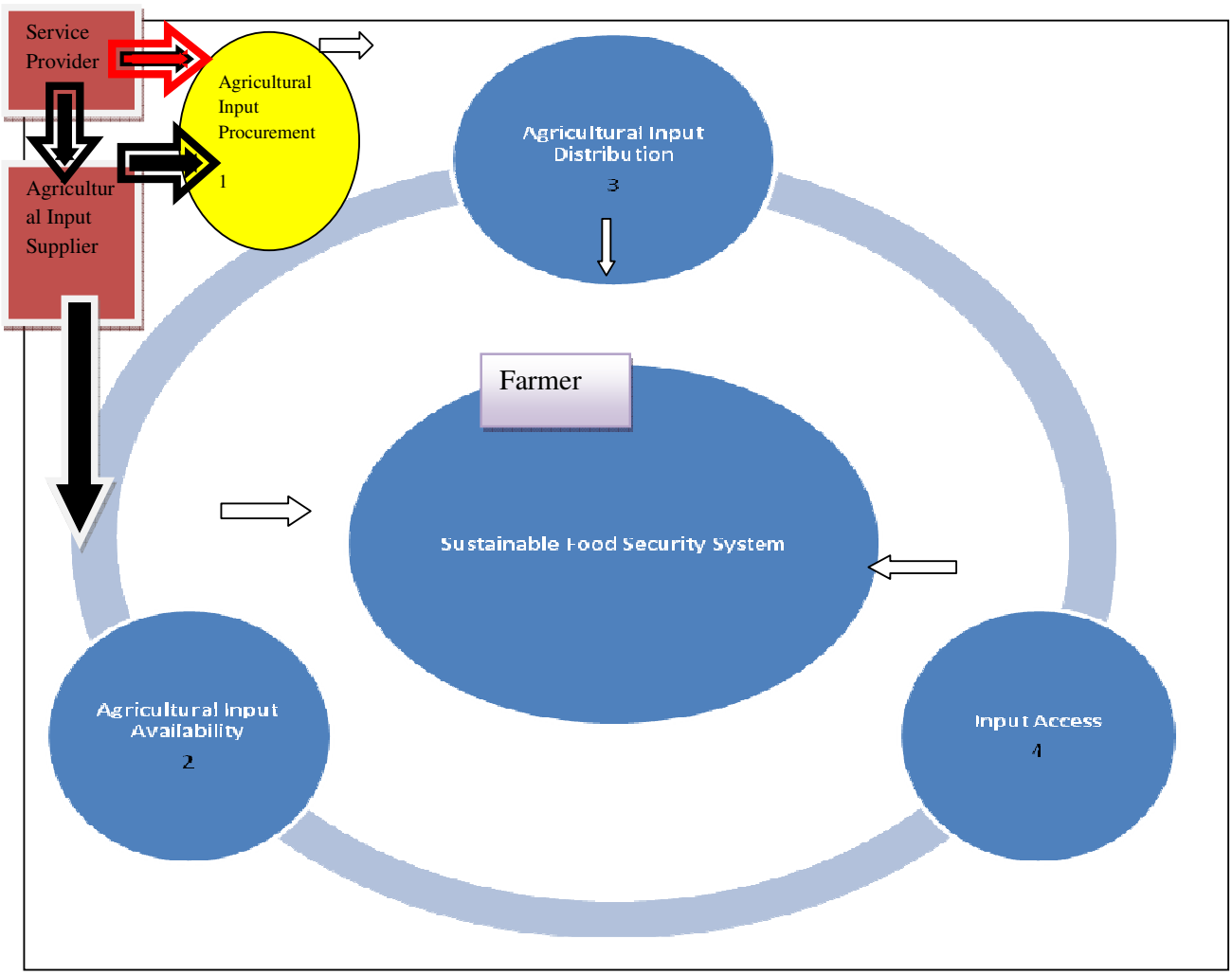
Three main approaches have been used to distribute agricultural inputs to farming communities in Zambia. These include the Direct Procurement and Distribution (DPD), Agriculture Input Vouchers Procurement (AVP) and Seed Fair approaches. In brief, the difference between the seed fair and voucher scheme is that the seed fair uses a temporally market (invites seed suppliers from other places to go and set up one or two days markets) to provide agricultural inputs to the local farmers, while the voucher scheme uses the already established local market system to provide agricultural inputs to the local farmers. The direct procurement involves the programme implementers buying inputs directly from the agro-supplier for further distribution to the farmers. In the seed fair and the voucher scheme, there is contact between the farmer and the agro-supplier, while in the direct procurement in most instances, there is no contact.

At the first level, which ever approach is used, it can be noted that there are elements that constitute the attaining of sustainable food security amongst small scale farmers. The main elements are: Input distribution, Input accessibility, Input availability and sustainability itself. All these elements are interrelated to an extent that the weakness of one element will lead to non sustainable food security. Input distribution is the mode by which inputs are obtained by the provider (Government, NGOs, donors) and made available to the beneficiaries. This constitutes a range of activities which encompass identification of beneficiaries, procurement, transportation and distribution to the beneficiaries. Input access is the mode by which the farmer beneficiary acquires the inputs in the desired quantities and at the right time. Access is ensured when farmers have sufficient resources to obtain appropriate quality inputs. This is dependent on available resources – capital, knowledge and prices. Input access also is a function of policy environment, social environment and physical environment. Changes in these conditions such as periods of drought and floods may seriously disrupt access or changes in policy on distribution and can change the level of access. The availability of inputs to the individual farmer (or farming household) refers to the physical existence of the inputs from the reliable commercial or aid source. The availability also constitutes the quality of inputs, variety, costs at which the farmer acquires the inputs.

Sustainability of food security refers to a timeframe over which food security is being considered. In the context of this study, it refers to an on-going inability by farmers to access agricultural inputs to enhance production because of lack of establishment of local agro-dealers in the districts. . It also implies that sustainability is highly dependent on the period it takes or the timeframe in which all these above mentioned elements "Access", "Availability" and "Distribution" are satisfied to meet the farmers' needs. All the above elements are inter-related in that the distribution will determine the level of availability and access of inputs by the farmer. The time frame in which these three elements will serve the farmer is what determines the stability or the sustainability.

Table 1.1

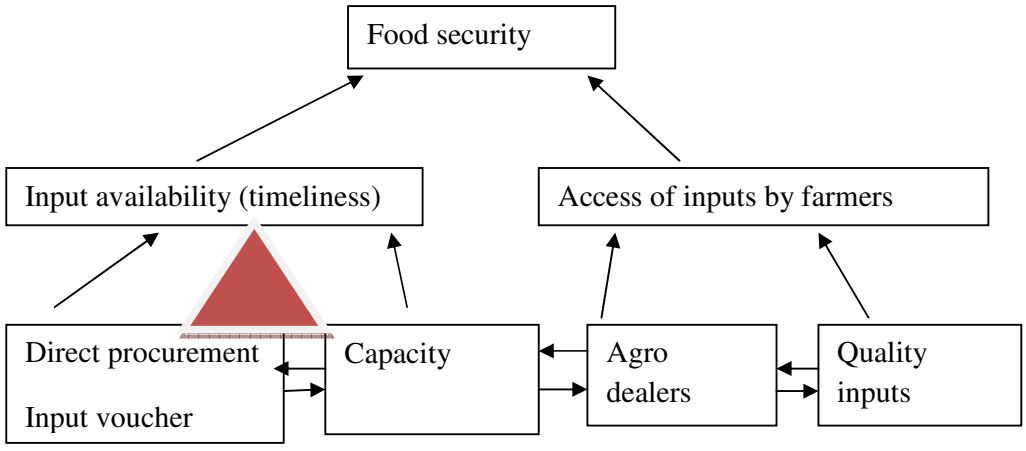
*A Sustainable Input Distribution System*




determinants: efficiency of the Input distribution (voucher or direct procurement),

implementation capacity, availability of agro dealers and the quality of inputs farmers are accessing. Efficiency can be defined as a comparison of what is actually produced or performed with what can be achieved with the same consumption of resources such as money, time and labour. This is an important aspect in determining productivity. In case of the study, efficiency also relates to the existing capacity by the implementing agencies (e.g FAO and the Zambian Government) to distribute inputs through the voucher scheme in a timely manner resulting in time saving. The implementation capacity entails the ability of the programme implementer to successfully implement the voucher scheme. In the case of the voucher scheme, the implementer's capacity to successfully implement the voucher could also be influenced by the quality of electronic service for electronic transactions since the farmer uses an electronic voucher to access inputs and secondly the availability and quality of inputs provided at the local agro –dealers' shops. All in all, in Zambia, the attainment of food security tends to hinge around (1) timeliness in the delivery of inputs, (2) the accessibility of inputs by the farmers and (3) the capacity of carrying out the distribution considering that Zambian agriculture depends on rainy fed crops. This has strictness to timing when the farmer should access the inputs. In other words, food security hinges on the capacity of the agro-suppliers to provide quality affordable agricultural inputs in a timely manner and at the appropriate location easily accessible to the farmers. In this presentation it can be specific by explaining graphically the critical triangle that encompasses the above three sub elements as shown below.

Table 1.2
*Inter-relationships of agriculture systems*




This study focuses on the issues around the highlighted triangle which has been the most significant area of criticism and it is perceived that this has been the source of failure for a

country's attainment of sustainable food security. The direct input distribution involves procurement of agricultural inputs centrally, usually from one supplier for further distribution to farmers in different locations. The Agriculture Input Vouchers Procurement (AVP) distributes vouchers (as opposed to agricultural inputs) to the farmers in various locations. The farmers then redeem the vouchers for agricultural inputs at the various local agro-dealers. The agro dealers in this document are being used in the context of small business owners who are trained in the use of the voucher to supply agricultural inputs to the farmer beneficiaries in Chongwe and Mazabuka districts. In other words, the agro-dealer is being used in the context of local retailer of agricultural inputs who is registered with Programme Implementer on the voucher scheme. The local agro-dealers become important in ensuring availability and accessibility of agricultural inputs by the farmers.. The farmers are accessing input through redeeming the vouchers at the agro-dealers shop as graphically presented in Table 1.1. The word redeeming is featuring a lot in the study, and is being used to imply exchanging of a voucher card by the farmer for agricultural inputs at the agro-dealers shop. The agro dealers are then paid by Programme Implementer against the vouchers collected from the farmer beneficiary.

In the case of the FAO/MACO Programme, the programme went further in strengthening extension messages on conservation agriculture, as it was a pre-requisite for a farmer to qualify to access the Input Voucher. The farmers and their Camp Extension officers were trained in Conservation Agriculture (CA) practices, which they demonstrate in their fields and also share this knowledge to other farmers. Conservation Agriculture can be defined as a concept for resource-saving agricultural crop production that strives in achieving acceptable profits together with high and sustained production levels while concurrently conserving the environment. Conservation Agriculture is based on three main principles: minimal soil disturbance, permanent soil cover and crop rotations. Conservation Agriculture also requires early planting, so an efficient input supply becomes necessary. It was perceived that the Input Voucher Procurement would enable the conservation agriculture farmers to have a choice on inputs and early access to inputs and subsequently allow them access to different types of inputs of their choice to be able to practice crop rotation and early planting.

## ***Literature Review***

*Zambian Experiences*

The literature review shows that not much has been done on Input Voucher Procurement Scheme in Zambia, and specifically in terms of academic writing, there is none. However, there are scholarly pieces of work that are prominent on other input provision systems which have been done by the following: Simfukwe (2006), Kalinda and Simfukwe (2007), Kalinda and Sikwibele (2006) and Mbozi (2009). The focus of all this literature has been on other input support systems such as direct distribution and Input Trade Fair, other than the voucher scheme. The literature of which has contributed to improving input distribution systems in Zambia.

Simfukwe (2006) conducted a study on the relief seed trade in Zambia. The study made an assessment and analysis of how the supply of relief seed is affecting the structure and performance (or evolution) of domestic seed markets. It also made an analysis of seed supply and delivery systems focusing on opportunities for improving development impacts of relief seed trade. The findings of the study were that most formal seed companies' retail networks do not go beyond the urban centres of districts and the location of their agents' stores is normally unreachable for many rural farmers. Regarding seed fairs and vouchers, none of the seed producers surveyed had participated before, although they have been aware of the initiatives and seem to have assessed its importance to their distribution systems. Simfukwe's study was not intended to analyse the voucher scheme activities in Zambia, because at the time of his study there was no voucher scheme being implemented.

However, Simfukwe was aware of the use and relevance of voucher scheme as an input support system in other countries, as such he strongly recommended that a related study on implementation of input vouchers should be considered. Furthermore, the study proposed the actual implementation of the Voucher System in Zambia. The study concluded that relief seed trade is a major component of total volume and value of total seed trade in Zambia, and in some cases seed producer companies are being developed mainly on the business strategy of supplying relief seed through Government and Non Governmental Oorganisation's tenders. According to Simfukwe, "since the distribution chain of relief seed is currently relying on Non Government Organisations at community level, and having noted that outlying rural areas depend on relief seed to access improved seed, it is imperative that seed markets be developed at this rural level, to complement and eventually replace the more ad hoc Non Government Organisation seed distribution activities." The current experiences in Zambia and elsewhere in the region are pointing to the relevance and importance of vouchers and seed fairs as seed distribution systems suitable for distribution of relief seed in a manner that achieves the additional benefit of developing local seed marketing structures. The study

provided a lot of valuable information on how the performance of agricultural input subsidy can be improved, by critically evaluating the obtaining conditions in the environment, the strengths and weaknesses. The study also provides insights on the conditions that must be made available to successfully implement a voucher system which is very important for subsequent programme implementation.

Simfukwe's (2006) work is very useful in understanding input distribution systems, in particular reference to the voucher system on how it operates in other countries. However, the study did not look into the actual performance of the voucher in depth because none of its targeted sample had implemented or participated in the voucher. The few references he made to the voucher were based on some limited information that he had come across as regards to the experiences from other countries, hence his study even recommended that another study on the voucher system in Zambia be conducted. The proposed study attempts to fill in the gap by evaluating the actual voucher performance in Mazabuka and Chongwe districts in Zambia by taking advantage of the new experiences on the ground that have come about as a result of the implementation of FAO Voucher programme. It is hoped that the proposed study will contribute to the existing local knowledge on the voucher operations in Zambia.

In the same year that Simfukwe conducted the above study, Kalinda and Sikwibele (2006) conducted another study that reviewed five different relief seed distribution programmes in Zambia and examined the strengths and weaknesses of the different approaches used by different implementing organizations. The programme reviewed the Governments Fertilizer Support Programme, Programme Against Malnutrition's Food Security Pack, the Food and Agriculture Organisation's Food Security Pack Project, the Food and Agriculture Organisation's Emergency Input Programme and Catholic Relief Services' Agricultural Recovery Programme. In the process, two systems of input procurement and distribution were prominent, which were the seed fair and the direct procurement and distribution. The study explored how the existing seed fair-based approach can potentially support farmer seed systems and the development of a sustainable commercial seed market. Based on information from Western Province in Shangombo and Sesheke, the study found out that there were restrictions in farmer participation to sell their seed at the Seed Fair, so instead the system favoured the registered commercial dealers. It was also found that the commercial dealer participants were actually from the urban areas other than local. This was perceived as a threat to sustainability of input access for the rural farmers. It was perceived as not sustainable in that the commercial dealers did not have physical presence for continuity, for the farmers follow up purchases and also lacked knowledge on the farmers' needs. The

study recommended that a clearer understanding of local seed markets need to be established and used in the design of seed interventions. The other recommendation was that the application of alternatives to direct seed distribution, such as seed fairs attempted by CARE in Zambia and just seed vouchers being used in Mozambique and Malawi need to be carefully evaluated, and used if appropriate. Kalinda and Sikwibele's study is relevant to the proposed study in that the study in Western Province discusses the use of input support systems. The study was also useful in that it helped the researcher to be aware of the potential problems in the input distribution systems, be it the voucher scheme which is the focus of the study. In fact, it is said that a new research depends on the past knowledge, hence Kalinda and Sikwebele's study was useful in shaping this study.

However, the study by Kalinda and Sikwibele (2006) was done in Shangombo and Sesheke districts of Western Province. Moreover, their study focuses on another type of input support system Seed Fair which was earlier explained. Lastly Kalinda and Sikwibele (2006) acknowledged that the voucher scheme could not be studied adequately because there were little or no activities at that time in Zambia on this type of voucher. This further enhances the importance of undertaking the study on the voucher scheme that the dissertation focuses on. Additionally, Kalinda and Sikwibele (2006) analyzed the Seed Fair (which establishes temporally local markets) which is different from the voucher scheme (using already established local markets) being implemented by FAO/MACO. According to Kalinda and Sikwibele (2006), this approach involves one-day markets or fairs organized for farmers to which seed stockists and companies are invited to bring certified seed for sale. Seed-needy farmers are identified and issued with vouchers of a given monetary value, which they exchange for seed of their choice. As for the input voucher, it involves the beneficiary farmers redeeming their vouchers for inputs with the local existing agro dealers for a period of time (more than a week). Already the clarified difference in length for redeeming and agro dealer participation between the two programmes is an indication of the gap that calls for another study to bring about information for the voucher scheme which was not studied by Simfukwe and Kalinda. Moreover, even if similarities can be drawn between voucher scheme and Seed fair, Kalinda and Simfukwe's study were drawn from experiences from Shangombo and Sesheke, while this study focus on Mazabuka and Chongwe. The two samples have different market systems that are likely to influence the performance of the voucher system.

As follow up to the above studies conducted in 2006, Kalinda and Simfukwe (2007) conducted a joint study on input voucher in Zambia. The study was aimed at identifying

whether and how input vouchers being used in Kenya, Malawi and Mozambique could be an effective mechanism for integrating the non-commercial and commercial input markets. According to Kalinda and Simfukwe (2007), based on experiences from other countries, they concluded that there are benefits to using the input vouchers as well as the direct procurement. However, no strong preference for one over the other was put forward. The study provides useful information that creates a base for comparing the different types of input delivery systems. By being aware of other agricultural input distribution systems discussed in Kalinda and Simfukwe's study, there is more potential to validity for future studies like the proposed study. It makes it easier for the future studies to identify the major concepts and create boundaries to the application of these concepts so that the studies are more focused. Kalinda and Simfukwe had reservations in pointing out rightly the benefits of the input voucher because their study did not focus on any particular voucher programme in Zambia so as to get the true experiences, though in some cases the study was drawing on international experiences by looking at the performance of voucher programmes in Kenya, Malawi and Tanzania and tried to generalize those findings to the Zambian situation.

There are so many variables that influence the performance of voucher scheme in different countries at different times. The size of a country, the political situation, the market development among many other things are some of the factors that can affect the performance of voucher scheme in different countries. Although, the mentioned countries being used as analogies are all developing countries, their economies and political situations cannot be replicated, as such their performance of the voucher programmes in these countries cannot easily be generalized. Moreover, when one analyses clearly the voucher schemes in Kenya, Malawi and Tanzania that Kalinda and Simfukwe tried to analyse, all the three countries implemented the voucher schemes differently thereby likely to impact differently on the success rates. As for Kalinda and Simfukwe, they analysed the vouchers in the three countries as if they were all the same. The study was also more theoretical as it did not collect information from people at whom the programme was targeted to benefit. The findings were based on the managers who designed the programme and are likely to give biased information. The proposed study will collect information from the beneficiaries of the programme as well as the implementers to get a balanced perception. Lastly, Kalinda and Simfukwe's report was a consultancy report.

Another related study was conducted by a team commissioned by Ministry of Agriculture and Cooperatives led by Mbozi (2009). The objective of the study that was undertaken from 14th to 24th February 2009 were to better understand various approaches by

national Governments in Kenya, Tanzania and Malawi. More specifically, the study was aimed at understanding how to effectively build capacity among the resource constraint smallholder farmers for strengthening their ability to acquire input delivery services under full market conditions; and assist private sector players in developing a service delivery network that reaches out to previously under-serviced rural farming communities. The report made recommendations that in order to improve FSP effectiveness and efficiency, especially with regards to timeliness and cost-effectiveness of inputs procurement and distribution, FSP impact on food security and farm incomes, and a better value for money, a change in the mode of inputs procurement and distribution, from the current system to a Voucher Based Inputs Supply System be made. The report provides insights into the multi-dimensional problems that Zambia's subsidy system is facing. In as much as the study is important in validating the voucher scheme, it was based on experiences from other countries. With consideration that Zambia has now gained its own experiences with the voucher, there is need to assess the extent to which the voucher improves input distribution. The study was used to review the Fertilizer Support Programme that does not use the voucher but the direct procurement and distribution, therefore there was no empirical basis to conclude that since the direct procurement is not working well, then the opposite (voucher scheme) would necessarily work. An undertaking of an empirical research, therefore, becomes necessary and hence the relevance of the study we are undertaking.

*Literature on Other Experiences*

Apart from the Zambian literature on the voucher system, authors in other countries have also made useful contribution on this topic. There are six scholarly pieces of work that are prominent on this subject which we shall particularly focus on. These are the works that have been done by Ian Gregory (2006), Kachule and Chilongo (2007), Catherine Longley (2005 and 2007), Nicholas Minot (2009), and Dorward et al (September 2008).

The study done by Gregory (2006) on input voucher was focusing on Malawi, Afghanistan and Nigeria. The aim of the study was to establish the role of input voucher in the pro poor agricultural interventions. The study found out that farmers generally expressed satisfaction with the voucher scheme and wanted it to continue because it provided easy and timely access to cheaper subsidized fertilizer and accessibility to supplies was improved by the proximity of dealer locations. Dealers were generally favourably disposed to the sale of fertilizers through the voucher system but indicated some early implementation problems regarding the countersigning and endorsement of vouchers.

The conclusions were that, early indications are that vouchers provide pro-poor flexible interventions that reduce risk in developing markets for the most food-insecure and small nascent input dealers. Sustainable development can be achieved only when vouchers are used in conjunction with other necessary market development initiatives and impacts monitored. They can provide a flexible means of providing crop production credit by donors with benefits for both food-insecure farmers and Agric-input dealer networks. The vouchers can also play a vital role in "jump starting" market inclusion for millions of smallholder farmers in Sub Sahara Africa (SSA). The study recommended that each country and donor must understand the needs of targeted sections of the rural population and design such voucher schemes to meet the needs of the targeted population.

Gregory's study is significant in that it brings out an important aspect of the actual implementation of the voucher schemes, where the extension messages are combined with the input distribution. For instance, in Malawi, the selected dealers were also expected to play a role in transferring messages on correct inputs usage; thus, they were trained in demonstration plot management and given leaflets depicting correct usage techniques for distribution to beneficiaries when they redeemed their vouchers. This information was useful to the researcher to be aware of, because it is such small aspects that affect the performance of the voucher (increasing the crop yields) in different countries. The study also provided evidence based results on the voucher implemented in Malawi, Afghanistan and Nigeria which provided a reference point for this research. The findings of Gregory's study were also important in strengthening the validity of this study. For instance, similar to this study's findings, Gregory (2006), also earlier found that the voucher improved timely access to cheaper agricultural inputs and increased farmer satisfaction.

The voucher schemes in all the three countries were less complex as they were designed to distribute at a maximum of only two agricultural inputs. In Malawi, the voucher was restricted to the distribution of fertilizer and maize seed. According to Gregory (2006), in Afghanistan, it was designed to provide fertilizer and wheat seed, while Nigeria was simply fertilizer. The range of inputs provided through Afghanistan and Nigeria Voucher Scheme are some of the major inputs that are normally readily available in the local agro dealers' shop and may have influenced the performance of the two voucher implementation. The voucher should go beyond restrictions in order to improve crop diversification and develop markets for local varieties that are normally resilient to the harsh weather patterns. The proposed study intends to focus on a flexible type of voucher scheme that was open to provide different types of inputs that included soya beans, beans, groundnuts maize, herbicide, fertilizer,

rippers and chaka hoes that the beneficiaries could choose from. This flexibility is actually what brings about complexity in the study, because it should be assessed as to what extent flexible voucher promotes crop diversification. It challenges the agro dealers to provide the stocks that are responsive to the farmer's requirement.

Kachule and Chilongo (2007) conducted another study on Malawi. The main aim was to test the potential benefits of using voucher systems to integrate the commercial and non-commercial input distribution channels. The study revealed that the subsidy programme has contributed to improved food security at household level and surplus maize production at national level. The Ministry of Agriculture attributes the 0.5 million and 1.3 million tones surplus production during the 2005/06 and 2006/07 seasons to the government subsidy programme. Within two seasons, Malawi has been able to export some surplus maize to neighbouring countries after having been a net importer of maize for over a decade. The study by Kachule and Chilongo (2007) provides a benchmark for comparing their study with the proposed one and many other future related studies. However, the study by Kachule and Chilongo were not academic works and they were done in a different environment to the Zambian one. On the other hand, the voucher in Malawi is only used for maize seed and fertilizer, while the one being proposed to be assessed is broader as it also includes agricultural tools and herbicides. Such a difference can influence the performance of the voucher. On the other hand, even though Kachule and Chilongo's (2007) study was intended to test the benefits of the voucher, the study did not analyse the cost effectiveness of implementing the voucher scheme, which is important in determining how beneficial the voucher is from the implementer's point of view. Nevertheless, reviewing this literature was the only way, this gap was realised and included in this study. In other words the study was important not only in providing knowledge on the benefits of the voucher scheme but also in identifying gaps that have been filled by this research.

Another similar study was conducted in Mozambique by Longley (2007). The main objective was to compare the voucher system with the direct procurement or different methods of input procurement and distribution in Mozambique and Ethiopia. The evaluation report also notes that the voucher approach 'supported the return to a market-based system'. Longley's study improves the effectiveness in expressing concepts through providing familiarity with language most prominent in the agriculture sector. It is believed that reading, writing and interacting with literature promotes true learning by integrating critical thinking, and so Longley's study is important for this purpose. Notwithstanding the insightful observations, according to Longley (2007), in Mozambique, relatively little documentation

exists on the systems in which beneficiaries are able to exchange their vouchers over a longer time frame and for a much wider choice of inputs (a system which the researcher is interested in). Longley also acknowledged that, detailed data on the comparative cost effectiveness of different approaches are lacking. Should this be the case, then the proposed study is of paramount importance in contributing to the current limited documented body of knowledge on the subject beyond the boundaries of Zambia.

In her earlier study again on Mozambique, Longley (2005) specifically focuses on recent experiences with Input Trade Fairs (ITFs) and vouchers. The study examined the reasons for the shift from the direct distribution of emergency seed kits to Input Trade Fairs (ITFs) and vouchers, and highlights the perceived advantages and disadvantages of the ITF/voucher. The findings of the study were that, the ITFs and vouchers encouraged commercial activity at a local level, despite the observation that the majority of the proceeds from Input Trade Fairs (ITFs) do not necessarily remain in the local communities. However, the most successful Input Trade Fairs (ITFs) (in terms of levels of participation and overall turn-over) are those that take place in areas where markets are already well-developed. The study went further to recommend that much greater effort should be placed on ensuring the quality standards of formal sector seed – for seed which is provided through Input Trade Fairs (ITFs) and other formal sector seed channels. Longley's contribution is very useful, as it broadens the knowledge on the different data interpretations and the understanding of the operations of the Input Trade Fair using the voucher. It helps us to clearly understand the different methods of input distribution in order to avoid mixing them up and focus our input interventions better. The understanding that this study provides, lays a base to have the ability to take in new information on input voucher and apply it to our own studies and understanding.

In Minots (2009) study focusing on the subsidy in Sub Sahara Africa with particular focus on fertilizer subsidy pre liberalization and post, the findings of the study were that the universal subsidies of the 1970s and the 1980s, despite being costly and inefficient, stimulated fertilizer usage and crop production. On the other hand, input vouchers only promote private distribution if they are well designed, as could be seen in Malawi where it has failed to do so while in Tanzania it has. It was also found that the voucher can also suffer the delays in delivery as was observed in Ghana in 2008 and Malawi in 2003. The study concluded that to ascertain whether the voucher system is the best way forward, still requires more evidence, which the proposed study hope to contribute to. Minot's study brings out a lot of experiences from different parts of Sub Sahara most of which provide insight for this

study. The study was too broad in its target. It targeted all the Sub Sahara Countries, without so much consideration that even sub Sahara countries are at different levels of development, and that setting universal parameters for the study may not be appropriate.

Another related study was conducted by Doward et al (2008) with the aim of finding out the effectiveness of voucher scheme. Doward's study found out that, in Malawi, the 2006/7, input voucher programme resulted into distribution of more than one million unbudgeted "supplementary" fertilizer vouchers causing a total over expenditure of 25%, which was already 40% of the Ministry of Agriculture budget and over 5% of the national budget. Dorward also pointed out that voucher scheme does not solve the issue of late delivery agriculture inputs, because issuance of voucher can also delay, with undeveloped local markets leading to stock outs leading to many farmers spending long periods queuing for their inputs and delaying the planting/fertilizer application resulting in low yield as was the case in Malawi. He adds on to say that, voucher management is very demanding on staff involved in the implementation. Doward's observations call for proper analysis on the suitability of voucher. What level of farming intervention can use the voucher system? What is the most appropriate way of using the voucher scheme? Is there a way the above sighted constraints can be offset? This study will attempt to answer these questions to build on the contributions of Doward on the voucher system.

Over and above all, the literatures reviewed provide insights into the challenges and opportunities that are there for use of the voucher schemes both locally and internationally. The literatures reviewed also provide a benchmark for the future research to try and dig deeper. Actually, sustainable development requires continuous generation of the knowledge for improving the processes of programme implementation. Since we are leaving in a global world, where change is happening every day, even the programme performances are being affected. One cannot be very sure that the evaluation results of similar programmes conducted at different times will yield similar results, hence the need for continued research like this study.

On the other hand, replication in research also improves the level of confidence. According to Campbell and Stanley (1963), experiments really need replication and cross-validation at various times and conditions before the results can be theoretically interpreted with confidence. This justified beyond doubt carrying out this study.

## *Research Methodology*

This section discusses the data collection process that was used in this study. Specifically, it outlines key issues pertaining to the research strategy, description of study target population, study design and approach, data collection methods and analysis strategies used.

### *Research Strategy*

This study is a case study of the Food and Agriculture Organisation (FAO)/ Ministry of Agriculture and Cooperatives (MACO, Agricultural inputs support Voucher scheme for small scale farmers focusing on two districts, Mazabuka and Chongwe districts. The study used four types of data collection strategies, desk review of information pertaining to the research topic, survey of households, focus group discussions, and interview with key informants. Literature review was conducted to have an overview of the different targeting processes and also to learn about the successes, failures of the voucher input subsidy targeting implementation gaps. Surveys were done to collect household level information on voucher performance, household crop production, subsidy targeting criteria, household livelihood options and food security. To supplement the surveys, the focus group discussions and key informants interviews were conducted.

### *Data Collection Method*

For this study, data was collected from both primary and secondary sources. The secondary data sources were various books, journals, documents of the project, assessments, review reports, some of which were obtained from Food and Agriculture Organisation (FAO), Ministry of Agriculture and Cooperatives (MACO), donors and relevant stakeholders. Acquiring secondary data is more convenient to use as it is already condensed and organized. Moreover, analysis and interpretation can be done more easily.

The primary sources of data came from a questionnaire and interviews conducted by the researcher. The sample for interview consisted of programme non/participating small sample of farmers, Agro dealers, Farmer beneficiary, Ministry of Agriculture and Cooperatives and Food and Agriculture Organisation staff. The primary data is very important as it frequently gives the detailed definition of terms and statistical units used in the survey.

In order to maximize validity of the evaluation results, a feasible combination of qualitative and quantitative methods of data was used. For in-depth knowledge, qualitative data was collected through interviews from key informants, while quantitative data was collected from farmers.

*Description of the Study Site and Target Population*

This study was conducted in Chongwe and Mazabuka districts that are among the participating districts in the voucher scheme under the FAO/MACO programme. Chongwe is located 40km east of Lusaka, whereas Mazabuka is 120km south of Lusaka. The two districts are closer to Lusaka and were selected based on convenience for the researcher in terms of time available to collect data and also financial resources. The study was targeted at households that have benefited from the voucher scheme as well as those that have not benefited to serve as a control.

*Sampling Procedure*

In order to meet the study's time and analytic constraints, the researcher restricted the target population to two districts as earlier mentioned, Mazabuka and Chongwe. The research areas were sampled using the Convenience or opportunistic sampling.

Data for this study was collected at three levels;

1. Beneficiary level – Voucher Scheme beneficiary and non-beneficiary farmers
2. Input supplier level - i.e. Agro dealers
3. Institutional level - Ministry of Agriculture and Cooperatives (MACO), Food and Agriculture Organisation (FAO) and Conservation Farming Unit (CFU).

For quantitative data, a total of eight (8) camps in each district were sampled giving a total of 16 camps in both districts. The eight Camps in Mazabuka were Kalama, Nega Nega, Simutwe, Konkola, Nansenga, Nadazwe, Munenga and Chinyunyu. In Chongwe the selected eight camps were Mpashya, Ndubulula, Lukoshi, Chainda, Mwachilele, Honda, Chinkuli and Oliver. In each camp, 15 households were randomly sampled and interviewed. Out of the 240 total household sample, 60 households were non beneficiaries to the voucher scheme. The farmers' sample for the study was selected using random sampling method. This was feasible in that the sampling frame already exists; the project has a list of all agricultural camps and farmers. On average, each district has about 30 Agricultural Camps. The FAO Programme is covering 24 camps in each district with total number of 28 farmers in each camp.

The study randomly selected 8 camps in each district. Every third camp on the sampling frame in each district was part of the sample, where the questionnaire was administered. The 240 household sample was pre-determined as per researcher's capability. To distribute this sample size into the selected 16 camps, 240 farmers was divided by the

number of camps (16) to come up with 15 households as sample size per camp. The study further separated the total sample size into 75 percent beneficiary sample and 25 percent non beneficiary sample. As a result of this, for every 15 households, four of these were non beneficiary households. The sampling went further to factor in the gender aspect, so the sampling frame separated the female from male to get the ratio. For instance, to sample the beneficiary group of 11, Honda Camp in Mazabuka had 10 females and 18 men, the gender ratio was 10:18, which further simplified ratio of female to male as 1:2. The sampling for the female was 1+2=3. Then further1/3x11=3.6 rounded off as four females. The male sample also was arrived at as follows 2/3x11=7.3 rounded off as seven (7) men. To get the sampling interval for the four women out of beneficiary sampling frame of Ten (10), we divided the total number of women by the required female sample size of four in Honda Camp (10/4=2.5) So from the list of Ten (10) female beneficiary sampling frame, we counted and got every second name on the list to be part of the sample until four females were selected for the interviews. The formula was repeated in all the camps for both beneficiaries and none beneficiaries groups.

For qualitative data, four (4) focus group discussions with at least 10 household representatives were conducted in each district with a total 80 household participation in the focused group discussion in two districts. The rationale for focus group discussions was to capture in-depth information on community perceptions about the voucher scheme, benefits of the scheme, crop production related constraints and role of the voucher scheme in alleviating the crop production constraints. Random sampling was also used for the focused group discussion. This was every seventh ($7^{th}$) camp that was selected for the discussions. The study sample was 100% met and thanks to the researcher's strong collaboration with the Ministry of Agriculture and Cooperatives (MACO), districts structures. The farmers provided information relating to their experiences on the voucher, in terms of the benefits, if any, of their interaction with the agro dealers during the voucher redemption process. The farmers as the final point of distribution chain provided insights on delivery time and consequences of having a choice on type of inputs to procure.

The qualitative data was also provided through key informant checklist which was administered to key stakeholders involved in the voucher scheme implementation. The targeted key informant categories for this study included: Agricultural extension who are in three categories; 16 the camp extension officers, four district extension staff and at the national or policy level the Deputy Director of Agriculture was interviewed. At technical level of the Food and Agriculture Organisation, the agronomist, Operations Officer and the

Emergency coordinator were included in the interview whilst at policy level the Country Representative was interviewed. At Conservation Farming Unit, the Country Manager and a Technical Officer were chosen purposively and interviewed.

Agro-dealers, these are local business houses specialised and registered to deal in agro inputs. They are located at the district business centre.The presence of agro-dealers in the districts is very low, each targeted district had an average of four agro-dealers. The study interviewed all the participating Agro-dealers in the two districts, bringing agro dealers sample size to eight (8). The Agro-dealers provided information on the effect of the 2009/2010 FAO/MACO voucher programme. They also shared their experience of their interaction with the farmers and shared with the researcher the type of information on the agricultural inputs that they share with the farmer as the farmer procures the agricultural inputs. The Agro-dealers also provided information on their experiences with the FAO/MACO Voucher scheme, such as the contribution of the programme to the expansion of the local market.

The other sample of the key informants is the Ministry of Agriculture and Cooperatives (MACO), and Food and Agriculture Organisation (FAO), at policy level, the donors and Conservation Farming Unit (CFU) were also selected using judgmental or purposive sampling techniques. The overall sample size for the study therefore comes to about 353.

*Data Analysis Strategy*

The initial analysis of qualitative data occurred throughout the research study, from the first day of data collection. The method used for qualitative data analysis was the Anselm Strauss's Constant Comparison or the Grounded Theory.

The quantitative data that was collected from the in-depth household interviews was coded in a computer and analyzed using the Statistical Package for Social Sciences (SPSS) software and Ms Excel. At the analysis stage, data was disaggregated according to gender to reflect impact of the scheme by household type.

In detail, the analysis of findings in this study was based on the sustainable livelihood framework and multi-stakeholder analysis approach as noted by Chambers (2007) in his working paper 293 that when looking at societal problems the focus should not only be on one dimension but address other dimensions by looking at different stakeholders. In the area of food security interventions, this study captured information related to the design of the voucher scheme, type of inputs purchased by beneficiary households, organisational

structures at community level in relation to the voucher scheme implementation, household targeting criteria in relation to socio-economic categories of beneficiary households and policy issues by interviewing different stakeholders to get different views of the stakeholders on how the voucher scheme is being implemented by FAO and its partners. The analysis of changes in crop production and productivity between households that received and those which did not receive voucher scheme support were done to assess impact.

### *Limitations of the Study*

The study was based in Chongwe and Mazabuka and therefore, the findings suffer limitations in making generalizations applicable to a larger scale. It was very difficult to collect information related to costs of implementing the programmes. There is likelihood that some people interviewed may have distorted the information especially on areas of weaknesses on the programmes in order to paint only a positive picture.

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## CHAPTER TWO

# BACKGROUND TO THE AGRICULTURAL INPUT SUPPORT SYSTEMS AND POLICIES IN ZAMBIA

### *Introduction*

This chapter is aimed at providing insights on the history of agricultural input provisions methods before the voucher scheme was introduced and relevant policies towards improving food security in Zambia. This chapter, in essence provides the necessary content in discussing how the scheme is actually managed in the Chongwe and Mazabuka, this being the subjects that will constitute Chapter three and four. Moreover, this is very important as it provides an understanding of the changes that have occurred in the agriculture sector, in addition to providing a useful context to the voucher scheme which is the focus of this research. In order to do so, the chapter reviews Zambia's agricultural sectors' food security policies. It looks at the history of the implementation of agricultural subsidies from independence (1964) to 2008 and what led to the introduction of the Voucher Scheme in 2008 which is the core of the study. The chapter will also look at agricultural production systems in the study areas: Chongwe and Mazabuka, as the production system have potential to either influence or be influenced by the voucher scheme.

### *Historical background of Zambia's Food Security Policies (1964-2008)*

A food secure country is a backbone to development. Based on the understanding that access to food is a natural right for any human being, the Government of the Republic of Zambia (GRZ) has since independence been committed to building a food secure nation through different Food Policy and Food security measures. Soon after independence, Zambia had an important policy objective to increase food security. According to Jayne et al., (2005), the specific objectives were (a) expansion of state crop buying stations in smallholder areas that had been excluded from these benefits under the former colonial regime; (b) continuation of direct state control over grain supplies and pricing; (c) efforts to stabilize and often subsidize urban consumer prices without reliance on imports; (d) elimination of the dominant role of non-indigenous minorities; and (e) shifting the cost of the marketing system. The government controlled the prices of agricultural produce and was also involved in the processing of agricultural produce. According to Chizuni (1994), where the millers fixed the price, government directed the millers to reduce the price to the government set price and then

millers would claim the difference from government. In other words, Government subsidy was not only to the small scales farmers but also to the consumers of agricultural produce.

While the post-independence model of service provision to smallholders appears to have had important successes in boosting grain production and incomes in some rural areas, by the mid-1980s major problems had emerged in all the countries that propelled the grain marketing systems toward reform. One of the problems that emerged was the state system of input delivery and crop payment that became increasingly unreliable. The reforms took place in mid 1980s, the private sector was accorded a major role in responding to the opportunities opened up by liberalization, but the private sector's response was weak because of market failures, high transaction costs, and coordination problems between different stages of marketing. Consequently, most small scale farmers were unable to access modern inputs and were cut off from stable and remunerative output markets that could have enabled them to raise farm productivity and initiate a transition out of poverty. To address these challenges, the United National Independent Party (UNIP) Government re-introduced the subsidy on agricultural production and took up the responsibility of delivering the agricultural inputs to the small scale farmers.

However, the subsidy was short-lived, in 1991 the Government was taken over by the Movement for Multiparty Democracy (MMD). The new government liberalised agricultural production and marketing as was before in the UNIP era of the mid 1980s. This meant that the government stopped subsidizing agricultural inputs and agro produce. During this period some gains were made in agriculture. According to Kalinda et al, (2003), there was an increase in crop diversification and the role of out grower schemes. However, in terms of area under cultivation, the volume of production, and the number of farmers involved in production of maize went down. The maize was a focus of analysis for most food security evaluations because it is the major agricultural product and also maize is the major staple food of most Zambians. For instance, small and medium scale farmers, who account for approximately 70% of the maize consumed in Zambia, dominate the production of maize. So what happened around early 1990s according to Kalinda was that, the contribution of maize to total agricultural production decreased due to diversification into relatively more profitable crops and other staple foods (beans, groundnuts, sunflower, cassava, sweet potatoes, etc). The diversification provided a wider base for food security. Under a liberalized environment, the private sector quickly moved into the areas with surplus agricultural production. The out-grower schemes facilitated small-scale production of targeted products, such as cotton, sunflower, vegetables, tobacco, paprika, etc, through provision of agricultural services

(extension, credit, and marketing) which were previously supplied by the government. The major focus of agribusiness activity was on high value products.

While appreciating some of the achievements that were made as a result of the liberalisation, a number of failures were also observed. According to Kalinda et al., (2003), the private sector activities were limited to a few areas. Even though the target of interventions was the small-scale farmer throughout the country, only some small-scale farmers along the line of rail benefited through the increasing number of out-grower schemes, which provided inputs, extension services, and marketing services. This had put many farmers, especially those in outlying areas, at a disadvantage. This resulted in low maize production, because most farmers could not access and afford the agricultural inputs (mostly maize and fertilizer the subsidized inputs). This was coupled with the poor weather. According to Jayne et al., (2007), over the period 1991 and 2002, the maize share of total small scale farmer crop output declined from 76 percent to 55 percent. Morris et al., (2007) also asserts that economic reforms in the 1980s and 1990s resulted in significant reductions in overall levels of fertilizer use and increased food insecurity among many rural households.

Minde at el (2008) add that, in Zambia more than 80% of small farmers make no commercial purchases of fertilizer. For them, all of the subsidized fertilizer they receive adds to their total fertilizer use. This picture shows that when farmers are left to fend on their own, only a few of the rural farmers afford to engage in productive crop agriculture and exacerbate food insecurity. Such a situation is not desirable in that low production by small scale farmers has a spillover effect to the urban consumers, in that the small scale farmers have a huge contribution to the national maize production as can be seen from the statics above by Jayne, all showing the important role that the small scale farmer plays in production. Additionally, the Crop Forecast Report of 2008/2009 agricultural season presented by the Minister of Agriculture estimated that 88 percent of maize produced, was done by the medium and small scale farmers. This implies that the small scale farmers influences the national food security by producing surplus food crops for urban residents (who are not producers but consumers) and rural residents who are not food self-sufficient. It is clear as to why the issue of access to agricultural inputs for the small scale farmers through national food security sustenance tend to preoccupy the Zambian Government. Over and above investing in agriculture is key to national development, according to Timmer (2005), no country has ever achieved mass poverty reduction without a prior substantial boost in broad based agriculture productivity. On the other hand, according to Chapota's presentation 6$^{th}$ October 2010, based on Latin

America's experience, it is possible to achieve agricultural production growth on large farms without having much impact on poverty rates in a country.

### *The Introduction of the Fertilizer Support Programme*

Having evaluated the past (between 1964 to 2001) experiences on agricultural liberalization and non liberalization and respective performances, in 2002 the MMD Government had to rethink its strategy of complete liberalisation of the agricultural sector it undertook in 1991 and re-introduced the agricultural input subsidy through Fertilizer Support Programme (FSP). This is in addition to the remodelling that was done in 1995/6 where some levels of control on grain marketing was instituted through Food Reserve Agency (FRA) to hold strategic reserves thereby indirectly affecting the market prices.

Through FSP, Government has been involved in direct procurement and distribution of agricultural inputs at a subsided rate. This was done to boost agricultural production and eventually increase national and household food security. Evidently, upon the re-introduction of subsidy through Fertilizer Support Programme (FSP) in 2002, Zambia recorded an increase in production. Inter Press Service News Agency (IPS), 2nd April 2010 reports that in 2002/2003 agriculture season, Zambia recorded an increased maize production so much that some stocks were exported. While on the other hand, according to Zulu et al., (2000), the withdrawal of maize marketing and input subsidies, beginning in the early 1990s, maize production in Zambia trended gradually downward over the ensuing decade and a half, though amid wide weather-induced variation.

Before going into details, it is important to mention that there are other factors such as weather that influence positively or negatively the production in addition to agricultural input availability and accessibility. Nonetheless, the Table 2.1 below shows that maize production in 2001/2002 when there was no subsidy, for both the small scale and medium scale was 427,240 tonnes (shared as 362,566 tones small scale and 64,674 tonnes for the medium scale). Then in 2002/2003, when Government introduced the input subsidy the maize production went up for both small scale and medium scale farmers to 823,209 (shared as 664,665 small scale and 158,544 for medium scale farmers). The maize production increased by 48 percent the year prior to subsidy and the year of subsidy. As the subsidy continued, increase in production was also recorded in 2003/2004 that surpassed the year one of subsidy with 993,930 tonnes of maize produced. In 2004/2005, the maize production trended downwards to 598,411 tonnes, though not below the year 2001/2002 when there was no subsidy. In the year 2004, Zambia experienced a drought which could have negatively

affected the production. The subsidy has continued to date, 2011, and years thereafter, 2004 have continued to record increased maize production for small scale farmers and medium scale farmers. The records show the production as follows 1,106,751 tonnes, 1,103,679 tonnes, 988,169 tonnes for 2005/2006, 2006/2007, 2007/2008 respectively. Table 2.1 summarises the maize production from 2001 to 2007

Table 2.1

*Maze Production Trends*

| Agricultural year | Total Maize Production (mt) | | | Intended Total Maize Sales (mt) | | |
|---|---|---|---|---|---|---|
| | Small scale | Medium-scale Total | Total | Small Scale | Medium-scale Total | Total |
| 2001/2002 | 362,566 | 64,674 | 427,240 | 50,971 | 25,592 | 76,563 |
| 2002/2003 | 664,665 | 158,544 | 823,209 | 139,614 | 78,590 | 218,204 |
| 2003/2004 | 824,453 | 169,477 | 993,930 | 156,577 | 84,333 | 240,910 |
| 2004/2005 | 503,711 | 94,700 | 598,411 | 87,010 | 27,947 | 114,957 |
| 2005/2006 | 892,454 | 214,297 | 1,106,751 | 232,355 | 125,866 | 358,221 |
| 2006/2007 | 847,395 | 256,284 | 1,103,679 | 244,924 | 153,100 | 398,024 |
| 2007/2008 | 815,911 | 172,258 | 988,169 | 258,121 | 98,991 | 357,112 |

Source: Crop Forecast Surveys, 2000/2001-2007/2008, MACO & CSO

The subsidy being referred to above is provided by Government through a programme called Fertilizer Support Programme (FSP). The Fertilizer Support Programme has been engaged in direct procurement and distribution of the seed and fertilizer to the small scale farmers. The direct procurement and distribution entails that, the agricultural input procurement system is centralized. The Ministry of Agriculture and Cooperatives at Head Quarters in Lusaka have to procure inputs for all the beneficiaries under the Government subsidy programme nationwide through the process of tendering/obtaining sealed bids from registered Agro Suppliers. The successful bidders are then given contracts to supply and transport the seed to various districts for subsequent distribution to farmers through the Cooperatives. According to Simfukwe (2006) the major suppliers to the FISP Programme are Zamseed, MRI, Pannar, and Seedco, Nitrogen Chemicals of Zambia and Nyiombo Investments. The direct procurement and distribution has its own benefits as could be seen from the Table 2.1 showing increased maize production and according to Mr. Alick Daka,

Deputy Director Agriculture, he mentioned that for the 2010/2011 agricultural season, 891,500 small scale farmers were earmarked to benefit from FSP now called Farmer Input Support programme (FISP) (Interview, 13 August 2010). Additionally, Mbozi (2009) highlighted that FISP in its first seven years of implementation while using direct procurement had managed to distribute a total of 422,000 Mt of fertilizer (valued at ZMK1, 361.1 billion), covering a total of 1,505,000 hectares of small scale maize. Annually, the programme supplied an average of 60,000 metric tonnes of fertilizer covering about 150,000 small scale farmers, (each with a 1 hectare input pack for maize) countrywide.

From the interview with the Country Manager, Conservation Farming Unit, it was revealed that the direct procurement system gives small scale farmers access to inputs at a current 75 percent subsidized price, and also the system delivers agricultural inputs right in the communities by government or programme implementer (Interview, 20 January, 2010). The report by Agricultural Consultative Forum (ACF) also shows that most agro dealers are located along the line of rail, and as such for private sector agricultural input delivery to provinces like Luapula, Western, Northwestern and Northern provinces are problematic, hence giving some popularity to the direct procurement and distribution. With indications by Simfukwe (2006) that, despite the agricultural input urban market being very impressive as of 2006, there was no evidence of permanent presence of seed trading at rural community level, and servicing these rural farmers may be very difficult through the local private markets. The direct procurement and distribution offsets some challenges of agricultural inputs accessibility and availability.

Another important aspect to note is that when using the direct procurement system, the issuance of the contract and delivery inputs to the beneficiary can be done prior to funds being released. The direct procurement has an advantage, in that the programme implementer can have the agricultural inputs supplied to the beneficiaries before payment is made. This may not be the case when using the electronic voucher because the electronic voucher pays for goods as they are supplied. The system of procuring on credit is important for the Zambian Government, because in most cases Government releases the funds late. The Report on Proposed Reforms for Zambian Fertilizer Support Programme (2009), cites delays to release funds by Ministry of Finance and National Planning as one of the major challenge FSP faces. With this challenge, the direct procurement which can be done on credit is very advantageous for Governments and beneficiaries in Africa and Zambia in particular that have financial challenges. Under the direct procurement system, once a contract has been issued to the supplier, it acts as surety enough for the supplier to deliver agricultural inputs to the

farmers and payment is done after delivery, thereby giving government more time to organize its resources, while giving access to farmers to acquire inputs before they are paid for.

The above positive results notwithstanding, there have been a number of concerns about, the direct procurement and distribution in Zambia. The issue of policy inconsistency was sighted by the study conducted in 2009 on the performance of the FSP. Government has put up policies on private participation, so Government involvement in direct procurement through Fertilizer Input Support Programme (FISP), contradicts its effort in promoting private participation and development. Also Mindel et al (2008), substantiates further that the current mode of implementing subsidy in Zambia that uses direct distribution displaces 20-50% commercials sales of fertilizer. For instance, for the 2010/2011 agriculture season, Government was providing inputs to 891, 500 small scale farmers out of the total 1,200,000 scale farmers in Zambia. The implication is that the private input supplier's potential buyers have already been supplied by government leaving only 25 percent of farmers population as potential customers, that may not warrant the capital investment of the private input suppliers in the rural areas. In other words, the direct procurement and distribution has potential to hamper private sector development in agriculture.

On the part of Government, it is also a huge financial and administrative burden to engage in procurement and movement of agriculture inputs. The direct procurement and distribution of agricultural inputs, for instance, for 2010/2011 season to about 891, 500 farmers in 73 far apart districts of Zambia is quite a complex process. It involves arranging and paying heavily for the transportation and storage of over 1.2 million tons of bulk agricultural inputs. Some of the activities like storage and part of transportation may be transferred to private sector, by using local agro dealers or other indirect methods of procurement. The complexity of the direct procurement and distribution may be a contributing factor to the cited delay in the accessing of agricultural inputs and late planting by the farmers and the subsequent reduced the crop yields. According to CSO/MACO (2004) late planting has potential to reduce crop yields thereby affecting food security situation. The CSO/MACO (2004), crop forecast data reported an average 33 percent reduction in yield per FSP beneficiary. Emanating from the above shortcomings, the lack of sustenance, late delivery of inputs to farmers, limited private sector participation, and the high administrative cost, poor fertilizer use are efficiency factors that are attributed to the direct system of procurement and delivery. Mbozi (2009), notes that, despite the massive input subsidy by the government and donors on agricultural inputs to the small scale farmers, the rate of increase in agricultural production does not seem to correlate with the cost of programme investment.

Similarly, the former Tanzanian President, Julius Nyerere once noted that development is about people, it must have effects in people's lives by changing them for the better. The current situation is that from 2002 when it was re-introduced to date 2010, there is no record showing farmers whose lives have improved and are ready to be weaned off, but if anything the number of beneficiary farmers continues to rise every year. This therefore, has continuously been calling for the need to re-look the programme implementation of the Government subsidy. The Government of Zambia and agricultural stakeholders are alive to these facts. The Permanent Secretary, Isaac Phiri during Parliamentary Public Accounts Committee was quoted to have said that it's not easy to run the FSP indicating that the desirable strategy was for the private sector to play an active role and not the Government. Government seems to have made some efforts to address the challenges. In January, 2009, a study tour led by Ministry of Agriculture and Cooperatives was undertaken to Kenya, Tanzania and Malawi to learn how the subsidy in Zambia can be implemented in an efficient and effective manner. In another attempt, according to the 2009 Annual Progress Report of the Fifth National Development, the Fertilizer Support Programme (FSP) changed its name to Farmer Input Support Programme (FISP). The change was an effort to address some issues of beneficiary targeting and sustainability of the programme. On the other hand, other Non Governmental Organisations in the agricultural sector have also been looking at efficient and effective ways of implementing the subsidies to realize timely delivery of agricultural inputs, private sector involvement, reasonable administrative cost and reduced administrative time by the implementer. According to Minde et al (2008), achieving the benefits of the input subsidy depends greatly on how the programs are implemented. The contribution of fertilizer subsidy programs to reducing poverty and hunger would be higher if firstly the targeted areas supported with fertilizer can actually give positive net economic benefits; and secondly if the fertilizer subsidy can promote rather than undercutting the development of a commercial fertilizer distribution system". In 2005/6 agricultural season, the Catholic Relief Services piloted Seed Fairs as response to address the issues of inefficient agricultural input delivery system.

The Seed Fair is different from the Voucher Scheme (which is the focus of the thesis) as will be explained from the subsequent sections. The Seed Fair approach of input distribution brings the beneficiary farmers and the agro dealers/stockists in one central place at a given time usually the redeeming for inputs is done in a day. The agro dealer participation in the Fair is not restricted to established local agro dealers. The agro dealers are invited mostly from outside the targeted district but can include locals if they are available to

take the recommended agricultural inputs to a selected central place of the targeted areas. The programme selects and distributes vouchers with a monetary value to the targeted beneficiaries who redeem the vouchers to the agro stockists for the programme's recommended agricultural inputs or agricultural inputs of the farmers' choice depending on the programme design. The agro suppliers then exchange the vouchers with cash from the programme implementers. According to Simfukwe (2006), in Zambia, the Catholic Relief Services (CRS) and Oxfam have used this system before. According to Julius et al (2007), Seed Fair offers opportunities for substantial increases in the distribution networks and sales of formal sector seed, provided that the formal seed sector is able to provide seed of appropriate varieties (i.e., adapted to local ecologies and farmer preferences), at an acceptable quality and at a price that is affordable to farmers. Seed Fair should therefore be seen and utilized by the commercial seed companies as a means to increase their market outreach. Through local seed agents at fairs, the seed companies have great opportunities to reach more farmers and thus increase their sale of seeds and fertilizers. The Seed Fairs also support areas that have no networks of agro suppliers almost in the same way as the Direct Procurement does. Additionally, the Seed Fair takes away some responsibilities of handling, storage and transportation from the programme implementer's thereby increasing efficiency in the delivery of agricultural inputs. The system also gives the farmers a choice on their agricultural inputs. Mwalimu (2006) revealed that the limitation to the Seed Fair implemented by both CRS and Oxfam was the restriction of the seed supply to only Open Pollinated Varieties to the exclusion of hybrid seed. As a result of this, some agro-dealers were not able to participate in the programme. However, it is important to mention this shortcoming cannot be generalized as it was as a result of the project design making it not inherent to the Seed Fair.

Though the Seed Fairs has failed to penetrate fully in Zambia, they have provided good premise for refinement of the input provision systems through the lessons learnt from its implementation. The introduction of the voucher scheme in 2008 as method of input procurement and distribution is a build up from the Seed Fairs.

### *Introduction of the Voucher Scheme in 2008*

Zambia has a broad policy of encouraging private sector participation and competition as well as having the private sector driving the agricultural marketing and input supply system. The Voucher Scheme introduced in Zambia in 2008, involving decentralized indirect procurement and distribution of agricultural inputs is perceived to have the potential to

contribute to the attainment of the policy objective on private participation, market development and is also perceived to be an efficient means of distributing inputs to the small scale farmers. In other words, the voucher scheme has been introduced to address the issues of lack of private sector development, huge costs of input provision, late delivery of agricultural inputs, poor beneficiary targeting, poor monitoring of programme effects and food insecurity. Minot (2009) indicated that Input Voucher may reduce costs if distribution is done by the private sector. The voucher scheme in Kenya, Ghana and Tanzania was successful in reducing transaction costs, promoting private distribution networks. According to Byerlee (2009), the voucher scheme improved access by reducing distance of input dealers from 8km to 3km in Kenya. Following these success stories, Zambia also started procurement and distribution of agricultural inputs through the voucher scheme. The voucher scheme as a method of indirect procurement and distribution was not being used in Zambia until 2008, when Conservation Farming Unit first used it. In 2009, the Food and Agricultural Organization of the United Nations in Zambia (FAO) also started distributing agricultural inputs through the voucher. FAO has successfully distributed vouchers to a total of 21,000 primary beneficiaries in the last 2 years (interview with FAO Programme Manager in September 2010), of whom 2, 726 are in the study areas of Chongwe and Mazabuka. The method of input procurement and distribution is receiving a lot of attention in Zambia and outside.

Although there are similarities between voucher schemes implemented by different organizations, there are also some differences in the implementation details of the voucher programmes. The differences could be because, the programme requires to be designed to suite the different programme objectives and prevailing circumstances. From the FAO perspective, the voucher cards with the monetary value of about K500, 000 per beneficiary are distributed to the 12,296 beneficiaries in the 28 programme participating districts in Zambia namely; Mazabuka, Monze, Sinazongwe, Choma, Kalomo, Kazungula, Sesheke, Kaoma, Mumbwa, Chibombo, Kapiri Mposhi, Serenje, Mkushi, Mpongwe, Isoka, Samfya, Mansa, Mwense, Chiengi, Kawambwa, Chongwe, Nyimba, Katete, Petauke, Chipata, Lundazi, Mambwe, Chadiza. Out of the total of 12,296 beneficiaries for the programme, Chongwe and Mazabuka have a 667 and 697 beneficiaries respectively who have been on voucher scheme for two years since 2009. Prior to the commencement of agricultural input distribution, the local agro dealers are inspected for compliance, sensitized and those meeting the standards registered to distribute agricultural inputs to the local farmers. On the other hand, the beneficiary farmers receive the voucher cards, and go to the agro dealer of their

choice in the area to redeem the voucher for the desired agricultural inputs. Depending on the type of voucher being used, if it is paper voucher then the agro dealers collects and presents the voucher cards for payment with amounts equivalent to the value of the vouchers presented, and for the electronic voucher the payment is instant. Moreover, the period for redeeming the vouchers is longer than the Input Trade Fair, thereby allowing the farmers more time to acquire the agricultural inputs. As to how effective the method is, that is what the following chapters will focus on.

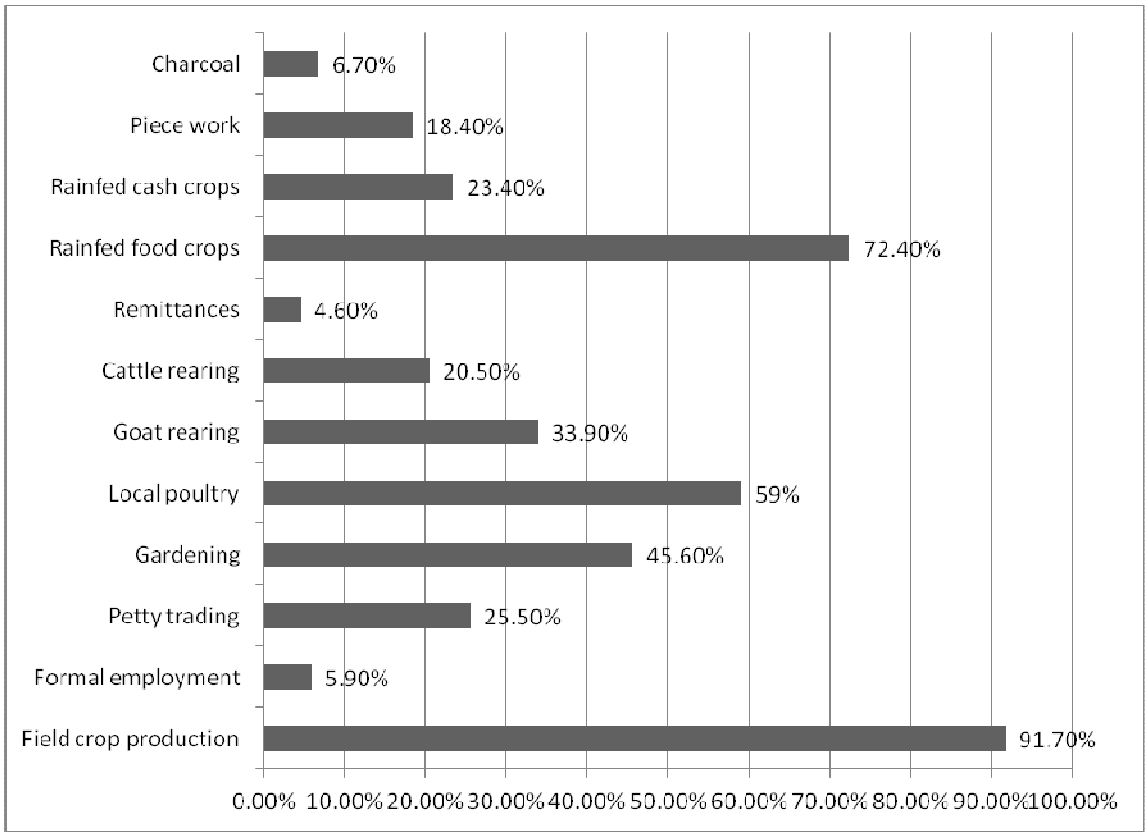
### *Livelihood of the Study Areas*

Before probing the efficiency of the voucher scheme, it is imperative to understand the livelihoods of Chongwe and Mazabuka study areas. To do so, the study looked at generally, the sources income for the households, the area cultivated to crops and methods of input financing in the study areas. This background may help understand if the livelihoods may have an influence on the implementation of the voucher scheme or vice versa.

Analysis of the income sources in terms of participation by the households in Chart 2.1 indicated that 91.7 percent of the study sample is involved in field crop production, out of which 72.4 percent, 45.6 percent and 23.4 percent account for rain-fed food crops, gardening and rain-fed cash crops respectively, hence the voucher scheme on agricultural inputs, is well focused. The statistics of this study are within the estimates also given by Mwalimu (2006), the main agricultural activity of farmers is crop production at 97 percent in 1997/1998. In addition to field crop production, livestock rearing is an important livelihood strategy among households in Chongwe and Mazabuka districts. The indication is that local poultry was acknowledged by 59 percent of the respondents while goat rearing and cattle rearing are yet other livelihood strategies that were acknowledged by 33.9 percent and 20.5 percent respectively. Apart from farm based livelihood strategies, off-farm livelihood strategies are important to the households in Chongwe and Mazabuka districts. The Zambia Vulnerability Assessment Committee Report (October 2004), shows that Chongwe compared to many other parts of the country has good access to markets and is highly productive in terms of crops and livestock. This livelihood zone is serviced by an all weather road, the Great East Road. The statistics of the study show that petty trading was acknowledged by 25.5 percent of the respondents, indicating that it is the most important off-farm livelihood strategy followed by casual work that was acknowledged by 18.4 percent. Others with low levels of participation included charcoal burning at 6.7 percent, formal employment at 5.9 percent and remittances at 4.6 percent.

Chart 2.1

*Livelihood Strategies by Proportion of Households participating*



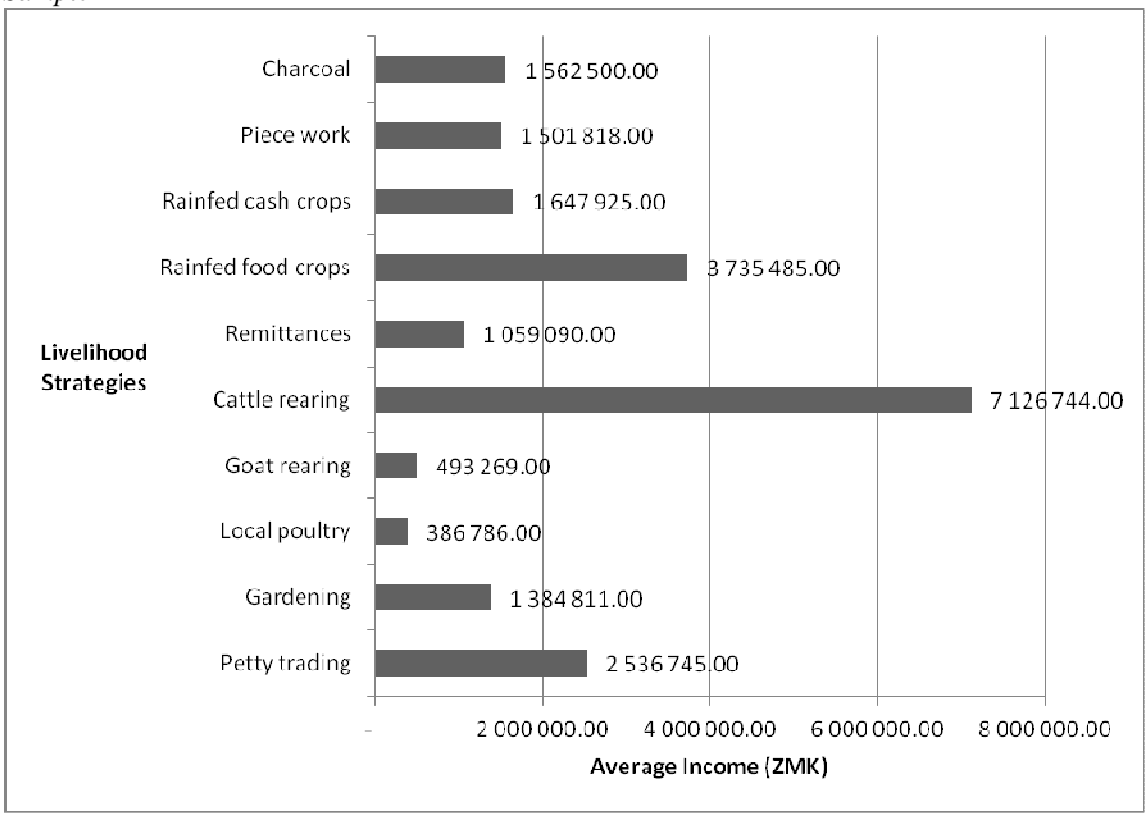

Source: data collected from farmers in the Chongwe and Mazabuka

A focus on the average levels of income from the livelihood strategies (in chart 2.2) of Chongwe and Mazabuka reveals that cattle rearing has the highest average outlay of cash income of ZMK 7, 126, 744 compared to the other livelihood sources, followed by the cultivation of rain fed food crops averaging ZMK 3, 735, 485 and petty trading (ZMK 2, 536, 745. However, it is important to note that, despite cattle rearing having had the highest average income, the proportion of households that source income from this livelihood strategy is quite small (about 20.5 percent). Similarly, the indication is that the average income from small livestock rearing such as local poultry and goat rearing was comparatively marginal, although the proportion of households sourcing income from this livelihood strategy is comparatively high. Similarly the ZVAC report (2004) indicates that Goats are the main livestock reared, though cattle and pigs are also kept. The near optimal situation was observed for the cultivation of rain fed food crops, that showed that both the proportion of households participating and the levels of income were quite reasonable. The levels of

participation and average income from the livelihood strategies seem to suggest that investments in crop production and small livestock (chicken and goat rearing) is the most feasible and sustainable development strategy the development service organisations can undertake to improve the well being of most households in Chongwe and Mazabuka districts**.** Consequently, empowerment of households with inputs through the voucher scheme was well focused with good intentions of uplifting the living standards of vulnerable households.

Chart 2. 2

*Levels of Average Income from Livelihood Strategies used by Households in the Study Sample*

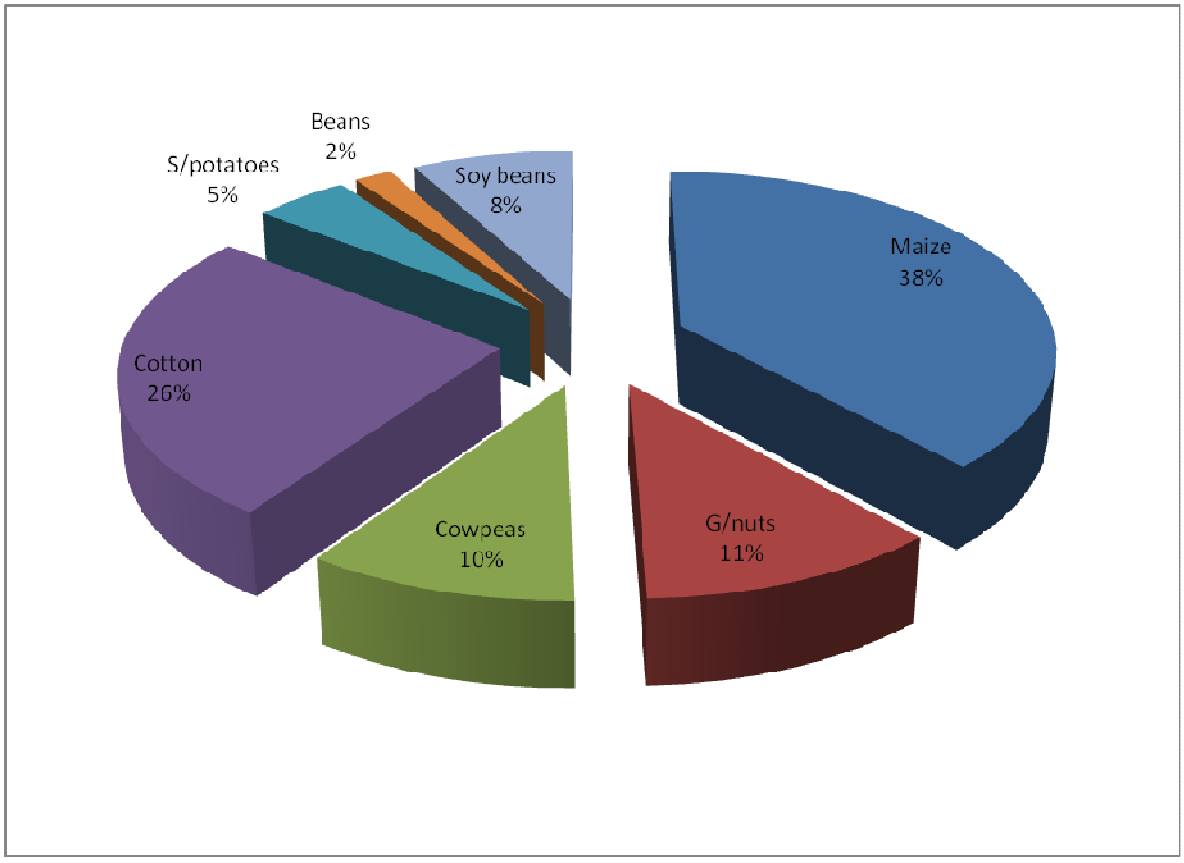



Source: data collected from farmers in the Chongwe and Mazabuka

Overall, the mean total income from all the livelihood sources for the whole year in the study sample averaged ZMK 7,507,118 equivalent to about United States Dollars (USD) $ 1,597.26. Comparisons of the mean total income between districts and beneficiary status in chart 2.3 showed that Mazabuka district had relatively higher mean total income compared to Chongwe district, although the differences were not statistically significant (p=0.126).

The analysis of livelihoods in Chongwe and Mazabuka also looked at the areas under cultivation of different crops. In terms of area cultivated to crops, chart 2.3 shows that maize is still by far the crop that enjoys a larger proportional area followed by cotton, groundnuts and cowpeas. The statistics indicate that 38 percent of the total area under crop cultivation among the households growing the crops itemised would normally be apportioned to maize after which 26 percent, 11 percent and 10 percent would be apportioned to cotton, groundnuts and cowpeas respectively. The other crops that are grown with relatively smaller surface area in the two study districts are sweet potatoes (5 percent) and beans (2 percent). The ZVAC Report (2004) also shows that in Chongwe maize is produced as the staple crop, groundnuts as a component of both relish and snacks and that contract farming of cotton has become the most important cash crop. Similarly, the research by Araki (2001), also substantiates that with modernization in the Tonga Plateau (that covers Mazabuka), the Tonga people have adopted maize as the major crop.

Chart 2.3 *The Distribution of Area allocated to crops grown in the study areas*

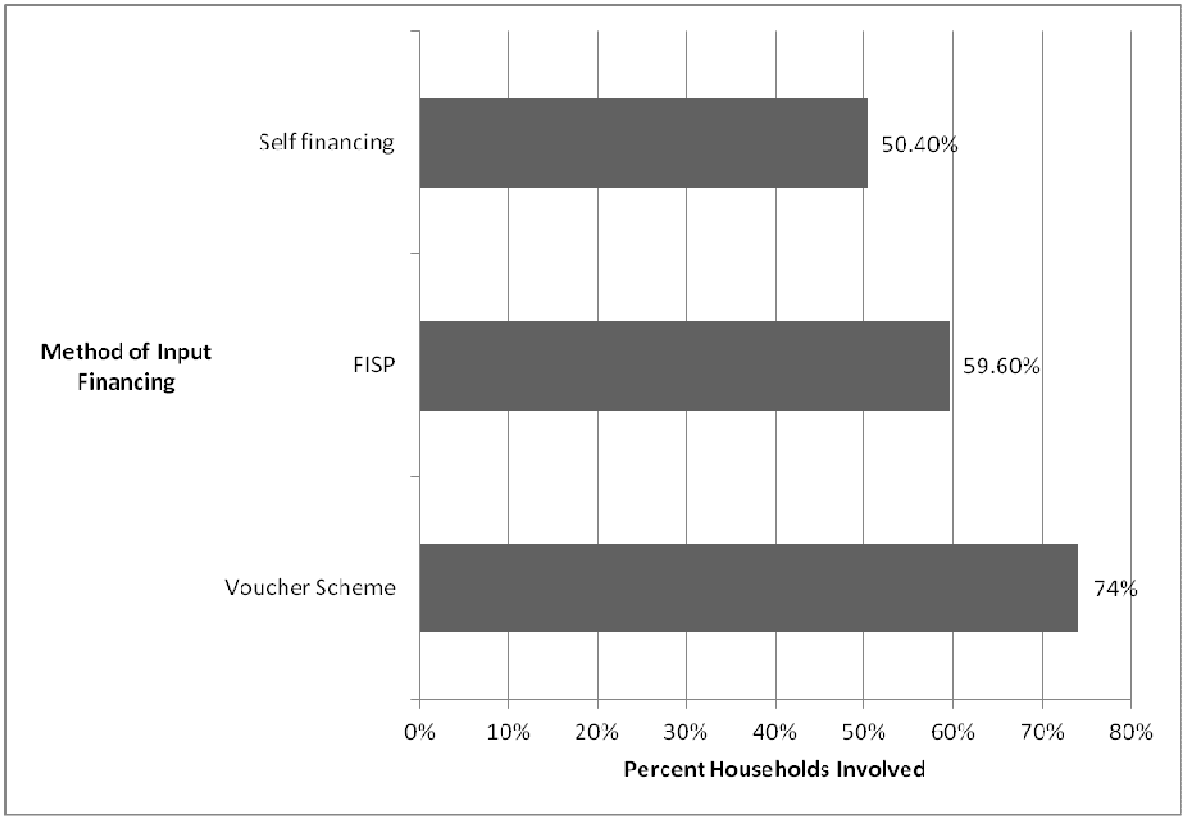



Source: data collected from farmers in the Chongwe and Mazabuka

The use of external inputs is important in improving production and productivity in the farming systems of households in Chongwe and Mazabuka districts as will be shown in details in Chapter four. The external inputs on demand include improved maize seed, inorganic fertilisers and Conservation Agriculture equipment promoted by the FAO/MACO project. However, acquisition of the required quantities of inputs is determined by the household's purchasing power. Apart from the voucher scheme method of input financing which was at 74 percent, the Farmer Input support Programme (FISP) and self financing methods are the alternatives. According to the statistics compiled in Chart 2.4, the FISP is another important input financing method. However, the statistics summarised in chart 2**.** 4 suggest that not everyone is able to benefit from FISP and that some self financing arrangement is important. In the absence of the voucher scheme the self financing farmers are the are major clients supported by the local agro dealers. The indication is that 59.6 percent of the study sample had benefited from the FISP and that 50.4 percent bought inputs with own cash.

Chart 2.4

*Methods of Input Financing in the Study Areas*




Source: data collected from farmers in the Chongwe and Mazabuka

### *Conclusion*

Zambia has had a long standing policy objective of increasing food security. This has been seen through the various policy changes that have been made from 1964 to date, all well intended to enhance the national food security. The two major policy highlights are those of 1991, which liberalized agriculture resulting in the removal of agricultural subsidy. Although, the implementation of this change led to low production as earlier cited, it was not intended to do so. It was initially expected that the removal of government subsidy would promote involvement of private sector in the provision of agricultural inputs and increase agricultural production. The same goes for the reintroduction of the agricultural subsidy in 2002 where it was envisaged that the subsidy programme would contribute to efficiency and increased production. Even though the records show increased production when the acquisition of agricultural inputs is supported, the increased production has not efficiently been obtained. According to Byerlee, (2009), market development is necessary but not sufficient for improving food security in the rural areas. This should be supplemented by purchasing power to include poor people in the market place. To be exact, there is some modification in the implementation of the subsidy programmes for possibility of addressing efficiency, hence the introduction of the voucher scheme which will be adequately discussed in the coming chapters. Meanwhile, a look at the livelihoods of Mazabuka and Chongwe revealed that the mainstay of this population is agriculture, and farming population are mostly benefiting from some subsidy of some kind, from Government and/or Non State Actors.

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# CHAPTER THREE

# THE MANAGEMENT OF THE FAO INPUT VOUCHER SCHEME

## *Introduction*

This chapter is aimed at analyzing the management of the Voucher Scheme as experienced in Chongwe and Mazabuka Districts. In the process of doing so it also looks at the administrative costs involved in the implementation to determine the effectiveness and efficiency of the Voucher Scheme. In order to assess the effectiveness and efficiency of the Voucher Scheme, the costs and benefits of the direct procurement of Farmer Input Support Programme were compared against the current voucher input scheme that Food and Agriculture Organisation is currently implementing in collaboration with Ministry of Agriculture and Cooperatives.

This chapter is divided into six sections: the first is this introduction. The second section discusses the implementation details of the voucher scheme in Chongwe and Mazabuka while the third section looks at how it is actually functioning in the two districts. The fourth section focuses on the administrative costs of a voucher input system and analyses whether the voucher scheme was worth implementing from the point of view of cost benefit analysis. The fifth section analyses the role of the agro-dealers in the voucher scheme, while the final section summarises the finding of the overall chapter.

## *Implementation Details of the FAO Input Voucher Scheme*

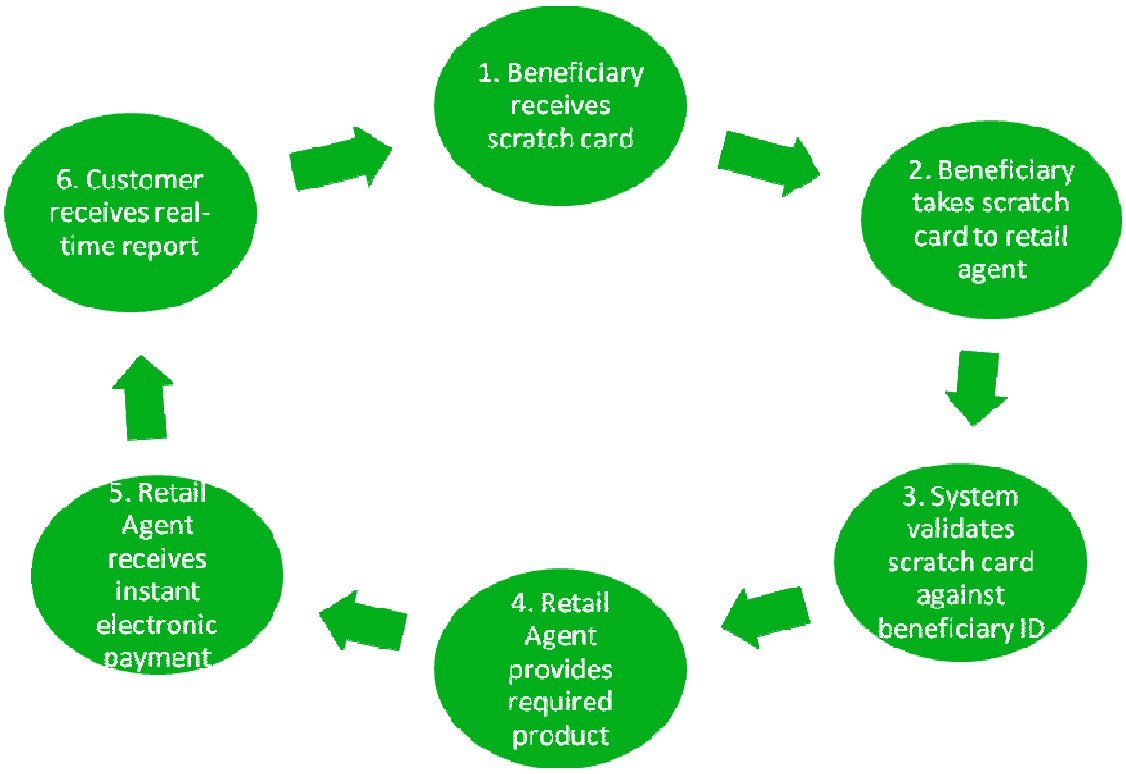
The focus of this section is to look at the voucher scheme as it is being implemented in Chongwe and Mazabuka districts. The electronic voucher used in Chongwe and Mazabuka in 2010 was a scratch card with a pin number. The beneficiary submitted the voucher to the agro dealer by scratching the pin and the agro-dealer used a mobile phone internet to verify the identity. Once that was done the beneficiary received the inputs that he or she exchanged the voucher for, which in most cases were fertilizer, herbicides, maize, groundnuts and cowpeas. FAO had used the paper voucher in 2009 and electronic voucher in 2010 in both districts of the study areas. In the case of the electronic voucher, the payment was instantly sent to the agro dealer's account and the transaction information for Chongwe and Mazabuka districts was online for access to FAO.

The online information at FAO showed what type of agricultural inputs the farmers in the study areas had redeemed for, the district where the inputs have been redeemed from and

the name of agro dealer who has supplied the inputs in the study areas. This was not the case in 2009 when the paper voucher was used, in the sense that to have information on which farmer had redeemed what and where, it was dependant on the Agro-dealers and Ministry of Agriculture and Cooperatives in Chongwe and Mazabuka districts to submit the records to Food and Agriculture Organisation. When using the paper vouchers, the payment to the agro dealer was not immediate. The agro dealers from Chongwe and Mazabuka districts submitted to FAO in Lusaka the paper vouchers, which underwent verification and once verification of the records was completed, the FAO initiated payment through a bank transfer or bank cheques were prepared. Below is the graphical presentation of the operation of the electronic voucher Scheme.

Chart 3.1

*Process of the Electronic voucher technology*.




Source: Paper presentation on FAO Programmes by Jim Belemu, FAO Programme Manager

Having explained how the voucher scheme worked in Chongwe and Mazabuka, the farmers appear to be key participant in voucher scheme operation and as such it is necessary also to know who they are and how they were selected amongst the so many farmers in Chongwe and Mazabuka in reference to the voucher scheme. It is important to mention that voucher scheme programme firstly selected and trained its farmers referred to as Lead

Farmers in conservation agriculture principles before giving them vouchers for agricultural inputs. The total number of Lead farmers was 1,363 for the two districts, with Chongwe having 667 Lead farmers and Mazabuka having 696 Lead Farmers. According to the interviews conducted with FAO and MACO in November 2010, it revealed that the selection of Lead Farmer beneficiaries in Chongwe and Mazabuka was assisted by the district farmer registers that has information on farmers' farm size, range of crops grown, level of education and household size. The Village Agricultural Committees in the two districts also played a role by recommending the farmers in their respective villages whom they thought had the enthusiasm and met the programme criteria. The following general conditions in the selection of lead farmers were applied in Chongwe and Mazabuka Districts:

- The farmer who had been trained or is willing to be trained in conservation agriculture and proper use of productivity enhancing inputs such as legume seeds;
- The farmer's capacity to train other 15 farmers in conservation agriculture every year;
- Is a Zambian, resident in Chongwe and Mazabuka;
- A farmer who had been farming for more than two years;
- A farmer who had the proven historical record of growing between one hectare and five hectares of crop;
- A farmer who had the proven historical record of growing and marketing surplus crop; and
- A farmer who was not a beneficiary of the Food Security Pack, and or Conservation Farming Unit programme and did not belong to the same household as another beneficiary of these programmes.

As seen in the criteria above, the Lead Farmer selection was influenced by the capacity of a farmer to go out in the camps or their village to train other farmers in Conservation Agriculture principles. Following that criteria, some lead farmers had some background of some professional trainings. For instance, Mr. Alban Kalumbu of Ndubulula Camp in Chongwe district, was a retired agricultural extension officer and Mr. Ndlovu of Kanakantapa Camp in Chongwe district was also a former agricultural science secondary school teacher, and as such the local community and Ministry of Agriculture felt that with such backgrounds they could easily be trained and be able to train other farmers in conservation agriculture practices. In Mazabuka, Mr. Whiteson Kasuba, for example, was selected as a lead farmer because he exhibited a lot of potential to be a leader to his community. He had an annual income of about K21, 000,000 from farming and was thus included in the voucher scheme programme. There were also others like Mr. Patrick Kabhudula in Mazabuka who was

growing over eight hectares of crops and had secondary education, and because of this the community recommended that he is a food secure person whom if trained, other farmers would be willing to learn from. Mr. Kabhudula was not trained in conservation practices prior to the commencement of the programme but was willing to undergo the training and thereafter train others, so he was included in the programme. It was not just men who were selected as lead farmers, women were also selected. For example Mrs. Chisenga Chikonaika of Chongwe was also selected by the community because of her status in the community. She was also food secure and owned cattle, a donkey, goats, chickens, and rippers. Mrs. Chikonaika was practicing conservation farming but had not yet undergone formal training in conservation agriculture, so she was eager to be trained. In brief these are some of the biographies of the farmers which is representative of those selected to be trained in conservation agriculture and who subsequently benefited from agricultural inputs through the voucher scheme that gives us some idea of the kind of farmers that were selected as lead farmers in the two districts.

From the biographies, one sees a lot of emphasis on the capacity to train in conservation agriculture and later influence other farmers who are not selected to practice the conservation agriculture. According to Mr. John Lungu, the Senior Agricultural Officer in Chongwe, the reason for the emphasis on one's capacity to train others was that, the lead farmers that the voucher programme was selecting were supposed to be ambassadors of conservation agriculture in their location so that other neighbouring farmers could emulate them (Interview 22nd November, 2010). In other words, capacity building was important in that each of these selected Lead Farmers in the second year of the programme (2010) went out to train in Conservation Agriculture principles, a minimum of 15 other farmers who are referred to as participating farmers.

In view of the fact that the lead farmers have to travel long distances to train other farmers, as some of them may be far away from the lead farmers' homestead, the programme went further to procure a bicycle for each of the selected 1363 lead farmers in Chongwe and Mazabuka. The receipt of the vouchers for the lead farmers in the second year of the voucher programme implementation was tied to the lead farmers having successfully conducted trainings on 15 other farmers. It was established through records of the camp extension officers that there were few cases where some farmers like Mrs. Ruth Mpande in Mazabuka, trained six more farmers than her targeted number of farmers. However, this did not entitle Mrs. Mpande to a much higher value of the voucher than the standard programme voucher value of K500, 000.

A quick mention that the voucher scheme in Chongwe and Mazabuka districts was designed to address the following;

- Act as an incentive for the Lead Farmers who were training other farmers in conservation agriculture practices as seen above;
- The inputs acquired through the voucher could be used to plant fields that would serve as demonstration plots for others to compare the performance of the conservation agriculture and conventional fields. The details are in Chapter four;
- Promote crop diversification by giving an opportunity to farmers to access diverse seeds as reported in Chapter four of this report; and
- Improve access and availability of agricultural inputs in Chongwe and Mazabuka through the use of the local Agro-dealers.

Chart 3.1, referred to earlier has shown that there are two major interactions in the voucher scheme operation which is the farmer and the agro-dealer. An understanding of the farmer being referred to in the graph has just been given. A look at the agro-dealers in Chongwe and Mazabuka in the voucher scheme context initiates that the agro-dealers were local stockists of agriculture inputs. It was expected that if the local agro-dealers could be involved in the provision of agriculture inputs, there was a likelihood of accelerating small scale farmers' access to inputs.

In 2010, Mazabuka had four and Chongwe also had four recommended agro dealers. In Mazabuka, there was Cropserve Limited, H & W Enterprises, Kapoti Enterprises, Mazabuka Marketing, while Chongwe had Kumawa Enterprise, Plant Agrichem, Minelands and Namupeza Agro Suppliers. The recommended Agro dealers for participation in the two districts met the following criteria which were set by Food and Agriculture Organisation:

I. Should be registered Zambian companies
II. Be physically present in one of the two districts and good storage conditions of inputs
III. At least one year of proven record in either seed or fertilizer and agricultural equipment sales
IV. Holders of Seed Traders License (in the case of seed suppliers)
V. Letter of confirmation from the principle supplier of products stocked in the outlets stating that the outlet is a bona fide agent for the principles' brands and will be on the principles list of Agro-dealers for the year in question.

Based on the criteria set, both Mazabuka and Chongwe Ministry of Agriculture and Cooperatives Officers did not recommend some local Agro-dealers that were selling agricultural inputs from the market places because they feared that unreliable storage conditions of agricultural inputs could compromise the quality. The Ministry of Agriculture and FAO Project personnel also mentioned that there were some Agro-dealers like G and A of Mazabuka and Namipeza Enterprise of Chongwe who had set up new branches and had not yet attained one year of experience, and such did not qualify in the first year in 2009 of the programme. However, in 2010, the second year of voucher implementation, these Agro-dealers attained the minimum experience required and were thus incorporated in the programme. The selection of Agro-dealers was further in consultation with the Zambia National Farmers' Union and Conservation Farming Unit. The Agro-dealers who met the set criteria then signed a memorandum of understanding with Food and Agriculture Organisation that stipulated the roles and responsibilities of the two parties.

In essence therefore, the selection of farmer beneficiaries and participating agro-dealers are the necessary activities that came before the actual redeeming of the voucher cards. The actual performance of the agro-dealers is being discussed in the next section by looking at their functions and how stakeholders perceive the role of the agro-dealers.

### *The Functioning of the Voucher Scheme in Chongwe and Mazabuka*

Having discussed the implementation details of the voucher scheme, this section focuses on the functions of the voucher scheme in detail. To establish how the scheme functioned and possible advantages and shortcomings of the scheme information and opinions from the programme implementers, farmers and agro-dealers were sought. The programme implementers whose opinions were sought include the Food and Agriculture Organisation and Ministry of Agriculture and Cooperatives staff. The FAO staff interviewed included the FAO Director and senior Officer under the Disaster Risk Reduction Unit responsible for the overall management of the programme. Under Ministry of Agriculture and Cooperatives, the Project Coordinator and Deputy Director at Headquarters in Lusaka, and Senior Agricultural Officers in Chongwe and Mazabuka districts involved in implementation of the programme were interviewed. Other stakeholders whose opinions were sought were farmers, Conservation Farming Unit (who also has some experience with the voucher scheme) and Agro-dealers with regard to the input procurement systems.

Firstly, as programme implementers, both FAO and MACO thought that the voucher scheme had worked very well in Chongwe and Mazabuka districts and that it was a better

system of farmer input support. Some of the reasons they cited in support of the voucher scheme included the fact that it was a less cumbersome process because the channel of input distribution is relatively shorter than that of direct procurement used by government's Farmer Input Support Programme and other Non Governmental Organisation. For example, the Deputy Director, Ministry of Agriculture and Cooperatives, Mr. Alick Daka said that the voucher scheme was better because it cuts out the long channel involving several middle men that when involved in the distribution of inputs tend to exacerbate the costs of inputs to the farmers (Interviewed on 7th January, 2011). He said that when the voucher is compared with direct procurement, the voucher scheme is more cost effective compared to direct procurement. It costs less in terms of transport, storage and offloading inputs to the programme implementer government. The Deputy Director mentioned that the vouchers are easy to transport. For the FAO and MACO Programme the voucher cards were packaged in one A4 envelope for each of the two districts. The Deputy Director, Mr. Alick Daka mentioned that the programme engaged students to transport the voucher cards by public buses (Interviewed on 7th January, 2011). The programme did not pay for the bulk input transportation, thus minimizing the transport costs as will be shown in details in the next section dealing with administrative costs.

To have a feel of cost of transporting agricultural inputs, the study also collected some information from the transporters. For instance the quotation obtained from Chizu Trucking Limited (March, 2011), showed that the rate of transporting bulk goods would cost for Chongwe district which is within 50km from Lusaka, KI,400 per 50kg and for Mazabuka district which is over 100km, it would cost K500 per kilometer per ton. So by using the vouchers that are easy to carry, the transportation costs like these ones given by Chizu trucking are probably what the Deputy Director was referring to above, that they could be cut down. The FAO Administrative Officer, Mrs. Rachael Chenge also observed that the voucher scheme was effective and efficient because it spread the responsibilities among stakeholders. For instance, it transferred the responsibilities of transportation, warehousing and offloading from the Programme Implementers to the participating local agro dealers. The local dealers cover their transport costs to get inputs into their shops and mostly have their own warehouse where they keep their stocks thereby reducing the costs for the whole voucher programme as the details will show in the next section. When the Chongwe and Mazabuka local Agro-dealers procured from the supplier and transported and warehoused for purposes of stocking their shop, during these processes they also assumed liabilities for pilferages and damages. This therefore, took away such risks and wastages from the voucher programme

implementation. The perceived reduced cost for transport and warehousing for Mazabuka and Chongwe voucher scheme could be in agreement with the FAO report (2000) that project implementers are able to reduce the cost when using the voucher scheme. Since there was assurance of demand for agricultural inputs for 1,363 beneficiaries worth about K681, 500,000, the Agro Dealers in Chongwe and Mazabuka took responsibility to adequately stock the agricultural inputs).

Secondly, in addition to advantage of portability for the voucher scheme, the FAO Senior Agronomist indicated that FAO had the experience with both the direct procurement and the voucher scheme and he thought that the voucher scheme implemented in Chongwe and Mazabuka districts was more administrative friendly, (Interview with FAO Senior Agronomist, on 23rd December, 2010). He added that when using the direct procurement, the tender procedures can be very long and tedious in terms of paper work such as invitations to tender, opening and analyzing the tender documents, responding to the tenders, preparing delivery and receipt of goods documents and finally raising the payment. The procedures require preparing specifications for the inputs to be procured, which he thought is very complex when dealing with beneficiaries from different cropping systems and geographical zones. In the case of the implementation of the voucher scheme, there was no need to sit down and prepare these specifications. He added that this responsibility was transferred to the agro dealers in Chongwe and Mazabuka districts whom he thought being locally based, they had a better understanding of the needs of the local farmers. Moreover, farmers chose and sometimes consulted with the local Agro-dealers to select the varieties of inputs they wanted.

This according to the FAO Senior Agronomist meant that they did not need to go through the process of getting the submissions from the farmer beneficiaries on their preferences. This is not the case for the direct procurement where the Programme Implementers procure on behalf of the beneficiary farmers. The submissions of beneficiary farmers preferred seed varieties has to be made to their Programme Implementers. As Kalinda and Sikwebele (2006), indicated in the case of Farmer Input Support Programme, the submission of farmers' preference are done through the MACO district offices, of which some submission are done late thereby affecting the follow up processes such as tendering. Kalinda and Sikwebele further pointed out that tendering also requires a lot of paper work such as sending of the invitations to the potential suppliers and by procurement regulations of competitive bids the suppliers should be given the minimum of four weeks to respond to the invitations.

On the other hand, according to the FAO Country Programme Manager (23rd December 2010), all these procedures of submitting the preferred varieties from the districts, paper work of preparing the bids, waiting for the minimum of four weeks for submission of bids, analyzing the submitted bids and award of contracts to the suppliers require a lot of financial and human resource to be done. These were all cut down on by the use of the voucher scheme in the provision of inputs in Mazabuka and Chongwe districts. In this case, the programme Implementers did not award the bid to any agro dealers, but instead only recommended to the beneficiaries the local agro dealers who exist in Mazabuka and Chongwe districts that trade in agricultural inputs such as agricultural equipment, chemicals, seed and fertilizer stock, at which farmers traditionally procure their inputs.

Thirdly, it has been argued that another advantage of the voucher scheme is that the voucher scheme promotes competiveness. According to the Ministry of Agriculture and Cooperatives' Ministerial Statement of October 2010, under FISP besides the Nitrogen Chemicals of Zambia which is a Parastatal, there were only two companies, Nyiombo Investment and Omnia Small Scale Limited who had the capacity to source the required huge quantities. As for the Voucher Scheme in Chongwe and Mazabuka, the MACO district interviews and the FAO records revealed that there were four Agro-dealers in each of the two districts of study. Mazabuka district had Cropserve Limited, H & W Enterprises, Kapoti Enterprises, Mazabuka Marketing, while Chongwe had Kumawa Enterprise, Plant Agrichem, Minelands and Namupeza Agro Suppliers. This is an indication that voucher has potential to create competition and reduce the cost of production to make the output also competitive at the international level which currently is not the case for Zambia. At the moment the agricultural production costs are high, thus making Zambia's agricultural produce uncompetitive at the international level. According to the Humanitarian News and analysis (3 June 1999) Zambian farmers are equal to their neighbours. But fertilizer and transport costs, customs duties and bank interest rates have succeeded in driving up the production costs per tonne of Zambian maize to US $211 compared to US $81 for farmers in Zimbabwe. "When you compare with other countries you find that the Zambian farmer is disadvantaged,"

In view of the administrative friendliness and reduced costs of programme implementation among others, the FAO Programme Manager concluded that the cutting down on the long processes of tendering and handling matters in Mazabuka and Chongwe allowed them to focus their attention on monitoring the process of input redeeming to ensure that agricultural inputs were delivered in time. On the other hand, the Minister of Agriculture and Cooperatives Parliamentary statement of October 2010 reiterated, the FISP with direct

procurement faced a lot of challenges for storage of the bulk agricultural inputs when delivered to the Districts and which included Chongwe and Mazabuka. From the administrative point of view, the implementers also noted that the voucher scheme contributed to rural empowerment by allowing 1,363 beneficiaries in the two districts to access and agricultural inputs through the voucher scheme. The voucher scheme was also giving a chance to the 1, 363 farmers to participate in the procurement of the agricultural inputs as opposed to alienating them through direct procurement. The farmers on the voucher scheme were going to the agro-shops of their choice and redeem for the agricultural inputs that were recommended on the voucher card.

Notwithstanding the possible advantages of the voucher scheme, some weaknesses and threats to its expansion have however been identified. In fact, the Food and Agriculture Organisation (FAO), Ministry of Agriculture and Cooperatives (MACO) and Conservation Farming Unit (CFU) have themselves cited some of these weaknesses. Firstly, according to the Deputy Director, he thought that the voucher scheme requires a good data base about the socio economic circumstances of the farmers which may require a lot of time when dealing with big numbers. Additionally, the capacity of agro dealers to supply relatively large number of farmers as is the case under FISP could be limited (Interview with Deputy Director of Agriculture, 7th January 2011), suggesting that the development of the data base and capacity of agro dealers are prerequisites to the successful implementation of the voucher scheme.

Secondly, according to the Conservation Farming Unit Country Director, Mr. Collins Nkatiko (interviewed on 27th January, 2011), in the expansion of the voucher scheme to national policy, he perceived a threat of sabotage by the big companies that have currently monopolised transportation and supply of centrally procured agricultural inputs. This is because the voucher scheme minimises the long chains costs of transportation and warehousing. He said that there were companies such as Ndlovu Transports Ltd and Weleza Ltd who are mostly involved in transporting agricultural inputs for government and previously for FAO and Conservation Farming Unit. This is quite big business to lose for the few companies that for a long time are involved in moving inputs to all the districts in Zambia under input distribution programmes that procure inputs mostly in Lusaka for further distribution. The Agro-dealers under the voucher scheme in Chongwe and Mazabuka did not engage Transporters based in Lusaka to transport inputs they instead used their own transporters in their districts. For instance, Crop Serve Limited in Mazabuka used its own transport to move inputs from its suppliers to its store in Mazabuka and Namupeza in Chongwe indicated that it engaged a local transporter called Mr. Chizyuka to transport inputs

from its suppliers. The two Agro-dealers indicated that the methods of transportation they used were cheaper and allowed them to pass on the benefits to the farmers through reduced prices. However, the Conservation Farming Unit Country Director indicated that despite the voucher scheme's perceived efficiency, he thought that when the Zambian Government would like to consider a shift from direct procurement (centralized procurement) to the voucher scheme (decentralized procurement), the few companies that benefit from bulk supplying, warehousing and transportation of the agricultural inputs have potential to influence its adoption. Additionally, the use of the voucher would entail that the bigger suppliers like Nyiombo Companies and Seedco would have to chase the business in the rural areas like Mazabuka and Chongwe where currently they do not have presence, while the local agro-dealers do have. In Mr. Nkatiko's view, these are some of the threats he perceives to the full adoption of the voucher scheme.

The director of Conservation Farming Unit, who is also involved in the implementation of the voucher, noted another potential threat that he said organisations intending to go into the electronic voucher scheme needed to be aware of, although it had not yet happened in Mazabuka and Chongwe. He said that when the release of funds for the input provision is delayed, the electronic voucher has potential to negatively affect the programme implementation, in that the electronic voucher scheme does not allow for the farmers to access the agricultural inputs without payment (interview on 27th January, 2011). This, according to Mr. Nkatiko, is a source of concern because of the financial limitations that Zambia face, Chongwe and Mazabuka included and thus it is important to keep in mind even though this did not happen in the programme in Chongwe and Mazabuka. In his view, if the funds delay, the accessing of the agricultural inputs could also be delayed, resulting in late planting which could subsequently affect the crop yield in the rain fed agriculture for which timing is critical.

The other problem that prominently came out from all the Ministry of Agriculture and Cooperatives' Officials, Agro-dealers and farmers in Chongwe and Mazabuka was the poor phone internet network in the two districts. The Ministry of Agriculture and Cooperatives officers in Chongwe and Mazabuka districts explained that the phone internet was sometimes slow or off completely, making both the linking of the voucher cards to the beneficiaries' National Registration Card (registration) and redeeming of the vouchers for inputs is slow. The Senior Agriculture Coordinators in Chongwe and Mazabuka, Mr. Morton Mwanza and Mr. John Lungu respectively both mentioned that during the registration of the 1, 363 beneficiaries, the MACO staff and the students assigned to the programme had to work late to

catch up on the time lost because of poor network. Mr. Mbanga Mukuma, Ministry of Agriculture Officer in Mazabuka explained that ideally the linking of the NRC to the voucher cards was supposed to be done in the Farmers' camps, but in remote camps where the network problems persisted, the farmers' NRCs were collected and linked from the district centre (Interview of 31st August, 2011).

With the use of the voucher scheme, there is also the risk of fraud of the agro dealers redeeming the voucher cards without delivering the agricultural inputs to the farmers, as we shall see some cases of this in the section dealing with Agro-dealers. And because of some of those risks of fraud, Mrs. Rachael Chenge, FAO Administrative Officer emphasized that the fraudulent activities have to be monitored during implementation (Interview of 23rd December, 2010). The implementation of voucher in Chongwe and Mazabuka assigned some members of staff from FAO and the Ministry of Agriculture to monitor such threats. FAO's Country Programme Manager confirmed that FAO assigned its Operations Officer and Administrative Officer to monitor the voucher implementation throughout the period in order to minimize the risks of fraud. The two officers attached mentioned that this required a lot of time commitment and could be stressful (Interview of 23rd December, 2010).

Lastly, it was indicated earlier that the voucher scheme in Chongwe and Mazabuka removed the cost of input transportation from the Programme Implementer and that the voucher scheme did not deliver inputs to the farmers' door step (as mostly done by direct procurement), if so who then met these costs? In Chongwe and Mazabuka, this study found out that the farmers were using their own means to transport the inputs although in some cases the Agro-dealers like Cropserve in Mazabuka were able to offer free transport as complementary when the farmers were organised in groups without changing the cost of inputs. In the focused group discussions with the farmers in Chongwe and Mazabuka, it was revealed that when not assisted, the farmers were organizing themselves in groups and put the funds together to hire transport to deliver agricultural inputs and on average, each farmer was contributing K10, 000. The farmers indicated that they would appreciate if the voucher scheme could consider covering the transport cost to the farmers homestead. Considering the poverty levels in the country, a few farmers in the focused group discussions said that sometimes it may be stressful for them to come up with this amount of money for transport. Additionally, for those farmers who had to walk long distance to collect inputs, they indicated that doing so took away some of their time from other commitments, like land preparation and caring for the sick relatives.

### *Administrative Costs of operating the Voucher Scheme*

In the last section, a mention was made to the effect that the programme managers were not involved in transportation and other related activities which reduced the costs of programme implementation. This however, did not mean that there are no costs in the implementation of the programme. This section, therefore, gives administrative costs of operating the voucher scheme in some greater detail. In order to get these costs this research sought information from FAO on their expenses towards the voucher scheme in Chongwe and Mazabuka. To derive the meaning of the costs established, the research also obtained information from the Ministry of Agriculture and Cooperatives on the costs relating to the direct procurement so that a comparison could be made. Discussing the administrative of operating the voucher scheme is important in that mostly the programme implementer's decision to operate a voucher scheme would normally require the consideration of the costs involved against the benefits. Albeit in the case of emergency or relief operations whose focus is on social protection, this may not be an issue of contention. The costs of operating a voucher system of input procurement and distribution are normally viewed as administration costs. The administrative costs for the FAO voucher scheme correspond fairly well to the activities of implementation and include farmer registration, printing of the cards, art work for the cards, distribution of the cards, identification and training of agro dealers, registration of farmers and transaction costs.

To derive the implications of the costs established under the voucher scheme, a comparison with costs relating to the direct procurement is made. The comparison is necessary in order to establish if the above costs of the voucher scheme are realistic and justifies the proposed shift by government from the use of the direct system to the voucher scheme. The study also looked at the cost of Farmer Input Support Programme, Zambia's biggest Government subsidy programme that is using direct procurement and is implemented nationwide, Chongwe and Mazabuka included.

The FAO/MACO experience and financial reports on the implementation of the voucher scheme was such that a total of $ 59,582.92 was expended for targeting 12, 296 beneficiaries in the 28 districts in the country including Chongwe and Mazabuka through an electronic voucher system in the 2010/2011 agricultural season. The study made an extrapolation to estimate the costs of the voucher implementation for Chongwe and Mazabuka after being given the total expenditures and total number of beneficiaries for the programme, and having further been given how many out of the total number of beneficiaries were for Chongwe and Mazabuka. It was found that out of the total budget of $ 59,582.92 for 12,296 beneficiaries,

Mazabuka and Chongwe could have spent $6,542.40 on 1,363 farmer beneficiaries. The total administration costs could further be broken down between the two districts based on the number of beneficiaries, in which case for the Chongwe which had 667 beneficiaries could have been $3, 216.33 distributed as follows; printing 1,334 voucher cards at $199.7, Artwork at $2, training four Agro-dealers and installing the electronic system at $703, distribution and linking of voucher cards to 667 farmers' Identification Cards at $333.5, transaction fee for 1,334 voucher cards at cost of $1,334 paid to electronic money transfer and e-system monitoring service provider and other miscellaneous costs estimated $644. Based on the FAO Financial Information (February, 2011), the extrapolations for Mazabuka, the administrative costs were estimated at a total of $ 3, 325.68 distributed as follows; printing 1,392 voucher cards at $208.39, artwork $2, training and system installation $703, voucher distribution $346, and miscellaneous costs estimated at $672.16. From the data given from the FAO Financial information (February, 2011) , the study deduced that the cost of implementing the voucher scheme in Chongwe under the Conservation Agriculture could be estimated at $4.82 per beneficiary farmer, and $4.78 in Mazabuka which averaged $4.8 (K22, 560) in the two districts per beneficiary farmer. The costs associated with an electronic voucher system notwithstanding, FAO/MACO had earlier implemented a paper voucher system in the 2009/2010 agricultural season in Chongwe and Mazabuka. The administrative costs for the paper voucher for each farmer in Chongwe and Mazabuka averaged $6.73 (July 2010 FAO Financial Information). The paper voucher was slightly more expensive when compared with the electronic voucher, suggesting that the costs of administering vouchers could be affected by use of either paper or electronic system.

Table 3. 1

*Costs of the Voucher Scheme for the two agricultural seasons 2009/2010 and 2010/2011 (Chongwe and Mazabuka)*

| Input Approach | Focus detail | 2009/2010 Agricultural season | 2010/2011 Agricultural season | Total Value |
|---|---|---|---|---|
| VS | Number of beneficiaries targeted in Chongwe and Mazabuka | 1,363 | 1,363 | 2,726 |
| | Total value of Budget | 724,603,003.00 | 712,542,134.18 | 1,437,145,137.18 |
| | Total Administrative Costs (ZMK) | 43,103,003.60 | 31, 042, 134.18 | 74,145,137.78 |
| | Estimated cost per farmer (ZMK) | **31,623.63** | **22,774.86** | **27,199.24** |

Source: Analysis based on data collected from FAO and MACO

Moreover, insights from other countries that have implemented the voucher scheme of input procurement indicate that the costs of administration are usually high in the first year of implementation and that the larger the beneficiary group the lower the costs. According to Ian Gregory (2006) the implementation costs for the project in Afghanistan were approximately $8/farmer while in Malawi, the average cost was $11/farmer in the first year of project implementation but reduced to only $5/farmer in the year that followed with a larger number of farmers. When the cost of Afghanistan programme was compared with costs of the voucher scheme implemented in Chongwe and Mazabuka arrived at by the data collected from FAO Zambia Office, the cost of the Afghanistan Voucher Scheme was 40 percent higher than the FAO/MACO electronic Voucher and 15 percent higher than the paper voucher both implemented in Chongwe and Mazabuka. In the first year of implementation the Malawi programme was 56 percent higher compared to the FAO/MACO electronic voucher and 38.8 percent to paper voucher both implemented in Chongwe and Mazabuka. In the second year of the programme implementation Malawi saw the cost drop to $5 per farmer, which also significantly reduces the difference when compared to the costs in the study areas to four percent to the FAO/MACO electronic voucher, while the Chongwe and Mazabuka paper voucher become higher by 25 percent.

We have looked at the costs of implementing the voucher scheme in Chongwe and Mazabuka and went further to refer also to other voucher implementation in Afghanistan and Malawi. The voucher is a new inversion in Zambia, there is also another system of direct procurement which is prominently used for the national input subsidy scheme, the Farmer Inputs Support Programme (FISP). It came to light during the study that the two systems are also operating in Chongwe and Mazabuka, and as such the study could not conclude without

attempting to look at the costs of implementing the direct procurement system of FISP. According to the data provided by the Senior Agriculture Office in Mazabuka revealed that there were 27,942 FISP beneficiaries in Mazabuka in 2010/2011 agricultural season alone. The study managed to get the national administrative costs for FISP, but could not get all the costs specific to the Chongwe and Mazabuka districts besides the costs for local warehousing and transportation from the districts to the camps. The national data is still relevant to determine the estimated administrative cost per farmer under FISP that could be compared with the administrative cost per farmer under the voucher scheme.

The FISP direct procurement programme was designed in 2002, with an overall aim of improving access of small scale farmers to inputs and enhancing the participation and competitiveness of the private sector in the supply and distribution of agricultural inputs timely and in adequate amounts. For the two more recent agricultural seasons (2009/2010 & 2010/2011), 534,180 and 891,000 beneficiaries were supported respectively. The costs of administering the programme are summarized in Table 3.2 with indications that they vary greatly according to the number of beneficiaries. The cost of administering inputs per farmer in the 2009/2010 was only ZMK 149,332.25, compared to the ZMK 314,766.27 for the 2010/2011 agricultural season. However, what became apparent from the analysis was the fact that the prices of inputs were unstable over the two year period and that the instability in the supply market could have an effect on the administration costs of the programme.

Table 3.2

*Costs of the FISP for the two agricultural seasons (2009/2010 & 2010/2011)*

| **Statistical detail** | **2009/2010 Agricultural season** | **2010/2011 Agricultural season** |
|---|---|---|
| Number of beneficiaries targeted | 534,180 | 891,000 |
| Total value of Budget (ZMK) | 435,000,000,000.00 | 589,008,000,000.00 |
| Value of Inputs | 355,229,700,000.00 | 308,551,250,000.00 |
| Estimated Administrative Costs (ZMK) | 79,770,300,000.00 | 280,456,750,000.00 |
| Estimated Administrative cost per farmer (ZMK) | **149,332.25** | **314,766.27** |

Source: data collected from MACO Headquarters, Planning Division

Comparative analysis of administrative costs between the indirect procurement model as exhibited in the FAO/MACO voucher scheme and the direct procurement system in Table 3.3 revealed that the voucher input system seems to be more efficient and more cost effective compared to the direct procurement system. Accordingly, the indication is that the administration costs of a voucher were estimated to be between four and six percent of the total input support budget in the two districts, whereas the indirect input procurement system,

the administrative costs were estimated to be between 18 to 48 percent of the total input budget. In 2009/2010 agricultural season, the voucher scheme in Mazabuka and Chongwe had 724 Million Kwacha total budget of which 43 Million Kwacha (6.3 percent of the total budget) was spent on administrative activities and the balance 681.5 Million Kwacha was spent on agricultural inputs for a total of 1,363 beneficiaries in the two districts (July 2010 FAO Financial Information). In the agricultural season 2010/2011, according to the FAO Financial information (February, 2011) , the total budget for the voucher in the two districts was 712 Million Kwacha, and 31 Million Kwacha (4.3 percent of the total budget) was spent on administrative costs, and the rest of the balance 681.5 Million Kwacha was spent on agricultural inputs for the 1,363 beneficiaries.

On the other hand, under direct procurement, in 2009/2010 agricultural season, the total budget for all the 72 districts was 435 Billion Kwacha for 534,180 beneficiaries, out of this budget about 18 percent of the total budget was spent on administration of inputs. In 2010/2011 agricultural season, the government direct procurement was allocated a total budget of 589 billion Kwacha to benefit 891,000 farmers, out of that budget, about 280 billion Kwacha (which translates to 48 percent of the total government budget on subsidy) was spent on administrative activities. Based on this national budget, and the numbers of beneficiaries of 55, 417 obtained from the study districts, it can be estimated that Mazabuka and Chongwe's budget for 2010/2011 agricultural season was about 36.6 billion, with administrative costs of 17.4 billion at full rate and 19.2 billion at 50 percent contribution/subsidy towards agricultural inputs. The administrative costs for Mazabuka and Chongwe as estimated at the MACO district offices were high at 48 percent of the 2010/2011 government contribution to the input provision budget. This could probably be one of the reasons leading Gregory (2006) to point out that there is evidence that the Farmer Input Support Programme cost exceeded the increased value of additional maize produced. Doward et al (2008) also reiterates that allowing the private sector to supply more enables the programme implementer to reduce programme costs as is evidenced by the findings of the study.

At the same time, it also appears that limiting private sector participation increases the costs of the programme implementation. This could be the reason why the FISP that has low private sector participation has higher costs of implementation compared to FAO programme that had higher private sector participation.

Table 3. 3

*Comparative Analysis of costs for the Voucher Scheme (Chongwe and Mazabuka) and FISP*

| Input Approach | Focus detail | 2009/2010 Agricultural season | 2010/2011 Agricultural season | Total Value |
|---|---|---|---|---|
| VS | Number of beneficiaries targeted in Chongwe and Mazabuka | 1,363 | 1,363 | 2,726 |
| | Total value of Budget | 724,603,003.00 | 712,542,134.18 | 1,437,145,137.18 |
| | Total Administrative Costs (ZMK) | 43,103,003.60 | 31, 042, 134.18 | 74,145,137.78 |
| | Estimated cost per farmer (ZMK) | **31,623.63** | **22,774.86** | **27,199.24** |
| | % Administrative costs as share of total Budget | **6.3%** | **4.3%** | **5.3%** |
| FISP | Number of beneficiaries targeted | 534,180 | 891,000 | 1,425,180 |
| | Total value of Budget (ZMK) | 435,000,000,000.00 | 589,008,000,000.00 | 1,024,008,000,000.00 |
| | Estimated Administrative Costs (ZMK) | 79,770,300,000.00 | 280,456,750,000.00 | 360,227,050,000.00 |
| | Estimated Administrative cost per farmer (ZMK) | **149,332.25** | **314,766.27** | **252,758.98** |
| | % Administrative costs as share of total Budget | **18%** | **48%** | **35%** |

Source: Analysis based on data collected from FAO and MACO

The analysis of data given by FAO indicates that use of the voucher scheme in Chongwe and Mazabuka as opposed to FISP's direct procurement and distribution would save the programme implementer about 30 percent of the administrative costs. This is so because the voucher scheme utilises on average 5 percent administrative costs against the total budget, while the direct procurement uses up to 35 percent on average the administrative costs. Analysing the data collected from both Food and Agriculture Organisation and the Ministry of Agriculture and Cooperatives, it shows that on average the procurement and distribution of the agricultural inputs through the voucher scheme results in a saving of about K215, 559.7 (K242 758.98 FISP-27,199.24 Voucher= K215, 559.7 saving), per beneficiary or loss if the direct procurement is opted for. When a programme uses the voucher scheme to procure and distribute agricultural inputs in Chongwe and Mazabuka, the programme is spending on average K27, 199.24 per farmer on administrative costs. On the other hand if the direct procurement is implored, the administrative cost per beneficiary is estimated at K242, 758.98. The saving or the loss is the difference between the two administrative costs. So if for instance, Mazabuka district had used the voucher scheme in 2010 with an average cost K27, 199.24 administrative costs per farmer, as opposed to K252, 758.98 per farmer, it would have

saved K215, 559.74 per beneficiary. The difference between the voucher and the direct distribution when multiplied by number of beneficiaries in Mazabuka and chongwe is large enough to support additional farmers and increase production in the two districts.

Additionally, the voucher scheme option also has shown that it has less administrative costs compared to the direct procurement and distribution. However, the direct procurement alternative can be considered for remote rural places where there may be no presence of Agro-dealers. Consequently, the maximum difference between the voucher scheme and the FISP relative to the total input support is probably a representation of efficiency.

### *The Role of Agro-dealers in the Voucher Scheme*

In the previous section dealing with the implementation details, we alluded to the role associated to the agro-dealers in the voucher scheme. In this section we look at the role of agro-dealers in some great detail in view of the fact that the participation of the Agro-dealers is an integral part of the management of the voucher scheme. As earlier indicated, one of the reasons advanced to advocate the use of the voucher scheme, borrowed from the FAO Project Document on Voucher Scheme (2009), being implemented in Chongwe and Mazabuka, is that it would promote private sector participation which subsequently would improve the farmers' access to agricultural inputs. To assess the role of agro-dealers in the voucher scheme in Chongwe and Mazabuka, some interviews were conducted with the FAO, MACO, Conservation Farming Unit, farmers and agro dealers in the two districts. Additional information was collected from various reports and books relating to the role of Private Sector in development.

It was earlier established that the Agro-dealers played a very critical role in the implementation of the voucher scheme. Firstly, In 2010/2011 agricultural season, when the electronic voucher scheme was used in Mazabuka and Chongwe, the agro- dealers seemed to have played some role in increasing targeting efficiency. As confirmed through the interview with the FAO Disaster Risk Reduction Management Unit, Programme Manager (23rd December, 2010), the Agro dealers were in constant communication with the Programme Implementers on the eligible beneficiaries and eligible inputs for the programme. Where the farmers presented the Identification that was not linking to the voucher card, the agro dealers in Chongwe and Mazabuka communicated to the programme implementer to correct the situation. This ensured that the set targeting was adhered to. For instance, in Chongwe (February 2011), an Agro-dealer, Namupeza Enterprises reported that ten voucher cards could not be redeemed on first attempt because the National Registration card numbers

presented by the farmers were not corresponding with the ones in the system entered during the registration. One specific farmer that experienced that problem was Mrs. Agnes Moonga of Hachingala village in Chongwe whose NRC number in the system had a difference of one digit with NRC card she presented, but immediately the Namupeza Enterprise, Agro-dealer contacted the programme implementer for verification. Namupeza Enterprise reported that once the programme implementer confirmed that Mrs. Moonga was the rightful beneficiary, Namupeza Enterprise went ahead to give the inputs to her.

The availability of inputs in the shops of agro-dealers at the time farmers need to redeem their vouchers is important because it determines the timeliness in input acquisition. The Agro-dealers in Chongwe and Mazabuka seem to have been involved in timely stocking of the right agricultural inputs that supported the programme objective of promoting timely delivery of inputs in line with principles of conservation agriculture, that advocates early planting.The timely availability of inputs at the Agro-dealers' shops may have also been assisted with timely sensitisation that FAO carried out in March 2009 on the Agro-dealers on the anticipated demand for agricultural inputs for 2009/2010 rain season (as reported by FAO senior agronomist, on 23rd December, 2010). To further analyse input availability, an inquiry into the situation of the farmers in the study districts with regards to whether they had found all the inputs they wanted at the time of voucher redemption produced the below responses. The statistics indicated that 70 percent of the sample among beneficiaries (N=178) acknowledged availability of all the inputs they wanted at the time of voucher redemption in the local Agro-dealers shops. In Mazabuka, 75 percent of the beneficiaries acknowledged availability of all the inputs they wanted at the time of voucher redemption, and 67 percent did so in Chongwe district. What becomes apparent from this data is that the 75% Mazabuka and 67% Chongwe farmers who acknowledged agricultural inputs availability are large enough for the study to conclude that, the local Agro-dealers played a role in making available agricultural inputs in the voucher scheme in the two districts of the study.

The input availability among agro dealers in different locations of the programme may not be uniform. The insights from the programme implementers suggest that the capital base of some agro-dealers as well as an understanding of the demand pattern of inputs have an influence on the supply pattern. The interviews conducted in December 2010 with the Agro-dealers in Chongwe and Mazabuka showed that availability of most agricultural inputs like maize seed, fertilizer, herbicides, rippers and sprayers were not a problem except for Legume seed and sometimes the Chaka Hoes. The reasons given by most Agro-dealers for the difficult in making Chaka Hoe available is the monopoly by the supplier in Zimbabwe

called Zamplow coupled with the increased demand for the Chaka Hoe created through the promotion of the Conservation Farming that uses Chaka Hoe as opposed to the ordinary hoe. As for the low availability of Legume seed which was reported, the FAO Disaster Risk Reduction Management Unit, Programme Manager (23rd December, 2010), also explained that the situation was expected because the commercial market for legume seed is not yet developed in Zambia in general. The lack of development of the commercial market for seed legume has been difficult because the legume seed is one type of seed that once acquired by the farmers it is easily recycled. The seed for legume can easily be preserved from the farmers' harvest for future planting. FAO Disaster Risk Reduction Management Unit explained that if the farmer buys the legume seed once, the farmer could use the harvested crop to plant in the following seasons. This means that the demand for legume is low and this could make it difficult for the Agro-Dealers to estimate the legume seed requirements for the farmers thereby affecting the availability as was experienced in Chongwe and Mazabuka.

The Agro dealers also played some role in the development and improvement of the local input supply system in Chongwe and Mazabuka districts in general. The MACO district staff and farmers in the two districts acknowledged that, the effects of the voucher scheme had spilled over to the non beneficiaries of the programme. Among the non beneficiary farmers who confirmed that they managed to buy chaka hoes and hebercides from the local Agro-dealer were Gorge Kafuni, Charles Mweene and Moffat Phiri in Chongwe, and in Mazabuka some of such farmers were Stephen Ndlovu, Aaron Chibuula, Nandi Maila and Susan Musakabantu. The access to agricultural inputs by farmers was made possible in the sense that the agro dealers were stocking a variety of the once rare agricultural inputs such as Chaka hoes, rippers and herbicides that were not only being supplied to the voucher beneficiaries but also the non beneficiaries. According to the Deputy Director of Agriculture (interview of 13th August, 2010), this allows sustainable market provision which has been broken down at local level. If the direct procurement was done, where only one supplier is chosen from Lusaka to supply the Chaka hoes, rippers and herbicides in Chongwe and Mazabuka districts without establishing outlets in Chongwe and Mazabuka districts , the farmers who were not on the voucher programme would have found it difficult to access these inputs which before the programme, were rarely available. So the support of the local Agro-dealers to the voucher scheme enabled the non programme beneficiaries to access inputs.

A positive aspect of the voucher scheme that was cited by some agro dealers in Chongwe and Mazabuka was that the voucher scheme fostered some degree of interaction

with farmers, suggesting that good customer relations had been developed since the voucher scheme was introduced. The Mazabuka Ministry of Agriculture and Cooperatives (MACO) Officer, Mr. Mbanga Mukumba mentioned that, since some of Cropserve Officers are professional agriculturalists, sometimes MACO invites Cropserve agro-dealer to assist with trainings of farmers, especially on safe use of herbicides (Interview on 31st August, 2011). It can thus be deduced that the Agro Dealers played a role in fostering good relationships between the farmers and themselves that resulted in the exchange of knowledge. These agro-dealers also provided advice to the farmers. The advice that they gave to the farmers included pre-sale advice and sometimes ongoing extension advice as part of their services. In Mazabuka, the agro dealers also organised field days where the farmers learnt about the various agricultural inputs the agro dealers stocked. There were also product demonstrations and the development and distribution of leaflets and wall posters on the safe use and handling of agro-inputs. At the same time agro dealers were also getting feedback on the farmer requirements in both Chongwe and Mazabuka. For instance, Cropserve Zambia Limited in Mazabuka shared the handbook it has written in Tonga on the safe use of herbicides with the farmers. Cropserve Zambia Limited mentioned that the effort to have extension messages for the farmers has potential to enhance knowledge retention, hence the production of the said handbook for the farmers (interview with Crop Serve Ltd, Sales Manager, Mr. Elvis Pinyolo on 31st August, 2011).

The agro dealers also assisted the programme implementer (FAO/MACO) to reduce the transaction costs, through handling and storage thereby improving farmers' access to inputs, decreasing transaction costs and increasing the demand for inputs as was earlier mentioned. These costs would have been paid by the implementers if the direct distribution was used. But since the voucher scheme was used, and earlier we learnt that some Agro-dealers like Crop-Serve Limited in Mazabuka has its own transport that it uses to ferry its stocks from various suppliers points, thereby reducing the transport cost that eventually it passed on to the farmers through low pricing of agricultural inputs. On the contrary as demonstrated in the section on administrative cost, the direct procurement that uses central procurement had high administrative costs.

It was earlier reported that the local Agro-dealers were cutting down on the cost of doing business and passing on the benefits of reasonably pricings to the farmers. The voucher scheme seemed to create a win situation for both the farmers and the agro-dealers. The farmers in Chongwe and Mazabuka thought that they were not being exploited in terms of prices that the agro dealers had put on the agricultural inputs. The access to reasonably priced

inputs offered by the Agro-dealers, helped the farmers reduce the cost of production in Chongwe and Mazabuka and increased the income value. On the other hand all the agro dealers indicated that the sales volume of inputs had improved compared to the past due to the voucher scheme. Consequently, good profit margins were acknowledged by all the agro dealers. For example, in Mazabuka, Crop Serve Ltd, Sales Manager, Mr. Elvis Pinyolo reported that his company had recorded a 100 percent increase in sales for Glyphosate herbicide from 1,500 litres per year before the voucher programme to over 3,000 litres in 2009 and 2010 during the voucher programme (interview on 31st August, 2011). Previously farmers had used hoes to control weed which requires a lot of time, for instance, one hectare with a hoe by one person can take about two weeks. But with the use of Glyphosate herbicides weed control, a one hectare is done by one person in about two hours. The agro dealers are supplying Glyphosate herbicides to the farmers. The use of herbicides by the farmers help to address the issue of labour and enables the farmers to plant big pieces of land (increase production) thereby improving the farmers' household food security and income levels as will be discussed in detail in chapter four.

It was also established that the agro-dealers also have the potential to link farmers to markets for their farm produce besides providing them agricultural inputs. Of all the eight Agro-dealers on the voucher programme in Chongwe and Mazabuka districts, none is involved in buying of the agricultural crops (maize, sorghum, groundnuts) even though they supply seed for these crops. The farmers in the two districts mostly depend on Food Reserve Agency (FRA) as the market for their crops, but the FRA market is currently concentrated on Maize crop. The market for other crops like sorghum and groundnuts could be a problem for the farmers who have diversified their cropping. However, the local Agro-dealers are acting as a link to the market for other crops, which could motivate the farmers to continue diversification. One specific instance that can be cited is that of the Chongwe Agro-dealer Kumawa who has linked the farmers under the voucher to a market for Sorghum to company in Lusaka called Export Trading Limited. According to the information given by the Deputy Director of Agriculture, (interview of 7th January, 2011) the Export Trading Limited expressed interest to procure all the sorghum that will be produced in 2011 agricultural season by the farmers under the voucher scheme. The farmers in the programme are more organized and have established relationships with Agro suppliers, so it is easy to organize volumes of their agricultural produce for sale to the Agro Supplies who normally require huge volumes for further export. From the above indications, it can be concluded that the

agro dealers also have created markets for outputs which will potentially increase income for the farmers.

The availability of variety of seeds at local agro dealers has increased the crop diversification as farmers are able to access the different seeds. This is as shown in chapter two where the findings show that the farmers under the voucher scheme were more diversified in their cropping. The voucher beneficiaries in Chongwe were growing crops that included maize, groundnuts, cowpeas, cotton, sweet potatoes, sunflower, beans and soya beans. On the other hand, it was also found that the beneficiaries to direct procurement such as Farmer Input Support System (FISP) were not very diverse. For instance they were mainly growing maize with a little involvement in cash crops such as cotton, sunflower and soya beans. It appears that diversification may not have been possible without availability and accessibility of varietal seeds in the Agro-dealers shops. Mr. H. Syed, Director of H and W Enterprise Limited said that after the sensitisation by the voucher programme, their range of agricultural inputs had broadened to include seeds such as soya beans, cowpeas and cotton, thereby enhancing diversification (interview of 31st August, 2011). It was established from MACO, Deputy Director, Mr. Alick Daka and the FAO Programme Manager, Dr. Jim Belemu that diversification, as opposed to mono-cropping of maize, fosters market development (separate interviews, 13th August, 2010 and 14th September, 2010 respectively). The cost of producing Maize is quite high making it very uncompetitive at the international level and potentially reducing the income for the farmers. However, through local agro dealership in Chongwe and Mazabuka, the farmers are encouraged to grow legumes that have low cost of production and thereby making it competitive at the international level. Additionally, as a result of crop diversification into legumes that are of high nutritional value, the programme has enhanced the nutrition status at household level.

The Agro-dealers in Chongwe and Mazabuka districts also played a role in the continued improvement of voucher scheme implementation. The Agro-dealers did so by way of giving feedback to the programme implementers based on their true experiences. For example, in 2009/2010, the period for redeeming the voucher was limited to a week and according to the Agro-dealers, the time was not adequate as it forced the Agro-dealers and the farmers to redeem inputs under very limited time to meet the deadlines. H and W Enterprise Limited reported that they had to work during lunch time and beyond 17:00hrs to service the farmers (interview of 31st August, 2011). Based on their experiences during the 2009/2010 voucher implementation, the Agro -dealers such as Kapoti Limited, Minelands Limited, H and W Enterprises Limited and Cropserve Limited got involved in advocating for the

extension of the redeeming period for the future voucher programme to ensure that both the farmers and agro dealers had ample time to conduct business. The programme implementer took the recommendation into consideration in the year that followed i.e. 2010/2011 Agriculture season, where the period was extended to three months. As a result of the extension that was lobbied by the Agro-dealers, there seems to be no indication of dissatisfaction in terms of voucher redeeming period for 2010.

The positive contributions the Agro-dealers made in the Voucher Scheme notwithstanding, as people who are in business with one of their major objectives being maximizing profits, they tend to be very conscious about the costs of doing business. In fact, it was found that all the Agro-dealers participating in the voucher scheme in Chongwe and Mazabuka were situated at the business centres, which on average was 50 kilometers away from the camps or communities they were serving. This at times made it difficult for farmers to easily access the agricultural inputs under the voucher scheme as farmers had to travel some long distance to the business centres to access the agricultural inputs. The other problem with agro-dealers that came out prominently from interviews with themselves is the capital limitation. The Agro-dealers indicated that the problem that they are facing in expanding their business is the limited capital. For instance, Kumawa Enterprises Limited indicated that the bank interest rates are prohibitive to the business expansion. Kumawa Enterprises Limited complained that this may in turn affect their capacity to service the farmers especially when the numbers grow (interview conducted on 4th February, 2011).

With the use of the voucher scheme, there is also the danger of the Agro-dealers redeeming the voucher cards without delivering the agricultural inputs to the farmers, as was the case in Chongwe with Minelands Limited in 2009 (interview with the District Agriculture Coordinator of Chongwe on 14th November, 2010 ). The Programme Implementers explained that this is possible in that, with the current system, the Agro-dealer, sometimes with the Camp Extension Officer, is the one who plays the major role of verifying that the farmer presenting the voucher card for redeeming is the rightful owner. The Agro- dealers also assist the farmers who do not know how to redeem the voucher cards, and when the Agro-Dealers do not have some of the agricultural inputs the farmer require, the Agro dealer may convince the farmers to redeem the card with the promise of delivering agricultural inputs later which may not be fulfilled as was the experience in Chongwe. According to the District Agriculture Coordinator, Mr. Simulunda (interview of 14th November, 2010) in Chongwe, this is what Minelands Agro-dealer did; they redeemed the voucher of about K2, 000,000 for undelivered inputs to the farmers with the promise of delivering within the

agriculture season but this did not happen. A follow up with the Mobile Transaction Zambia Limited, the provider of the Electronic systems for the voucher confirmed (interview of 6th December, 2010) that the situation of the agro-dealer redeeming and receiving payment before actual delivery of inputs is possible. The Mobile Transaction Zambia Limited mentioned that, the only Agro-dealers or parties whom the system restricts from this misuse are companies that are not registered in the voucher scheme because then their bank accounts are not linked to the system and as such they may not carry out a successful transaction. As the situation is, the sure method of verification to ensure that the agricultural inputs were actually delivered to the farmer beneficiaries is a combination of both physical monitoring and electronic system monitoring to ensure immediate follow up issues that may arise.

It was also observed that some shop attendants had little or no knowledge on the types and usage of the agricultural inputs that they were selling. According to the Senior Agronomists, Sina Luchen, that this may pose a danger to agricultural production in that the agro-dealers may not admit to the lack of knowledge and may end up misleading the equally ignorant farmers on the utilization of agricultural inputs (interviewed on 23rd December, 2010). The knowledge of agricultural inputs suitability and utilization is important to the increased yields. According to the senior agronomist, Mr. Luchen, Zambia has four different ecological zones, that utilize different varieties of some of the seeds, so when a wrong variety of seed is taken to a wrong ecological zone, it may give very poor yields. Similarly a right variety if taken to the right ecological zone will give optimal yields. The senior agronomist, Mr. Luchen concluded that the knowledge is very important for the Agro-dealers to ensure that they stock the right agricultural inputs, so that it helps when they are dealing with farmers who lack this knowledge (interview of 23rd December, 2010).

### *Conclusion*

The chapter discussed the implementation details of the voucher scheme in Mazabuka and Chongwe districts. It also analyzed the administrative costs of the voucher scheme in order to assess whether the benefits or advantages outlined in the prior section were worth pursuing as they relate to the cost of attaining these benefits. Lastly, it looked at the role that the agro dealers as private sector played in the voucher scheme.

The implementation details explained the roles of the various parts involved in the voucher scheme. It came to light that in the voucher scheme there are three actors namely the electronic system provider, farmer and Agro-dealer. Each of the three plays an important role in the voucher scheme to effectively operate an input supply system. The system provider

ensures that the voucher beneficiary is properly linked in the system to be able to redeem the card for inputs while ensuring that immediately the Agro-dealer supplies the inputs, the payment for the inputs is made to the Agro-dealers' account. The Agro-dealer ensures availability of quality inputs at the right time for the farmers to access. The farmer completes the process as the beneficiary to the services of both the Agro-dealer and the electronic system provider. The farmer does not need to move with cash to go and procure inputs, and the voucher card should be secured in case the farmer loses it. This is achieved through the use of the electronic system. In this chapter it was also observed that the selection criteria for Agro-dealers are important in ensuring efficiency and effectiveness of the voucher scheme.

The evaluation of the voucher scheme also shows that the voucher scheme has received a positive feedback from the implementers, Agro-dealers and the Farmers. In summary as perceived, the advantages of the voucher scheme over the direct procurement system are outlined as follows: The farmers were using cards to procure inputs as opposed to cash, thereby reducing the risk of misusing the cash. The farmers chose and received their inputs timely, resulting into early planting and productivity. The voucher also contributed to effective targeting through the use of data base for farmers in the two districts.

It was also noted that there was an increase in the number of agro dealers participating in the provision of agricultural inputs, thereby enhancing input access and the Private sector development. The agro dealers were also receiving payment instantly as they supply the agricultural inputs through the immediate electronic payment, thereby enhancing their capital base. The voucher scheme also recorded minimal transportation costs by service providers or implementers as it encouraged farmer and private sector contribution.

In addition to the benefits outlined, the study also revealed that the voucher scheme also had low administrative costs. Even when compared to the most widely used system of agricultural input provision and distribution, the direct procurement and distribution. The administrative cost of implementing the Electronic Voucher and Paper Voucher were USD $4.80 and $6.7 respectively. The administrative for direct procurement was USD $31.8 in 2009 and USD $67 in 2010.

The study also found that the agro dealers played an important role in the Voucher Scheme. The agro dealers competitively provided diversity of agricultural inputs to a total of 1, 363 beneficiaries valued at K500,000 per farmer accompanied with extension messages in both Chongwe and Mazabuka, thereby contributing to agricultural production and food security in the study areas.

On the other hand, there were also some weakness that were observed such as time taken to redeem the vouchers. The voucher scheme as a system of agricultural input provision and distribution has potential to benefit all the major stakeholders in agriculture once done in time. It relieves the programme implementers the stress of delivering inputs to multiple beneficiaries, hence allowing the farmers to obtain optimal efficiency on the agricultural inputs while on the other hand promoting the development of the private sector.

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# CHAPTER FOUR

# THE PERFORMANCE OF THE FAO INPUT VOUCHER SCHEME

## *Introduction*

The chapter attempts to assess the contributions of the voucher scheme to crop production and productivity as well as income for the farmers. This is important, given an understanding that the input voucher scheme was designed to provide a means of transferring assets to the targeted farmer beneficiaries which in turn should enable them to increase productivity of staple food crops, produce more saleable surplus, increase land devoted to Conservation Agriculture, assure household food security and raise incomes. This is in line with the Poverty Reduction Strategy Paper, 2002-2004, whose one objective is that of reducing poverty through provision of low cost agricultural inputs and promotion of Conservation Farming technologies to address efficiency in agriculture. The overall focus of this chapter is to establish the extent to which the voucher scheme has been able to contribute to the attainment of food security in Chongwe and Mazabuka. The chapter is divided into four sections. The first section is the introduction and the second section focuses on the level of crop production and productivity in relation to the voucher scheme. The third section analyses the income levels of the farmers in the voucher scheme and proceeds to give a conclusion on the last part of the chapter.

## *Levels of Crop Productivity and Production*

As indicated in the introduction, this section analyses the production and productivity of the voucher scheme in Chongwe and Mazabuka in order to ascertain the efficiency of the scheme. In order to establish whether the farmers under the voucher were more productive than those under the direct procurement, a comparison of the production and productivity of maize among Conservation Agriculture Voucher Scheme beneficiaries and non beneficiaries was made. Production is a process and method employed to transform tangible inputs (raw materials, seeds, fertilizers, semi finished goods) and intangible inputs (trainings in conservation farming practices or other extension messages, ideas, information, knowledge) into goods or services (outputs). In the farming sector, crops are the primary goods produced by combining the factors of production such as land, labour, capital and technology. The unit measure of production in farming reflects the weight of the crops produced or space occupied in the case of liquids such as milk. In Zambia, crops are measured in units of weight (in

Kilograms or metric tones) while milk is measured in litres. Similarly, productivity is a measure of output from a production process, per unit of input. For example, crop productivity in agriculture is typically measured as a ratio of output in Kilograms or Tonnes per area cultivated in hectares (Kg $ha^{-1}$,). In other words, productivity is the measure of the efficiency of production. To this end, productivity yield in agriculture are used interchangeably with efficiency.

To assess productivity in Chongwe and Mazabuka, the Maize yield potential (productivity) of the Conservation Farming (CF) practice being promoted through the voucher scheme was tested by comparing the maize yield of beneficiaries against non beneficiaries. Maize was chosen for comparisons because the quantitative collected during the study showed that it was the crop that was grown most by both practitioners of Conservation Agriculture (voucher recipients or beneficiaries) and non practitioners (non voucher recipients or non Conservation Agriculture practioners). Before discussing the findings on the productivity in the study areas, it is important to refer at the situation before the programme intervention as provided by the baseline information at FAO. According to the FAO CASPP Baseline Report (2009), the average yield for maize (the staple food crop) by farmers for the 2007/2008 agriculture season was only 1.3 tons per hectare. However, the comparisons reflected in Table 4.1 below generated from quantitative data after the voucher intervention revealed that maize yield under Conservation Farming averaged approximately three tons per hectare compared to the yield under the conventional farming practice that averaged approximately 2.5 tons per hectare. This shows some increase in productivity by both the beneficiaries and non beneficiaries of the voucher scheme that could be attributed to early access to inputs, farming practices, the weather pattern and many more as outlined in the sections to come.

The yields recorded under this study for the Conventional Farming seems to be in line with other findings. For example, the 2004 CSO/MACO crop forecast data estimate an average maize yield of two tons per hectare for the Government's Farmer Input Support Programme beneficiaries, far less than three tons per hectare tenable under the Conservation Agriculture practice. As for this study, the findings are that the yield difference between Conservation Agriculture and conventional farming averaged 0.5 tons (about 10 X 50 Kg bags) in Chongwe and Mazabuka, implying that households that practiced Conservation Agriculture had a chance of getting extra 0.5 tonnes (10 X 50 Kg) bags on every hectare of land cultivated to maize. While for the conventional methods, it implied that the farmers were

getting less maize by 10 X 50 Kg or 0.5 tonnes for the same quantity of agricultural inputs same size of land/hectare as that which is under conservation farming. Conventional farming methods resulted in failure to achieve the expected minimum of the three ton per hectare thereby limiting the impact of FISP on agricultural production and food security. A further analyisis of the Table below also shows that productivity is different between voucher beneficiaries and non beneficiaries using conventional methods of farming. Even under conventional farming, the voucher scheme beneficiaries seem to be showing higher productivity compared to the non beneficiaries, which could imply that there could be other advantages that the voucher beneficiaries have over the non beneficiaries. This could probably be answered with additional analysis that is yet to be done in the next sections on the effect of planting time on crop productivity.

Table 4.1

*Distribution of Respondents by Maize yields under Conservation Agriculture and Conventional farming in sample areas*

| **Beneficiary type** | **Statistical Focus** | **Maize Yield in Tons ha$^{-1}$** | |
|---|---|---|---|
| | | Conservation Agriculture | Conventional Farming |
| Beneficiary | N | 108 | 143 |
| | Mean | 3 | 2.5 |
| None beneficiary | N | 3 | 59 |
| | Mean | 2.1 | 2.2 |
| Total | N | 111 | 202 |
| | Mean | 2.9 | 2.5 |

Source: data collected from farmers in the Chongwe and Mazabuka

The study also compared maize productivity between Mazabuka and Chongwe districts to see if there was any difference in productivity between the two districts, the findings which are presented in Table 4.2 below. The statistics in Table 4.2 indicated that on the overall maize yield for Conservation Agriculture (CA) in Chongwe and Mazabuka was almost the same, with just a minor difference of 0.1 ton as Chongwe recorded 3 tones on average per hectare and Mazabuka recorded 2.9 tones per hectare. Under conventional farming, the statics showed that the productivity between the two districts was the same both at 2.5 tonnes per hectare. In other words both districts showed a comparative advantage over Conservation Agriculture.

Table 4.2

*Distribution of Respondents by Maize yield by Tillage Practice by District*

| Name of District | | Maize yield in Conservation Agriculture (Tonsha$^{-1}$) | Maize yield under conventional (Tonsha$^{-1}$) |
|---|---|---|---|
| Chongwe | N | 74 | 116 |
| | Mean | 3.0 | 2.5 |
| Mazabuka | N | 37 | 86 |
| | Mean | 2.7 | 2.5 |
| Total | N | 111 | 202 |
| | Mean | 2.9 | 2.5 |

Source: Analysis based on data collected from farmers in Chongwe and Mazabuka

This study went further and applied the paired t test statistical analysis to determine whether the difference in yield for conservation farming against the conventional farming practice was statistically significant or not. Comparing the maize yield in Conservation Agriculture on a smaller scale of hectare (M=2847.43, SD=1631.25) against maize yield under conventional farming practice of the hectare (M= 2,672.45, SD= 1497.05) revealed that the yield levels are statistically the same because the difference [t (93) = 0.720, p=0.473 > 0.05] was not significant as the Table below shows.

Table 4.3

*Comparative Analysis of Respondents by maize yield under Conservation Agriculture and Conventional Farming practice by Paired t test in sample areas*

| **Paired Samples** | **Paired statistics** | | | **Paired t-test Results** | | |
|---|---|---|---|---|---|---|
| | Mean | N | Std. Deviation | t | df | Sig. (2-tailed) |
| Maize yield in CA | 2847.4291 | 94 | 1631.25555 | 0.720 | 93 | 0.473 |
| Maize yield under conventional | 2672.4466 | 94 | 1497.05083 | | | |

Source: data collected from farmers in the Chongwe and Mazabuka

Even though the statistics in Table 4.3 which is based on a small sample of 94 respondents is insignificant, it is important to note that the picture may change to show that there is statistical significance if a big sample is used. Additionally, the differences in yield between the two samples have practical significance. According to Gall, the term "practical significance" implies a research result that will be viewed as having importance by policy makers, and others concerned about the day-to-day workings of agriculture and efforts to

improve it. Indeed the difference between the two groups of farmers becomes even more significant when the Conservation practising farmer plants a lot of hectares and does so constantly. When this is done, the yield level difference with the conventional farmer becomes statistically prominent. Therefore, it would matter in terms of yield at a larger and consistent scale if a farmer used the Conservation Agriculture practice. Such a farmer who grows a larger area consistently get more yield and subsequently improve his or her household income, compared to a conventional practising farmer.

Besides the apparent conservation agricultural practices, other factors associated with the voucher scheme such as reduced costs of inputs, early planting and crop diversification, enhanced high productivity within the voucher scheme. In terms of reduced costs of input procurement and distribution to attain efficiency, the results shown earlier revealed that procurement and delivery of agricultural inputs through the voucher scheme in Chongwe and Mazabuka was lower by K165, 434 in terms of costs compared to the direct procurement. Furthermore, when the selling price of fertilizer on the voucher scheme and direct procurement was compared, the prices were lower under the voucher scheme, suggesting that it was more efficient in terms of production and productivity. A bag of fertilizer was going at about K175, 000 under the voucher scheme in Chongwe and Mazabuka and K200, 000 under the FISP direct procurement. It could therefore be concluded that, the voucher scheme has potential to increase productivity.

Another factor accounting for higher productivity that the farmers in the voucher could have over those outside the scheme is that they tend to have early access to inputs compared to those outside the scheme. Early access to inputs is important as per Report of Zambia Vulnerability Assessment Committee 2004 that analyzed the livelihood strategies in Chongwe and Mazabuka. According to this report, the peak time for land preparation for most crops is between September and November, except for sunflower, for which land is prepared in January. Before analysing the statistic of this study's findings, it is important to mention that according to the interview with Ministry Agriculture and Cooperatives, Deputy Director, if the farming conditions are favourable, the right time to plant maize to maximise the gains is up to Mid November. The report by the Economic Expansion in outlying Areas (2006), recommends that, early planting be done after the first soaking rains, which could be between 5 to 15 November according to the rainfall pattern in Chongwe and Mazabuka. The effect of input delivery time and receipt on crop production was studied with regard to timeliness in planting and yield levels of maize among voucher recipients (project beneficiaries) and non beneficiaries in the two study districts. The statistics indicate that

farmers who planted early under Conservation Agriculture had an average maize yield of approximately three tons per hectare

The analysis time of accessing inputs exclusively focused on households that had indicated that they were sure of the date when they obtained inputs from the agro dealers (the time the inputs are accessed may determine the planting time). The responses of those households who could not remember very well when they obtained inputs were not computed for purposes of strengthening the validity of the findings. Overall, 62 percent of the voucher recipients (N=180) acknowledged with certainty the time period when it sourced inputs from agro dealers. The consultation with the MACO Deputy Director of Agriculture, indicated that accessing inputs before planting time of mid November is acceptable (interview conducted on 7th January, 2011). In this case the statistics of the findings then reveal that a cumulative score of 102 voucher recipients had secured the required inputs between early September and mid November suggesting that early planting could have been done earlier than the last week of November depending on the rainfall pattern that had prevailed in the given local ecologies during the season. However, there are indications that some farmers under Conservation Farming in Voucher Scheme in Chongwe district about 9.8 percent sourced their inputs later in the season between mid and late November compared to zero percent farmers in Mazabuka.

Table 4.4:

*Time Period when CA beneficiaries acknowledged receipt of inputs by District*

| **Period when Household secured inputs** | **Name of District** | | **Total** |
|---|---|---|---|
| | Chongwe | Mazabuka | |
| | **Count** | **Count** | |
| Early September | 0 | 1 | 1 |
| Mid September | 1 | 2 | 3 |
| Late September | 7 | 0 | 7 |
| Early October | 5 | 28 | 33 |
| Mid October | 2 | 2 | 4 |
| Late October | 12 | 0 | 12 |
| Early November | 16 | 14 | 30 |
| Mid November | 11 | 1 | 12 |
| Late November | 9(9.8%) | 0 | 9 |
| **Total** | **63** | **48** | **111 (62%)** |

Source: data collected from farmers in the Chongwe and Mazabuka

Comparisons were made to investigate the efficiency with which the voucher scheme and the Direct Input Distribution system or the Farmer Input Support Programme, currently being used by Ministry of Agriculture and Cooperatives, were able to facilitate timely planting for rain fed maize production by comparing the proportion of farmers that acknowledged response to different modes of maize seed acquisition alongside the time period of planting.

The findings of the study in Table 4.5 showed that a cumulative percentage of farmers that planted on time i.e. around 15$^{th}$ November or mid way in November among farmers that had accessed seed from the voucher scheme were about 52.7 percent. The cumulative score of 45.3 percent farmers that had bought maize seed with their own cash were second in terms of timeliness in planting, and the FISP beneficiaries came last with 28.3 percent. The FISP recorded a higher percentage of farmers planting late at 30 percent compared to voucher scheme at 17.7 percent. This could be in line with the CFU, 2007, and ACF/FSP Policy Advisory Note, 2009 which indicate that the Direct Input Distribution system as practiced under the FISP and the FSPP has not always succeeded in delivering inputs to farmers on time. Some of the problems the FISP is facing are due to long tender procedures that have to be followed before the suppliers are identified and delayed payments for the input suppliers even when the indication is that the Ministry of Finance and National Planning (MoFNP) has always released funds for the programme on time.

Early planting by farmers who got inputs through the voucher was acknowledged by the recipients. Majority of the households under the voucher scheme acknowledged receipt of inputs between early September and early November as Table 4.4 shows. One is inclined to conclude that the FISP mode of input acquisition is not as efficient as the voucher scheme in terms of facilitating early planting.

Table 4.5

*The effect of Mode of Maize seed Acquisition on planting period*

| Focus detail | Period of planting | Count | % Score |
|---|---|---|---|
| Time of planting for the maize field planted with seed purchased with own money | Before 15th November (early planting) | 35 | 14.8% |
| | Mid way | 72 | 30.5% |
| | After November (Late planting) | 74 | 31.4% |
| | n/a | 55 | 23.3% |
| Time of planting for the maize field planted with seed accessed through FISP | Before 15th November (early planting) | 16 | 6.8% |
| | Mid way | 51 | 21.5% |
| | After November (Late planting) | 72 | 30.4% |
| | n/a | 98 | 41.4% |
| Time of planting for the maize field with seed accessed through the voucher scheme | Before 15th November (early planting) | 51 | 21.5% |
| | Mid way | 74 | 31.2% |
| | After November (Late planting) | 42 | 17.7% |
| | n/a | 70 | 29.5% |

Source: data collected from farmers in Chongwe and Mazabuka

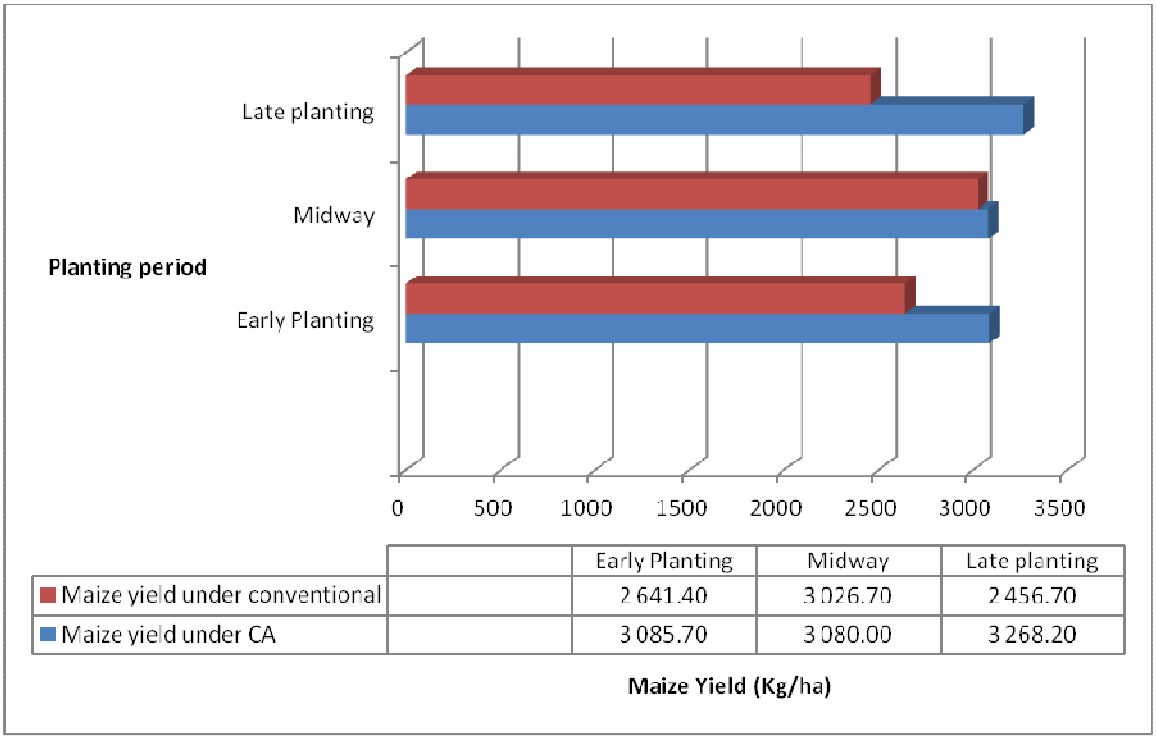
Before discussing Table 4.5, it is important to mention that the small scale farmers source agriculture inputs through a combination of methods. This is to mean the farmers use a mix of methods, one can get from Government's subsidy programme called, Farmer Input Support Programme (FISP), as well as buy own inputs plus voucher inputs when possible. It is for this reason that we find beneficiaries of FISP growing crops beyond the subsidized one hectare, similarly for the voucher scheme the farmers are growing the hectares beyond the voucher support. Moreover, because of the mix in input acqusisition, on the above table, we see responses on methods of input acquisition going beyond the sample size of 240. Aware of this trend, the data collection tool provided for an opportunity for the sampled farmer to list as main sources as possible that they use to access agriculture inputs as indicated in the annex, House hold questionnaire No. 14.

Having made the above clarification, it is time to focus the attention back to the interrelationship between mode of input acquisition and the time of planting. The period of when to plant is important in the context of what we are discussing because it was established that the time of planting had an effect on maize yields among voucher beneficiaries who usually planted early, and the non voucher beneficiaries who planted late. The results also show that the effects of late planting on reducing crop yields is even more on the

conventional farming. The report by the Economic Expansion in Outlying Areas indicates that late planting has the potential to reduce the crop. The findings in Chongwe and Mazabuka also as stated in chart 4.1 indicate that there was a difference in yield for late planting between the Conservation Agriculture and conventional farmers. The yield under late planting with the Conservation Agriculture farmers was approximately 3.2 tonnes per hectare compared to 2.4 tonnes per hectare under conventional farming late planting. This could imply that late planting combined with the conventional farming practices has a negative impact on yields, while Conservation Agriculture practices enhances yields. The differences in maize yield across planting dates for farmers who used conventional farming methods was statistically significant (p=0.005), indicating that it was not by chance, while differences in maize yields across different planting dates for farmers that used Conservation Agriculture was not statistically different from each other (p=0.153). The statistics seem to suggest that there is less variability in yield response to planting dates when a farmer uses Conservation Agriculture than when a farmer uses conventional farming methods.

Chart 4.1:

*Maize yield responses to Planting dates under CA and Conventional farming*




| | | Early Planting | Midway | Late planting |
|---|---|---|---|---|
| Maize yield under conventional | | 2 641.40 | 3 026.70 | 2 456.70 |
| Maize yield under CA | | 3 085.70 | 3 080.00 | 3 268.20 |

Source: data collected from farmers in the Chongwe and Mazabuka

Lastly, it is important to mention that, besides the factors discussed earlier, there are other factors such as the micro environment, type of seed and management practices that were not considered during data collection that could have influenced the observed yields. According to Langmead Planting dates, weeding effort, rotations and residues and contributed 29 per cent, 17 per cent, 11 per cent and 9 per cent respectively to the yield increase attributed to conservation farming method.

The study has looked at the productivity of farmers when exposed to different circumstances such as method of input acquisition, time of input acquisition and planting. We have seen different levels of productivity under the varying circumstances. Having analysed productivity, it is high time we also analyzed crop production in the study areas. To do so, the study started by looking at livelihood assets of the households in Chongwe and Mazabuka, because they may have the potential to affect production. The livelihood assets being referred to in the study are producer goods which include tools, equipment and livestock which people use to function more productively. The producer goods also included Conservation Agriculture (CA) equipment, Ox drawn implements and Animal Draft Power (ADP). These included Conservation Agriculture (CA) equipment, Ox drawn implements and Animal Draft Power (ADP); given an understanding that these assets are relevant to the Conservation Agriculture (CA) being promoted through the voucher scheme as endeavors in pursuit of livelihood outcomes. According to the statistics compiled in Table 4.6, the *Chaka hoe* is the most acknowledged type of CA equipment compared to the *Magoye ripper*. Accordingly, 66.7 percent of the study sample (N=240) own *Chaka hoes* compared to only 31.2 percent that own the *Magoye ripper*. Andrianus study also confirms that the Hand tool technology like chaka hoe is the simplest and most basic level of agricultural mechanization and that the use of tools and simple implements using human muscle as the main power source.

However, ownership of CA equipment in this study was observed to be more pronounced among the Voucher Scheme beneficiaries compared to the Non- beneficiaries; literally confirming that the beneficiaries acquired the equipment through the voucher input scheme. As regards the Ox –drawn implements, the most popularly owned by small scale farmers in Chongwe and Mazabuka are Ox-plough at 49.8 percent, harrowers and cultivators competing closely at 28.7 and 28.3 percent respectively. In the category of Animal Draft Power, the most commonly used producer good is Oxen at 45 percent and the donkeys showed a very insignificant contribution of 1.3 percent. In all categories of producer goods, the prominence of ownership is among the voucher scheme beneficiaries.

Table 4.6

*Ownership of Producer goods by Beneficiary Type*

| Type of Physical Asset | Beneficiary type | | Total |
|---|---|---|---|
| | Beneficiary | None beneficiary | |
| | **CA Equipment** | | |
| CF Chaka hoes | 80.0% | 29.0% | **66.7%** |
| Magoye ripper | 40.6% | 4.8% | **31.2%** |
| | **Ox-drawn Implements** | | |
| Ox-drawn plough | 51.4% | 45.2% | **49.8%** |
| cultivators | 29.7% | 24.2% | **28.3%** |
| Harrows | 28.6% | 29.0% | **28.7%** |
| | **Animal Draft Power** | | |
| Oxen | 48.6% | 37.1% | **45.6%** |
| Donkeys | 1.7% | 0.0% | **1.3%** |

Source: data collected from farmers in the Chongwe and Mazabuka

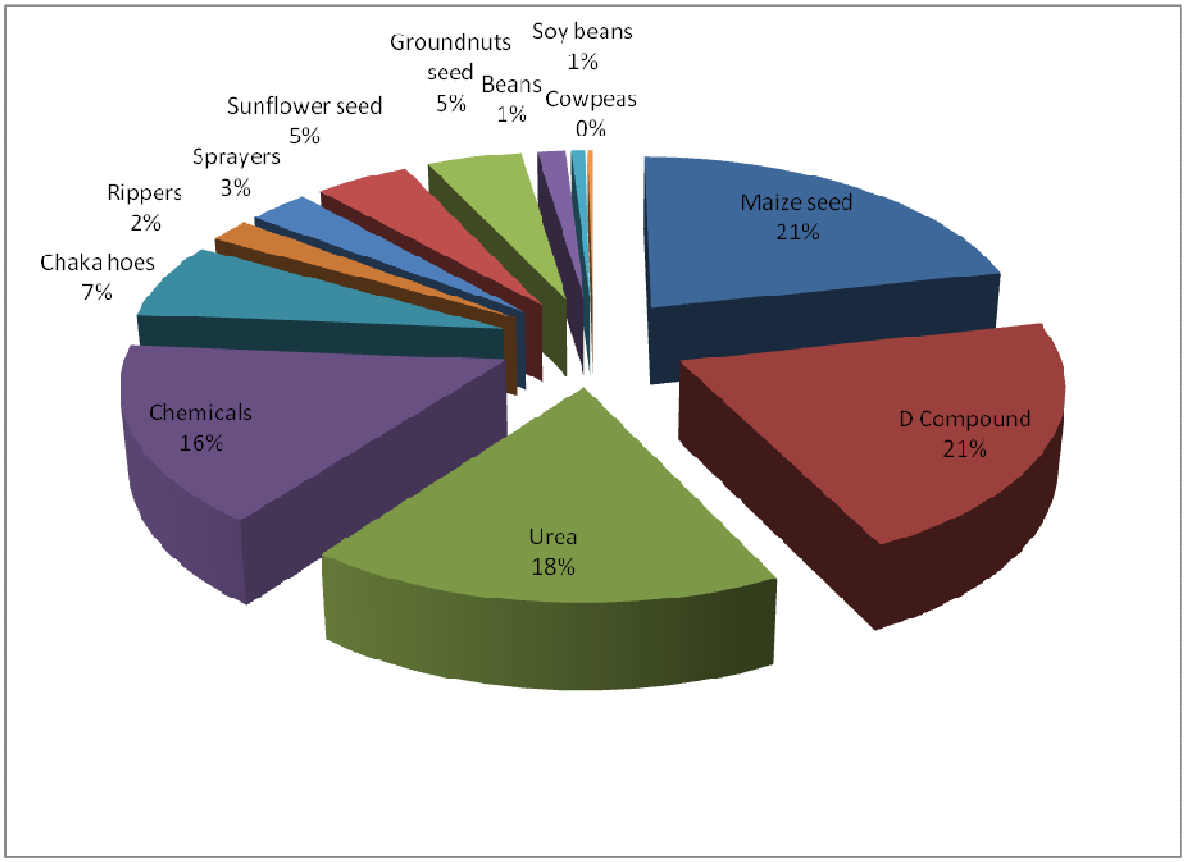
As shown by ownership of agricultural producer, good agriculture is the major economic activity for rural families in Chongwe and Mazabuka districts. The families in Chongwe and Mazabuka use their agricultural tools and implements to engage in agricultural production or as farm input.

Further to the ownership of producer goods, this study probed the demand pattern of inputs by the voucher recipients, because this is also an aspect that is likely to affect the production pattern. The indication is that most beneficiaries tend to redeem their vouchers on maize seed and inorganic fertilizers with little demand for Conservation Agriculture (CA) equipment. The statistics in chart 4.2 presents the distribution of the demand pattern of inputs in the study districts and indicate that maize seed and D Compound fertilizers had a share of 21 percent each while Urea fertilizers and chemicals had a share of 18 percent and 16 percent in the vouchers redeemed for input acquisition respectively. The Conservation Agriculture (CA) equipment being promoted through the voucher scheme such as Chaka hoes and Magoye rippers had a share of only 7 percent and 2 percent respectively. However, the explanation for low redeeming for CA equipment that was pointed out by the farmers in the focused group discussions was that the CA equipment is more of capital investment than consumable, so it is less likely that the farmers that already owned the equipment prior to the Voucher Scheme Programme would still redeem their voucher for the CA equipment. Table 1 in chapter two earlier showed that 80 percent of the Voucher beneficiaries owned Conservation Farming Chaka Hoe. Nonetheless, distribution of demand for inputs is

important for the Agro Dealers and other future agricultural interventions in the study areas. A summary of the demand for agricultural inputs in the study is shown below.

Chart 4.2

*Distribution of the Demand pattern of inputs by Voucher Recipients*



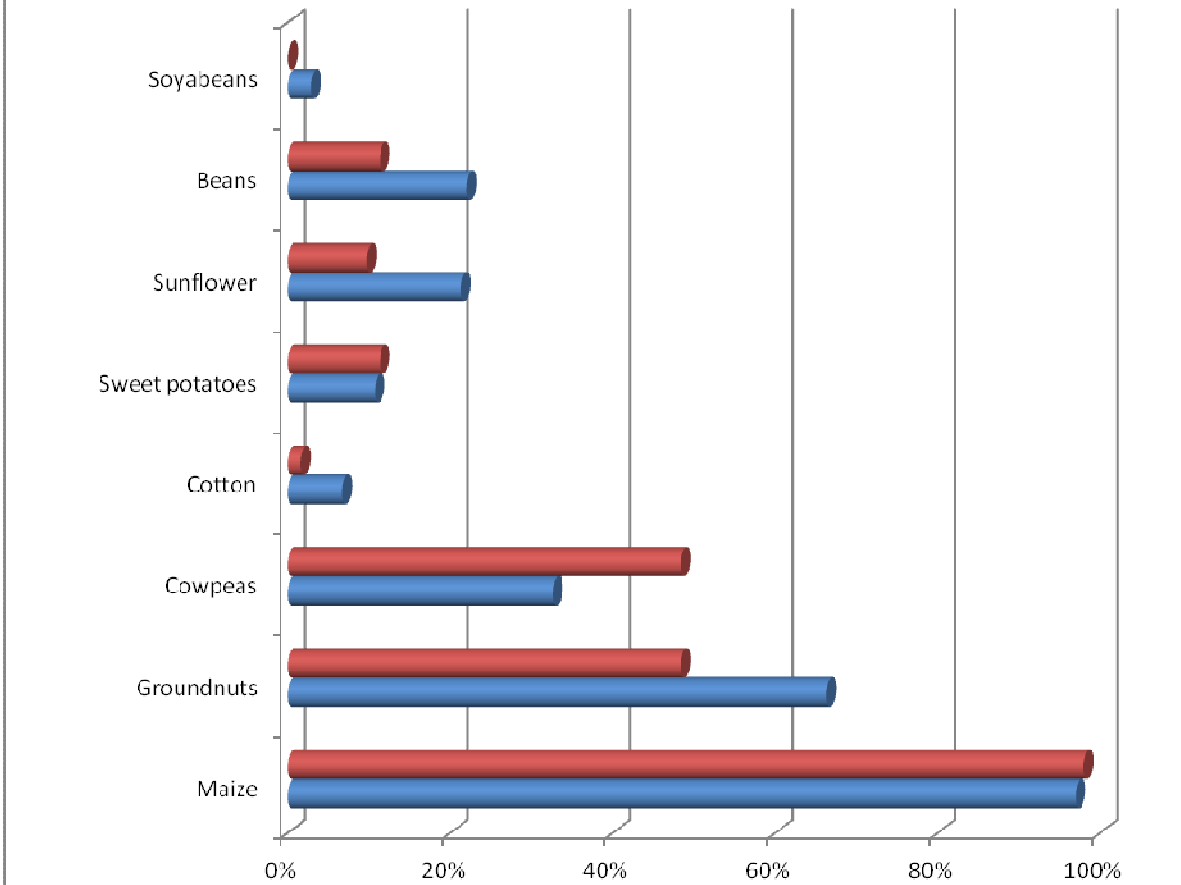

Source: data collected from farmers in the Chongwe and Mazabuka

After analysing the demand pattern of the agricultural inputs, the study looked at another aspect of production, which is the cropping pattern. In other words, crop production was also assessed in terms of crop diversification of the farmers on different agricultural input schemes namely the direct procurement and the voucher scheme. According to the Deputy Director of Agriculture (7th January, 2011), most input support programme focuses on promoting the production of maize, thus promoting monocropping, which is environmentally questionable. However, the voucher scheme took a different approach by advocating for crop diversification as opposed to monocropping of maize. The cropping pattern revealed that maize, groundnuts, sweet potatoes and cowpeas are the most prominent crops in the farming systems of households in Chongwe and Mazabuka districts. The

cropping patterns are characterised by the number of households growing a particular crop and the area cultivated. A comparison in terms of the number of households growing a particular crop between voucher recipients and non Voucher Scheme beneficiaries in chart 4.3 revealed that voucher recipients participation in the crops grown in the study areas was relatively higher than non voucher scheme beneficiaries. One is therefore inclined to conclude that the voucher scheme had to some extent promoted crop diversification among the beneficiaries**.**

Chart 4.3

*Crops grown in the Study areas and Farmer participation*

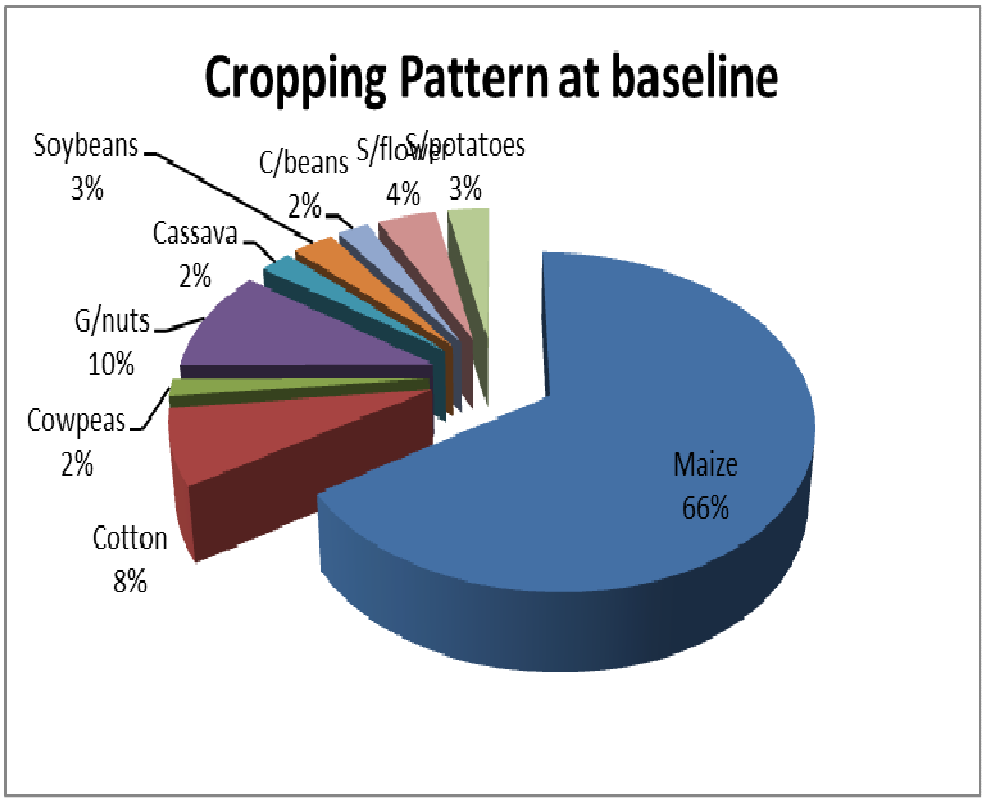



| | Maize | Groundnuts | Cowpeas | Cotton | Sweet potatoes | Sunflower | Beans | Soyabeans |
|---|---|---|---|---|---|---|---|---|
| None Beneficiaries | 98% | 48.40% | 48.40% | 1.60% | 11.30% | 9.70% | 11.30% | 0.00% |
| Project Beneficiaries | 97% | 66.30% | 32.60% | 6.70% | 10.70% | 21.30% | 22% | 2.80% |

Source: data collected from farmers in the Chongwe and Mazabuka

A look at the baseline data that was conducted in 2009 before the voucher programme was implemented in Chongwe and Mazabuka also confirms that crop diversification has taken place after the voucher was implemented. According to the FAO Conservation Agriculture Scaling Up for Increased Production and Productivity Baseline Report, (2009), the farmers cropping patterns were not very diversified as the Chart below shows. Generally, the cropping pattern below show less diversification. In particular, there was little participation in growing of Sweet potatoes at only 3 percent compared to 11.30 percent and 10:70 percent after the programme implementation. We also see an increase in the cropping of sunflower which before the voucher programme intervention was at 4 percent and by the year 2010/2011 had increased to 9.70 percent and 21 percent among the none beneficiaries and the voucher beneficiaries.

Chart 4.4 Cropping patterns at baseline




Source: Conservation Agriculture Scaling Up for Increased Production and Productivity Baseline Report

Further, in analysing the production in detail, the data in Chongwe and Mazabuka indicate that project beneficiaries had diversified into other crops and thus had marginal maize production under Voucher Scheme averaging about one ton per household, compared to those under conventional farming who showed high levels of mono cropping and thus had higher maize production that averaged 3.4 tons per household production. The indication was that the plots the maize was planted on under the Conservation Agriculture practice were quite small (about 0.4 hectare) on average compared to that under conventional farming that averaged 1.5 hectare across the study areas. The reason for small plots of maize for the voucher scheme beneficiaries was that they were growing a lot more other crops earlier mentioned in chapter two and three, such as cowpeas, groundnuts, sunflower, cotton, beans and soya beans. This was not the same for those outside the voucher scheme whose major concentration was maize, as chart 4.3 above indicate. Table 4.7 shows the maize production between the voucher scheme beneficiaries and those outside the scheme. Those outside the scheme are topping in maize production, because they are mostly in mono cropping of maize and thus dedicate a large part of their land to maize. The implication of this would be fully understood in the coming section when income levels are compared for the two groups.

Table 4: 7

*Average Maize production among Project beneficiaries and none beneficiaries*

| | | Maize Production in Tons | |
|---|---|---|---|
| Beneficiary type | Statistical detail | Conservation Farming (beneficiary) | Conventional Farming (non beneficiary) |
| CA Beneficiary | N | 112 | 147 |
| | Mean | 1.1 | 3.4 |
| None CA beneficiary | N | 3 | 60 |
| | Mean | 0.75 | 2.7 |
| Total | N | 115 | 207 |
| | Mean | 0.93 | 3.2 |

Source: data collected from farmers in Chongwe and Mazabuka

### *Impact of the Voucher Scheme on Income levels and General Farmer Satisfaction*

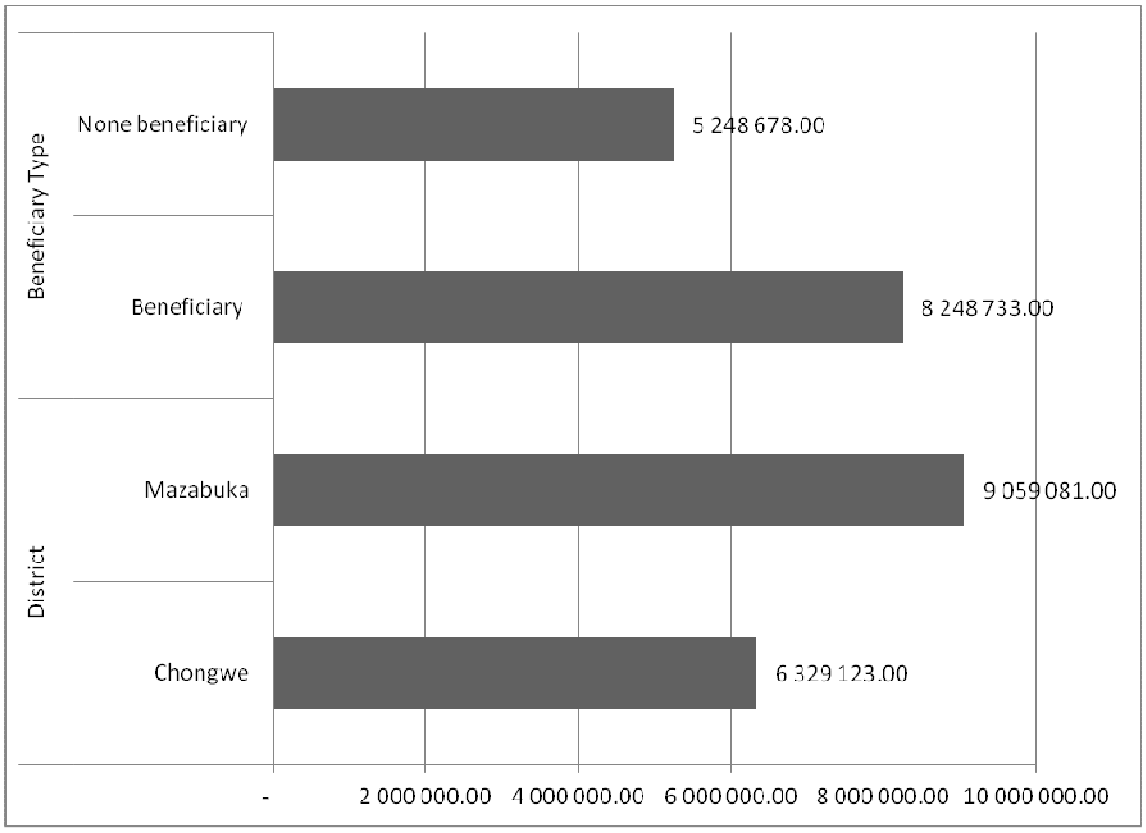
The performance of the voucher scheme can also be assessed by looking at the income levels of both the beneficiaries and the non beneficiaries. The purpose of looking at income levels of both groups is to establish if there are any differences between the two groups of farmers and the extent to which the differences can be attributed to the voucher scheme interventions. Additionally, the performance can also be assessed by looking at the value that the farmers

attach to the voucher scheme as this is one way of judging the possible success of the programme.

Looking at the qualitative data that was collected in Chongwe and Mazabuka, the comparisons of total mean income between beneficiaries and non beneficiaries showed that beneficiaries of the voucher scheme had slightly higher mean total annual income than the non-beneficiaries. For instance, the data collected from Mazabuka and Chongwe as shown in chart 4.4 indicates that the mean income for none beneficiaries was K5, 248, 678 while for the voucher beneficiaries it was K8,248,733. In simpler terms, this meant that there was a difference of K3, 000,055 annual incomes between beneficiaries and none beneficiaries in the study areas. These figures have to be taken with caution since it is usually difficult to get accurate income data for obvious reasons. It is also important to mention that the mean was pushed up by a few households that earned large amounts of income from these livelihood activities for both beneficiaries and none beneficiaries. The beneficiary farmers partly attributed their high income levels to voucher scheme interventions that provided them with agricultural inputs, training in conservation farming practices and timely planting. It can be deduced that the Voucher scheme was a major contributing factor to enhancing the income of its beneficiaries.

Chart 4.5

*Comparisons of Total Mean Income by District and Beneficiary status*




Source: data collected from farmers in the Chongwe and Mazabuka

The study also used the basic descriptive comparison in analysing income It appeared also that the farmers who had high income also showed a high asset base and those who had low income had very low asset base. For example, the voucher scheme beneficiary Anesi Tembo of Chongwe district had annual income of K18, 000,000, and her assets included 20 ordinary hoes, one Chaka Hoe, two ploughs, one ripper, one cultivator, one harrow, six oxen and 18 cattle. In the same district Mrs. Indwina Tembo a non beneficiary farmer, owned 6 ordinary hoes and 7 goats, had an estimated annual income of K190, 000 sourced from the sale of goats. Mrs. Indwina Tembo's annual income levels could have been affected by other factors like lack of education, as she indicated that she had never been to school. Secondly, her livelihood was also not diversified, as she did not engage in sale of crops, chickens and cattle as Mrs. Anesi Tembo did. Mrs. Ever Moonga of Mazabuka, a non voucher beneficiary had an annual income of K100, 000 and owned only one conventional hoe and none of the other assets that the study looked at such as Chaka Hoes, ploughs, rippers, cultivator harrows,

oxen, other cattle and donkeys. It is important to mention that the individual annual income for voucher beneficiaries went as high as K146, 150,000 and K63, 500,000 for those outside the scheme. For the highest annual income in Mazabuka district, the non beneficiary, Nebson Mukobela, had K63, 500,000 while the one on the voucher scheme beneficiary, Peter Mugusa of the same district, had K146, 150,000 and the two exhibited different asset bases, with Mr. Mugusa recording a higher asset base compared to Mr. Mukobela.

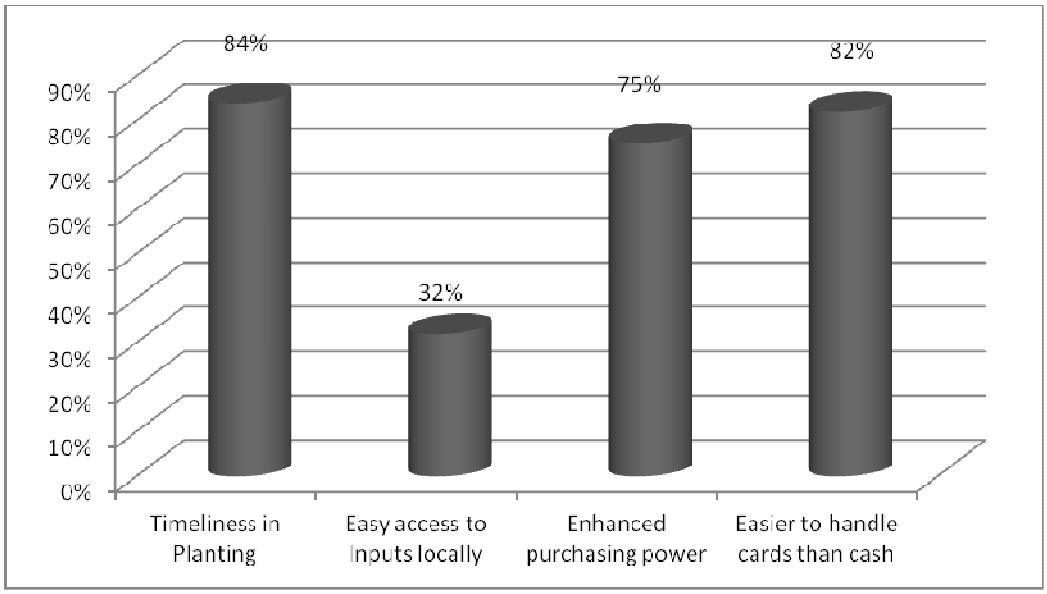
It also seemed like the farmer who had diversified their farming and livelihoods presented a high income compared to those who were less diverse. For instance, a voucher beneficiary, Mrs. Florence Kamocha of Chongwe, had annual income of K21, 000,000. She was growing different crops that included groundnuts, cowpeas, sunflower, maize, beans, sorghum and sweet potatoes from which she sourced K18, 880,000. Mrs. Kamocha was also sourcing income from chicken rearing (K120, 000) and K2, 000,000 was from trading. Another farmer, Green Michelo from Mazabuka who is outside the voucher scheme had an annual income of K1, 300,000 and his farming was less diverse growing only maize and beans. It seems that crop diversification was a factor in income level differentiation. Generally, as Table 4.4 above showed earlier, the income levels of the voucher beneficiary farmers was higher than those of the non-beneficiary farmers, and the reasons for the differences could be what has been shown when individual cases of incomes of the farmers were reviewed.

As implied at the opening of this section, the extent of the success of the voucher programme would also be measured by establishing the levels of farmer satisfaction with the voucher. As earlier indicated, the importance of any programme could also be judged by the value attached to it by the intended beneficiaries. A deliberate effort was hence made to find out which method the farmers favoured most. This was done in order to establish if the voucher scheme was relevant and gaining ground for local ownership beyond policy level For as Schwartz et al., (1996), have cautioned, even politically and economically deprived groups can reject agendas set for them by others thereby resulting in project failure.

The experience of the farmer with the voucher scheme was initially sought through an inquiry as to whether it was profitable or not to which 176 of the voucher beneficiaries acknowledged in favour. In an effort to learn why all the beneficiaries felt the voucher scheme was good, an optional response list was floated. A summary perspective of farmer perceptions about the voucher scheme is presented in chart 4.5.

Chart 4.6

*Farmer Perceptions on the Benefits of a Voucher Scheme*




Source: data collected from farmers in the Chongwe and Mazabuka

As chart 4.5 above indicates, 84 percent of the beneficiaries indicated that they were in favour of a voucher scheme because it facilitates early planting. Similar sentiments came out from the focused group discussions with the farmers, that the early planting could be attributed to timely receipt of the voucher cards and use of local agro dealers to supply agricultural inputs. The farmers reported that they received the voucher cards between the months of August and October which they said was good time. Additionally, the responses from 32 percent of who shows that voucher scheme enhanced access to inputs locally. The voucher cards were to be redeemed at the local agro dealers' shops which from the farmers point allowed them to go and redeem at their own convenient time. Similarly, quantitative data from the household questionnaires in Chongwe and Mazabuka showed that 75 percent of the farmers indicated that the vouchers enhanced their purchasing power of inputs. The 75 percent of the farmers in Chongwe and Mazabuka in the household interviews felt that the voucher scheme enhanced their purchasing power. This percentage of farmers reported that they received two vouchers to a total amount of K500, 000. They said that with that amount of voucher, they had more buying powers. Through the focused group discussions that comprised both beneficiary and non beneficiary farmers in Chongwe and Mazabuka, it was revealed that they have limited capacity to acquire a range of agricultural inputs, but with the support through the voucher scheme the farmers indicated that they were able to extend the

shopping list to other agricultural inputs such as herbicides and Chaka hoes that are equally important for farming.

Further interviews with the households in the study areas also showed that 82 percent (as shown in chart 4.5) of the beneficiary farmers supported the voucher cards compared to being given cash. The farmers gave the reason that it is easier to handle cards than cash because the cards were less liquid compared to cash that has a lot of temptations. The farmers in the focused group discussions also explained that if one is given cash for agricultural inputs, there is a risk that other financial pressures such school fees and hospital bills could arise and would force the farmer to deviate the cash intended for agricultural inputs to such other needs. To avoid this, the farmers expressed satisfaction that they received vouchers as opposed to cash for inputs.

It was not just the farmers in the voucher scheme who seem to have appreciated the benefits that could be accrued from the introduction of the voucher in the two districts, but even those outside expressed some liking for the scheme. This was largely because the voucher scheme had some spill over benefits on the non voucher beneficiaries. Ideally, we learnt that there are certain types of equipments like Chaka hoes and Rippers that the Agro-dealers never used to stock before the voucher programme. The introduction of the voucher programme recommended usage of such equipments, which subsequently created an opportunity also for the non beneficiaries to access such equipments. The statistics compiled in table 4.8 below indicate that 14.5 percent of the non beneficiaries in Mazabuka and Chongwe districts purchased the Chaka hoes with their own money even if they were not part of the programme. In Mazabuka, 4.8 percent of the non voucher beneficiaries also purchased rippers using their own money, however, non beneficiaries in Chongwe district did not purchase rippers; probably because ownership of animal draft power could have influenced the preferences. The Table 4.8 below shows the Purchase of Conservation Agriculture Equipment by District and Beneficiary Type for the 2010/2011 Agricultural Season.

Table 4.8

The non beneficiaries who benefited from Conservation Agriculture Tools

| CA Equipment Type | District/Beneficiary Type | | | |
|---|---|---|---|---|
| | Mazabuka | | Chongwe | |
| | Beneficiary | None Beneficiary | Beneficiary | None Beneficiary |
| Chaka hoe | 37.7% | 14.5% | 42.3% | 14.5% |
| Magoye Ripper | 24.6% | 4.8% | 16% | 0% |

Source: data collected from farmers in the Chongwe and Mazabuka

Both the voucher beneficiaries and non voucher beneficiaries thus expressed satisfaction in that they were able to benefit from the service of the agro dealers, through accessing the agricultural inputs being promoted though the voucher scheme, because when it comes to selling, the agro-dealers do not limit the service to voucher scheme beneficiaries.

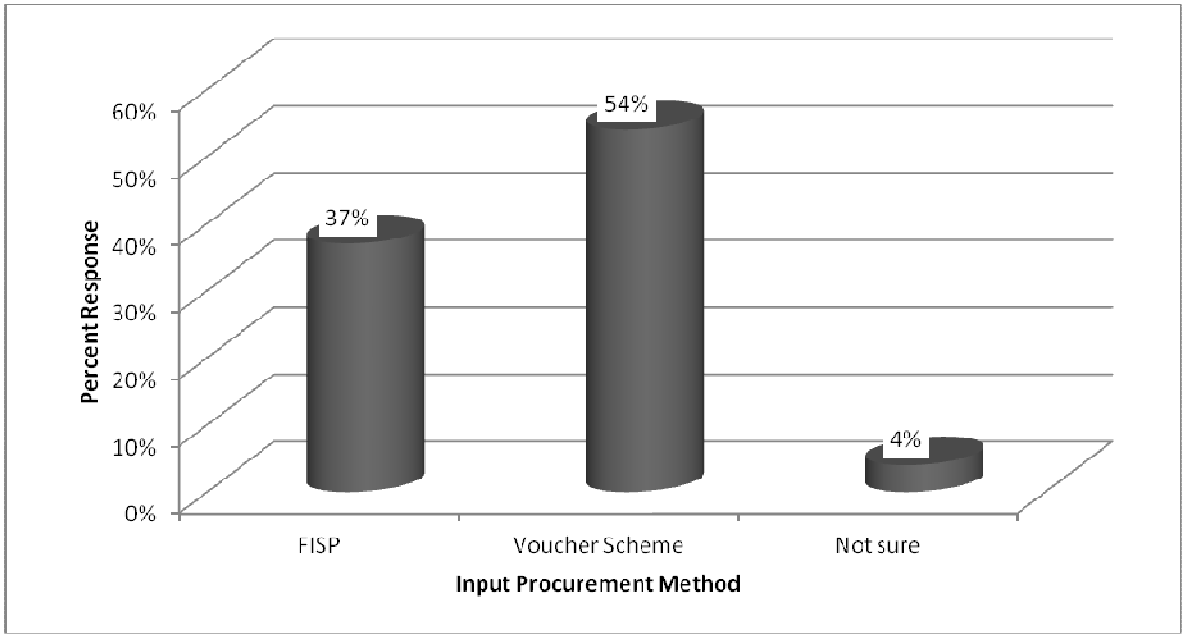
In terms of service delivery, the farmers under scheme in Chongwe and Mazabuka had a perception that the voucher scheme created competition among the local Agro-dealers. Most of the voucher beneficiary farmers talked to, said that they were satisfied with the treatment they were getting from the Agro-dealers. In Chongwe a farmer, Mrs. Susan Musakabantu said that, the Agro-dealers were treating the farmers with respect (18th December, 2011). She said that even the prices of inputs were reasonable. According to Ministry of Agriculture and Cooperatives, Deputy Director, the price of fertilizer was about K200, 000 while the same year under the voucher scheme according to the information collected from the Agro-dealers and the farmers in November 2010 in Chongwe and Mazabuka, on average the price was K175, 000. Consistently, the 2010 World Bank Report indicated that, the cost of the FISP Packs was higher than prices charged by district level retail shops. The service of the agro-dealer could be even better but so far, a farmer, Mr. Chisenga Chikonaika also reported that he was seeing some improvement in the implementation of the voucher scheme when compared to the first and second year of the project operations. The farmers also in the focused group discussion indicated that they have seen an increase in the number of participating agro dealers in the study areas which they thought was a positive development. From the time the Voucher Input Procurement was introduced in 2009 to 2010 there has been, in fact an increase from two to four agro-dealers in each of the two districts, Chongwe and Mazabuka. This was a positive development for the farmers, in terms of the service received from the agro-dealer. The District Agriculture Coordinator in Chongwe said that in general, the Agro-dealers are small business entrepreneurs with limited resources, so when there were only two agro-dealers in 2009, with the ratio of one agro-dealer servicing 340 farmers there was less input availability in the Agro-dealers shops. Some agro inputs would run out and the farmers would have to wait for some days for the Agro-dealers to re-stock. In reference to this problem, Mrs. Dyles Simoonga of Mazabuka said that if she was asked to make recommendations on the 2009 Voucher, she would have recommended that the Agro-dealers stock enough inputs before farmers start redeeming their vouchers. However, with increased number of Agro-dealers in 2010, the ratio improved to one Agro-dealer to 136 farmers and the input availability also improved, as the farmers indicated that when they couldn't find what they were looking for in

one shop, they had the alternative with the other shops. From the business point of view this could have also enhanced competition.

On the overall, the voucher scheme seemed to be favoured by the farmers on the voucher scheme. As shown in Chart 4.6, about 54 percent of farmers were in favour of the voucher scheme compared to 37 percent that were in favour of the FISP and four percent that were not sure. The focused group discussions with the beneficiary farmers revealed that, the farmers thought the voucher scheme empowered them to acquire the voucher cards that could be redeemed for inputs. It also came out that they were of the view that the voucher scheme gave them an opportunity to choose inputs of their choice considering that they too had different priority needs for inputs at a given time. The farmers indicated that they were going to the Agro-dealers of their choice and exchange the voucher cards for inputs of their choice equivalent to the value of the voucher card. The farmers interviewed explained that this move made them feel empowered. However, the focused group discussions with beneficiaries of FISP (direct procurement) also revealed that the farmers in favour of the FISP mentioned that besides FISP giving them inputs at the subsidized rate, it takes inputs closer to the farmers compared to the voucher scheme where those who were not close to towns where the Agro-dealers are located are compelled to travel long distances and in some cases had to pay for the transportation of the inputs. It was however, established that the farmers who were in favour of the FISP are near depot locations where they normally source inputs through their cooperatives, where as those under the voucher scheme are compelled to travel some distances. This distance on average is 52 Kilometers to towns where they can redeem their vouchers for the inputs they need.

Chart 4.7

Input Procurement/Distribution Method preferred most by sampled Farmers




Source: data collected from farmers in the Chongwe and Mazabuka

Another reason that seems to have accounted for the positive perception that was given to the voucher scheme by the farmers in the voucher scheme is that it gave them some wider choice of agriculture inputs. The Table 4.9 below shows the responses regarding the extent to which the voucher gave the farmers some choice. In Chongwe there were 134 farmer respondents or 66.42 percent farmers who indicated that the voucher gave them choice against 4.48 percent farmers who said the voucher did not give them a choice, with another 29.10 percent farmers indicating that they were not sure whether it gave them choice or not. In Mazabuka, there were 101 farmer respondents, 48.52 percent farmers acknowledged that the voucher gave them choice, against 25.74 percent responding that it did not and the other 25.74 percent indicating that they were not sure. A follow up interview was made with Agricultural Officer in Mazabuka (5th August, 2011) over the differences in response between Mazabuka and Chongwe. The Agricultural Officer said that as MACO Mazabuka district, the farmers were allocated to specific agro-dealers to avoid congestion and he thought that this could have affected the farmers' perception regarding the extent to which they have the choice. Nevertheless, the farmers themselves gave the following reasons for their various responses. The main reason given by the farmers who saw the voucher as giving choice was

that, the voucher card had a variety of inputs to choose from, ranging from equipment, seed and fertiliser. As such it was up to the farmers to decide which inputs they wanted to redeem. For those who said that the voucher didn't give them choice, the reasons were similar to what was said by Mr. Patrick Haweza, a farmer of Mazabuka (28 November, 2010). He said that since the voucher had put recommended inputs on the voucher with the exclusion of certain inputs such as plough and cotton, he looked at this to be limiting in terms of choice. There were also some farmers who said that they were not sure as to whether the input voucher gave them any choice or not. The reason they gave why they could not state a clear position was that they had not used the voucher before.

Table 4.9
*Extent to which farmers exercised choice of Agricultural inputs-cross tabulation count*

| | | Whether household had any choice of Agric inputs to redeem against the vouchers or not | | | Total |
|---|---|---|---|---|---|
| Responses | | Yes | No | n/a | |
| Name of District | Chongwe | 89 (66.42%) | 6 (4.48%) | 39 (29.10%) | 134 |
| | Mazabuka | 49(48.52%) | 26 (25.74%) | 26(25.74%) | 101 |
| Total | | 138 | 32 | 65 | 235 |

Source: Authors data collected from farmers

Another factor why the beneficiary farmers were favourably disposed towards the voucher scheme seems to be their perception of the voucher scheme as a programme that has value addition to agricultural inputs provision. The farmers in the focused group discussions revealed that the voucher scheme has an extension service component in it. The farmer beneficiaries acknowledged that besides receiving the agricultural inputs through the voucher, they have also received training in good land preparation, weed management and constant visits by Ministry of Agriculture and Cooperatives' Camp Extension Offices to monitor their agricultural performances. The farmers commended the design of the voucher programme for coming as a package and attributed their increased crop performance to the programme design.

Interesting, however, is the revelation that, even though the majority of the farmers expressed happiness with voucher scheme under the FAO Programme, when asked if they would want the current government subsidy, FISP to change its mode of input provision from direct distribution to the voucher scheme, the farmers in scheme as well as those outside the scheme during the focused group discussions favoured that FISP continue with its current mode of distribution. When the farmers were probed as to why despite appreciating the

voucher scheme method of input procurement, they still recommended that the FISP should continue procuring direct and not through the voucher scheme, the farmers explained that they feared that government may not have advance funds to deposit into the bank to facilitate the voucher scheme, since the voucher scheme does not operate on nonsufficient bank account. The delivery and payment happen simultaneously when using a voucher scheme. The Government's Farmer Input Support Programme, procures and distribute inputs and then payment is done after. In most cases, Government's payment of the suppliers is delayed Already even with use of direct procurement that may not require immediate payment, persistently non payment has led to the supplier to discontinue input delivery. According to the CFU (2008), 2007/08 agricultural season, midstream, the contracted suppliers of fertilizer suspended deliveries to farmer cooperatives due to lack of payments from the Government. This has usually been the case for FISP, which cites the delay by Ministry of Finance and National Planning's constant delay in releasing of funds that may negatively affect the implementation of the voucher scheme. Under the direct procurement, Government has been able to distribute agricultural inputs before payment to the supplier. The friction mostly comes in when there are outstanding payments from previous agricultural seasons and that is when suppliers take a hard line to halt further distribution on credit. If the Government decides to use the voucher scheme, it has to ensure that funds are available, otherwise this could pose a problem to Government's Farmer Input Support Programme that initiate input provision before making funds available.

The other observation that the farmers made during the focused group discussions was that, the voucher scheme does not deliver the agricultural inputs at the door steps of the farmers, and instead leaves it to the farmers to travel to the business centre to redeem for their agricultural inputs and pay for transportation. Through this, the cost of transportation is passed on to the beneficiary farmers of the voucher scheme and if not well handled, the farmers indicated that it can result in a lot financial stress for the voucher beneficiary farmers. However, in both Chongwe and Mazabuka, the farmers tried to minimise the transport cost for the agricultural inputs.

In addition, a lot more farmers complained that the operational period of the project was too short and that the value of the voucher pegged at K 500,000 was too little. Lastly, most farmers interviewed who are on the voucher scheme complained about the slow internet connectivity at both registrations when the voucher cards were being linked to their national registration and also at redeeming.

### *Conclusion*

The chapter probed the levels of crop production, effects of input delivery time on crop production and the role of agro dealers in the voucher scheme. In terms of level of crop production, the study showed that yield difference between Conservation Agriculture promoted through the voucher scheme and conventional farming promoted by FISP averaged 0.5 tons (about 10 x 50 Kg bags), implying that households that practiced Conservation Agriculture had a chance of getting extra 10 x 50 Kg bags on every hectare of land cultivated to maize. While for the FISP, it implies failure to achieve the expected minimum of the 3 ton $ha^{-1}$ thereby limiting FISP impact on agricultural production and food security. A look at the effect of input deliver time on crop production in Mazabuka and Chongwe, the statistics indicate that farmers who planted early under Conservation Agriculture had an average maize yield of approximately 3 tons $ha^{-1}$ compared to those that practiced conventional practice with a yield of 2.6 tons $ha^{-1}$. One notes that, the combined effect of optimal planting period (before 15$^{th}$ November) showed a relatively higher maize yield response compared to late planting (after November). The differences in maize yield across planting dates for farmers who used conventional farming methods was statistically significant ($p=0.005$), indicating that it was not by chance, while differences in maize yields across different planting dates for farmers that used Conservation Agriculture was not statistically different from each other ($p=0.153$). The statistics seem to suggest that there is less variability in yield response to planting dates when a farmer uses Conservation Agriculture than when a farmer uses conventional farming methods. The study in Chongwe and Mazabuka also reviewed that, the crops grown in order of prominence are maize, cotton, groundnuts, cowpeas, soya beans, sweet potatoes and beans. The distribution of demand for inputs stated above is important for the private sector investment and Programme Implementers of other future agricultural interventions in the study areas to help them to be more focused.

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# CHAPTER FIVE

## CONCLUSIONS

This chapter gives a summary of the overall study. This is done by making a conclusion based on the overall study objective and findings. Just a quick recap, the overall objective was to establish the extent to which the use of voucher system under the FAO/MACO has contributed to the improved performance of the agriculture sector and increased farmer satisfaction in Mazabuka and Chongwe districts. The specific objectives were:

1. To establish the management system of the FAO input voucher scheme and its administrative costs in the two districts in comparison with the direct procurement and distribution.
2. To establish the extent to which the voucher scheme enhanced crop production and productivity.
3. To assess the extent to which the voucher scheme has increased access to and choice of farming inputs by farmers.
4. To assess the extent to which the voucher system has increased income levels and farmer satisfaction in the scheme.

The study assessed the logistics and administrative costs of the voucher scheme in comparison with the direct procurement and distribution. The study collected data on the administrative costs of implementing the voucher scheme and direct procurement over the most recent agricultural seasons of 2009/10 and 2010/2011.

As seen in chapter three, there were two types, the electronic and paper voucher schemes and costs differed between the two voucher schemes. On average the cost of implementing the electronic voucher was $4.80 per beneficiary and for the paper voucher it averaged around $6.73 in Mazabuka and Chongwe. As regards the direct distribution, the cost of administering inputs per farmer in the 2009/2010 was about ZMK 149,332.25 equivalent about US$ 31.8, compared to the ZMK 314,766.27 equivalent about US$ 67 for the 2010/2011 agricultural season. However, what became apparent from the analysis was the fact that the prices of inputs were unstable over the two year period and that the instability in the supply market could have an effect on the administration costs of the programme.

The second specific study objective was to establish the extent to which the voucher scheme enhanced crop production and productivity. Analysis of data from household interviews indicated that both production and productivity among voucher scheme recipients was slightly better than the non beneficiaries with statistics indicating that voucher recipients had an average maize yield of 3 tons $ha^{-1}$ compared to 2.5 tons $ha^{-1}$ for none voucher recipients. Whilst the observed increase in productivity could be attributed to many other factors, the study established that voucher recipients had planted earlier than the none beneficiaries and that farmers who planted early as a result of early receipt of inputs had better maize yields.

Thirdly, the study endeavoured to assess the extent to which the voucher scheme has increased access to and choice of farming inputs by farmers. The study found that, the voucher scheme had increased access to agricultural inputs in Chongwe and Mazabuka Districts. The voucher scheme contributed to increased production by providing agricultural inputs worth (about $142,840) to 667 beneficiaries practicing Conservation Agriculture in Chongwe and 696 beneficiaries in Mazabuka for the 2009/10 and 2010/11 agricultural seasons. The farmers also confirmed input availability at the Agro-dealers shops. The statistics indicated that 70 percent of the sample among beneficiaries (N=178) acknowledged availability of all the inputs they wanted at the time of voucher redemption in the local Agro-dealers shops. In Mazabuka, 75 percent of the beneficiaries acknowledged availability of all the inputs they wanted at the time of voucher redemption, and 67 percent did so in Chongwe district. What becomes apparent from this data is that the 75 percent Mazabuka and 67 percent Chongwe farmers who acknowledged agricultural inputs availability are large enough for the study to conclude that, the local Agro-dealers played a role in making available agricultural inputs in the voucher scheme in the two districts of the study. The assessment of effect of the voucher scheme on promoting choice also reviewed that the farmers were of the view that the voucher scheme gave them an opportunity to choose inputs of their choice considering that they too had different priority needs for inputs at a given time. The farmers indicated that they were going to the Agro-dealers of their choice to exchange the voucher cards for inputs of their choice equivalent to the value of the voucher card.

The study as we saw in chapter four also assessed the extent to which the voucher system had increased income levels and farmers satisfaction in the scheme. Looking at the qualitative data that was collected in Chongwe and Mazabuka, the comparisons of total mean income between beneficiaries and non beneficiaries showed that beneficiaries of the voucher scheme had slightly higher mean total annual income than the non-beneficiaries. For instance, the data collected from Mazabuka and Chongwe indicates that the mean income for none beneficiaries was K5, 248, 678 while for the voucher beneficiaries it was K8,248,733. In simpler terms, this meant that there was a difference of K3, 000,055 annual incomes between beneficiaries and none beneficiaries in the study areas. The beneficiary farmers partly attributed their high income levels to voucher scheme interventions that provided them with agricultural inputs, training in conservation farming practices and timely planting. It can be deduced that the Voucher scheme was a major contributing factor to enhancing the income of its beneficiaries.

The lesson that can be derived from the study is that, the most cost effective and technically sound tool to improving the delivery of agricultural services to farmers is through stimulating and supporting the sustainable development of the private Sector. This requires concerted efforts by both private and public sectors on infrastructure investment on smallholder production, mechanisms for improving access to agricultural services, including market information, on a sustainable basis, instituting of contractual enforcement measures and strategies. There is also a possibility for Partnership with Private Partners like Mobile Transaction Zambia to develop a system that works offline, to increase coverage and or applicability on the electronic voucher. This opportunity is for all partners interested in the use of electronic voucher.

Conversely, the Government has a challenge of not only formulating but also implementing the policies on Public Private Partnership. It is therefore being recommended that the Voucher Scheme be considered for adoption as a way of stimulating growth and rural development and increasing effective demand for commercial distribution of agricultural inputs. Considering that the voucher schemes is new in Zambia and is being promoted under projects that have a time frame, a proper exit strategy that ensures continuity if the voucher is found favorable is then important. According to Doward et al, (2008), uncertainties about subsidy depress the Agro-dealer's incentives to invest in both non/subsidized fertilizer, as such greater

consistency and timeliness is required for the donors and implementers. As well as commitment from all stakeholders is needed to a transition strategy for greater private sector involvement in under-served locations.

From this study, one may also observe that, the FAO Voucher Input Procurement needs to borrow from the FISP's strength on improving access to agricultural inputs. In this regard, the programme may wish to incorporate in the voucher the cost input transportation. The Programme could also consider encouraging the Agro-dealers to set up Agents in the various agricultural camps (as opposed to being centred at the district towns) so that once the farmers have made orders through the Agents, the Agro dealers may be able to deliver up to the agricultural camp. Such an initiative could assist the farmers to access inputs from the shortest possible location, so that the farmers do not have to be walking to the district central business areas to access the agricultural inputs.

A longitudinal study is recommended – Studying the effects out of only two years may not be enough to establish the measure of significance of the difference/result observed. With enough resources, it is also being recommended that a study that extends or that incorporates remote districts be conducted to see if geographical location has a bearing on the performance of the voucher scheme.

All in all the study has revealed that voucher scheme is effective and efficient, because the voucher scheme has low implementation costs, improves timely access and availability of agricultural inputs. It also enhances production and productivity. It can therefore be concluded that the voucher scheme is a viable and sustainable mechanism for agricultural input procurement, delivery and distribution among small scale farmers in the rural areas.

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## APPENDICES

### *APPENDIX-1 Household Questionnaire*

The University of Zambia

School of Humanities and Social Sciences

Department of Political and Administrative Studies (Pas)

Master of Public Administration Program 2009

Research Questionnaire on Performance of the Food and Agriculture Organisation's Input Voucher Scheme in Zambia: A Case Study of Chongwe and Mazabuka Districts .

## SECTION 1. HOUSEHOLD IDENTIFICATION

| | | |
|---|---|---|
| Province **PROV**<br><br>1= Southern<br><br>2=Lusaka | District **DIST**<br><br>1= Chongwe<br><br>2= Mazabuka | **CAMP**_____ |
| Village<br>**VIL**_____<br>_ | Household serial no. **HHNUM**<br>___\|___\|___ | Location from the nearest Town in (Km) _____ |
| | | |
| Q.1. Name of Farmer<br><br>**NAMFA**_____<br>_____ | Q.2. What age and sex is the head of the household? (*Choose one*)<br><br>**HHCAT** _____<br><br>1 = Adult male-headed (15 - 59);<br>2 = Adult female-headed (15 to 59);<br><br>3 = Elderly male over 59;<br>4 = Elderly Female over 59;<br><br>5 = Boy child-headed (< 15 years old)<br>6 = Girl child-headed (< 15 years old)<br><br>***Skip to Q.4. if HHCAT=1, 3 or 5*** | |
| Q.3. Is the head the respondent?<br><br>**HDRESP** _____ (0=No; 1=Yes)<br><br>***Skip to Q.6 if HDRESP=1*** | Q. 6. Marital status of the household head?<br>**MATS**_____<br><br>1 = Married; 2 = Single; 3 = Divorced; 4 = Separated;<br><br>5 = Widowed. | |

| | |
|---|---|
| Q.5. Household status in the Voucher Scheme<br><br>1= Beneficiary CASPP<br><br>2= Beneficiary FISIRI<br><br>2= None Beneficiary | Q6 Other than the household head, is there any member of the household who is a beneficiary to the CA voucher scheme?<br><br>1=YES to CASPP, 2=YES to FISIRI<br><br>3= NO |
| Q.7. Level of Education of household head? **LEVED**_____<br><br>1=None; 2 = Primary; 3=Secondary; 4=Tertiary. | Q.8. What is the main occupation of the head of household?<br><br>**OCCHD** _____<br><br>1 = Field crop production; 2 = Vegetable Production; 3 = Fishing; 4= Trading; 5 = Formal employment; 6 = Livestock production<br><br>7= Other (specify) |

SECTION 2: LIVELIHOOD ASSETS AND STRATEGIES OF HOUSEHOLDS

Q9: Please indicate whether you source income from the following livelihood strategies?

| **Does household source income from** | **Code** | **Tick** | **Estimated annual income (ZMK)** |
|---|---|---|---|
| **Q9.1** Petty trading (Specify) | **Incm1** | | |
| **Q9.2** Gardening activities/Off season farming | **Incm2** | | |
| **Q 9.3** Local chicken rearing | **Incm3** | | |
| **Q 9.4** Goat rearing | **Incm4** | | |
| **Q 9.5** Cattle rearing | **Incm5** | | |
| **Q 9.6** Remittances | **Incm6** | | |
| **Q 9.7** Sale of rain fed food crops (specify) | **Incm7** | | |
| **Q 9.8** Sale of rain fed cash crops (specify) | **Incm8** | | |
| **Q 9.9** Piece work | **Incm9** | | |

| | | | |
|---|---|---|---|
| **Q 9.10** Sale of charcoal | **Incm10** | | |
| **Q 9.11** Other (Specify) | **Incm11** | | |
| **Q 9.12** Other (Specify) | **Incm12** | | |
| **Q 9.13** Other (Specify) | **Incm13** | | |
| **Q 9.14 Total annual Income** | | | |

Q.10. Farm implements/Equipment

| | | |
|---|---|---|
| 10.1 Standard Hoes | | HOE |
| 10.2 CF Chaka Hoes | | CKH |
| 10.3Ploughs | | PLO |
| 10.4CF Magoye Ripper | | RPR |
| 10.5Cultivator | | CVT |
| 10.6 Harrows | | HAR |

Q11. Animal Draft Power

| | |
|---|---|
| 11.1 Oxen for land preparation | |
| 11.2 Other Cattle | |
| 11.3 Donkeys | |

(Owned not borrowed or hired)

*indicate number*

**Q12. Household size**

12.1Number of people living in homestead **NPLH**

12.2 How many are adults (18 years and above) **ADTS**

## SECTION 3. INPUT PROCUREMENT, DELIVERY AND DISTRIBUTION STRATEGIES IN THE 2009/10 SEASON

Q 13: How did households fare in the input voucher scheme?

<table>
<tr><th>Focus Question</th><th>Response Code</th><th>Response option</th></tr>
<tr><td>Q.13.1. Did the household receive Input voucher/s for agricultural inputs from the project?</td><td>IPTV1</td><td>1= YES ; 2= NO</td></tr>
<tr><td>Q.13.2 If YES to 9, What package of inputs was the Voucher meant for?</td><td>IPTV2</td><td>1= seed crops & Agricultural chemicals<br>2=Conservation Agriculture Equipment.<br>3=Other inputs (Specify)</td></tr>
<tr><td>Q.13.3. Indicate the names quantities and value of inputs obtained through the voucher you were given</td><td>IPTV3</td><td>
<table>
<tr><th>Name of Input</th><th>Quantity</th><th>Value in (ZMK)</th></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td>Total Value</td><td></td><td></td></tr>
</table>
</td></tr>
<tr><td>Q.13.4. Did you have any choice of an Agro-dealer to transact with?</td><td>IPTV4</td><td>1= YES ; 2= NO</td></tr>
<tr><td>Q13.5 Can you remember the date when the voucher was given to you? (Please indicate the date if the response is YES)</td><td>IPTV5</td><td>1=YES 2=NO 3=N/A<br><br>If Yes indicate the Date.....</td></tr>
<tr><td>Q.13.6 Can you remember the date when you obtained the inputs from the Agro-dealer?</td><td>IPTV6</td><td>1=YES 2=NO</td></tr>
</table>

<table>
<tr><td></td><td></td><td>If Yes indicate the Date……</td></tr>
<tr><td>Q.13. 7 How far from your location is the Agro-dealer who supplied you with the inputs?</td><td>IPTV7</td><td>……KM</td></tr>
<tr><td>Q13.8. Was it possible to obtain other input types other than the ones specified by the project?</td><td>IPTV8</td><td>1=YES 2=NO</td></tr>
<tr><td>Q.13.9 If Yes to 15, what inputs did you obtain outside the specifications of the project?</td><td>IPTV9</td><td></td></tr>
<tr><td>Q.13. 10 Did it cost you any money to transport the inputs you got or purchased to your location?</td><td>IPTV10</td><td>1=YES 2=NO<br>If Yes indicate the value in<br>ZMK……</td></tr>
<tr><td>Q.13. 11 Were you a beneficiary to the Fertiliser Support Program last season?</td><td>IPTV11</td><td>1=YES 2=NO</td></tr>
<tr><td>Q.13.12 If YES can you remember the quantities and the dates you accessed the inputs?</td><td>IPTV12</td><td>
<table>
<tr><th>Name of Input</th><th>Quantity</th><th>Date</th></tr>
<tr><td>Seed</td><td></td><td></td></tr>
<tr><td>Fertilizer (basal)</td><td></td><td></td></tr>
<tr><td>Fertilizer (Top)</td><td></td><td></td></tr>
<tr><td></td><td></td><td></td></tr>
</table>
</td></tr>
<tr><td>Q.13.13 How did you transport the inputs you bought using your own money</td><td>IPTV13</td><td>1= By bicycle, 2= Scotch cart, 3 by Motor vehicle, 4= Manually by carrying on the head or through other means<br>Transportation costs (ZMK</td></tr>
</table>

<table>
<tr><td></td><td></td><td>equivalent).....</td></tr>
<tr><td>Q13.14. What inputs did you purchase with your own money?</td><td>IPTV14</td><td><table><tr><td>Name of Input</td><td>Quantity</td><td>Value in (ZMK)</td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td colspan="2">Total Value</td><td></td></tr></table></td></tr>
<tr><td>Q.13.15. If YES can you remember the quantities and the dates you accessed the inputs?</td><td>IPTV15</td><td><table><tr><td>Name of Input</td><td>Quantity</td><td>Date</td></tr><tr><td>Seed</td><td></td><td></td></tr><tr><td>Fertilizer (basal)</td><td></td><td></td></tr><tr><td>Fertilizer (Top)</td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table></td></tr>
<tr><td>Q.13.16 How did you transport the inputs you bought using your own money</td><td>IPTV 16</td><td>1= By bicycle, 2= Scotch cart, 3 by Motor vehicle, 4= Manually by carrying on the head or through other means<br>Transportation costs (ZMK equivalent).....</td></tr>
</table>

## SECTION 4: CROP PRODUCTION STRATEGIES AND PERFORMANCE

**Q 14: For crops itemized below, please indicate the time of planting and harvesting for the previous season**

| ***Crop*** | ***Time of planting for the field with inputs from the project***<br>***<u>Timeliness in planting</u>***<br>*1=Before 15th November (Early planting)*<br>*2=Mid way*<br>*3= After November (Late planting)*<br>**(TPT1)** | ***Time of planting for the field planted with own inputs***<br>***<u>Timeliness in planting</u>***<br>*1=Before 15th November (Early planting)*<br>*2=Mid way*<br>*3= After November (Late planting)*<br>**(TPT2)** | ***Time of harvesting for the field supported with inputs from the project.***<br>***<u>Timeliness in harvesting</u>***<br>*1=Early harvesting (April)*<br>*2= Mid way (May)*<br>*3=late harvesting (June)*<br>**(TH1)** | ***Time of harvesting for the field supported with own inputs***<br>***<u>Timeliness in harvesting</u>***<br>*1=Early harvesting (April)*<br>*2= Mid way (May)*<br>*3=late harvesting (June)*<br>**(TH2)** |
|---|---|---|---|---|
| **Q14.1** Maize | | | | |
| **Q14.2** Groundnuts | | | | |
| **Q.14.3** Cowpeas | | | | |
| **Q14.4** Cotton | | | | |
| **Q14.5** Sweet potatoes | | | | |
| **Q14.6** Sunflower | | | | |
| | | | | |

**Q 15: For each crop itemized below please indicate how you fared by way of providing the appropriate responses.**

| *Crop* | *Total Area planted*<br><br>**(ARTP1)** | ***Area planted with inputs from the project***<br><br>**(ARTP2)** | ***Total Production (in 50 Kg bags equivalent)***<br><br>**(TPD1)** | ***Production for the area supported by the project (in 50 Kg bags equivalent)***<br>**(PDPJ)** | ***Total retained for home consumption (in 50 Kg bags equivalent)***<br><br>**(CPD)** |
|---|---|---|---|---|---|
| **Q15.1** Maize | | | | | |
| **Q15.2** Groundnuts | | | | | |
| **Q15.3** Cowpeas | | | | | |
| **Q15.4** Cotton | | | | | |
| **Q15.5** Sweet potatoes | | | | | |
| **Q15.6** Sunflower | | | | | |
| | | | | | |

## SECTION 5: Farmer Perceptions about the performance of the Voucher Scheme

| | | |
|---|---|---|
| **Q16.1** In your view, is the voucher scheme profitable | **FPS14** | **1= YES, 2= NO** |
| **Q16.2** If Yes, what are some of the benefits? | **FPS15** | **1= Timeliness in input access (Timeliness in planting)**<br><br>**2= Availability of inputs locally(Less costs of transportation)**<br><br>**4= Easier to handle cards than cash**<br><br>**5= Other (Specify)** |
| **Q16.3** If NO Why? | **FPS16** | **1=Delays input procurement and time of planting)**<br><br>**2= Inputs required are not stocked by Agro dealers** |

| | | |
|---|---|---|
| | | **3= Agro dealers are less flexible**<br><br>**4=Agro dealers give less inputs than the value of the voucher**<br><br>**5=High transportation costs** |
| **Q16.4** In your view would it be appropriate to give cash to the beneficiaries for them to purchase the inputs or the current arrangement is convenient? | **FPS17** | **1= Give cash**<br><br>**2= Continue with current voucher scheme**<br><br>**3= Not sure** |

**Q17: What would you advise the following stakeholders to improve the performance of the voucher scheme.**

| | | |
|---|---|---|
| **Q17.1** Agriculture Extension Officers | **ADVS1** | |
| **Q17.2** Project Decision makers in the project | **ADVS2** | |
| **Q17.3** Agro dealers in the project | **ADVS3** | |

***APPENDIX-2: Checklist of issues and Information sourced from specific Community socio economic groups through Focus Group Discussions (FGDs)***

One of the objectives itemised for the study was to solicit stakeholder perceptions about the effectiveness and efficiency of this innovation. The strategy is to discuss the Voucher scheme with separate groups of men and women in order determine the constraints and opportunities of this innovation by gender. (Time Maximum 1 Hour)

**The issues for investigation will be as follows-:**

**District.....Camp.....Community.....**

**Focus Group (e.g. Men or Women).....Date.....**

1. Find out whether the group has heard about the CASPP and the FISIRI projects

   i) Number that has heard about the CASPP.....

   ii) Number that has heard about the FISIRI.....

1. Find out whether the group has heard and used vouchers to procure inputs for the 2009/10 season

   i) Number that has heard about the Voucher Scheme.....

   ii) Number that has used Voucher cards in the 2009/10 season.....

**2.** Find out how many farmers purchased inputs on their own from suppliers in the 2009/10 season.

   i) Number that purchased inputs on their own.....

   **ii)** The Names of suppliers of inputs in the Community.....

**3.** Discuss the problems related to input acquisition in the community. What are the suggestions

   i) What is it that the Voucher scheme has improved?

   ii) What do you not like about the Voucher Scheme

   iii) What are the problems associated with the Voucher scheme

4. Given an opportunity would you opt to be given cash to purchase inputs on your own or through the Voucher system

   i) Number that would opt for cash.....

   ii) Number that would favour the Voucher scheme.....

5. Farmer relationships with Agro-dealers

i) What is you like about Agro-dealers

***APPENDIX-3 Checklist of issues and Information sourced from Agro-dealers supplying agricultural inputs.***

*One of the objectives itemised for the study* was to quantify and compare the costs and benefits of a Voucher scheme against the direct procurement and distribution mechanism in addition to soliciting stakeholder perceptions about the effectiveness and efficiency of this innovation. The strategy is to determine the costs and benefits incurred and accrued by the Agro-dealers respectively. To this effect, the analysis will focus on the profit margins, costs of supply and efficiency of conducting business through the Voucher Scheme compared to business as usual.

**The issues for investigation will be as follows-:**

**Name of Agro-dealer.....District.....**

Date.....

Total number of farmers you supplied agricultural inputs to in the 2009/10 Agricultural season.

Male……..Female……Total…….

Total number of CA Beneficiaries in the District.

| Project | Total |
|---|---|
| CASPP | |
| FISIRI | |
| Totals | |

6. When were you introduced to the Voucher Scheme? Month and year.....
7. Did you attend any Workshop or any other platform to be briefed about the Voucher Scheme.....? If YES, Where and by who.....
8. What are the names of the scratch cards you dealt with (CSPP, FISIRI or both).....
9. Describing the Input supply processes (List all the activities you undertook from procurement up to the time of redeeming the voucher )

| **Activity (e.g. Procurement, Transportation of inputs, retailing, voucher redeeming etc)** | **Did the activity cost any money (indicate NO or YES)** | **Costs incurred if any (ZMK)** | **Type of cost (Overhead, Fixed or Variable cost)** |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| **Total costs incurred** | | | |
| **Total Overheads** | | | |

| | | |
|---|---|---|
| **Total Fixed Costs** | | |
| **Total Variable Costs** | | |

***NB: The total costs incurred should be equal to the cost of conducting business through the Voucher Scheme.***

10. Type and quantities of inputs supplied to farmers through the Voucher scheme.

| Name of input | Quantities stocked | Quantities supplied to farmers | Unit Value of the input | Total value of sales |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |

11. The total costs incurred to purchase the stock at wholesale price in the 2009/10 season (in ZMK).....

12. The total amount of money realised from the FISIRI scratch cards or vouchers in the 2009/10 season (in ZMK).....

13. The total amount of money realised from the FISIRI scratch cards or vouchers in the 2009/10 season (in ZMK).....

14. Who determines the selling price of the CA inputs you supply to farmers? (By self or by Project).....

15. Perceptions of the Agro-dealers about the Input Voucher Scheme

    i) How has the voucher scheme worked to your advantage?
    .....

ii) How has the Voucher scheme worked to your disadvantage?

iii) Given the advantages and disadvantages of the Voucher scheme, would you still want to conduct business through this system?.....

Iv) What is it that the project should do to improve the performance of the voucher scheme?