

**THE USE OF E-VOUCHER SYSTEM BY SMALL SCALE FARMERS IN CHONGWE
DISTRICT: AN ADULT EDUCATION PERSPECTIVE**

BY

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**A Dissertation Submitted to the University of Zambia in Partial Fulfilment of the
requirements for award of the Master of Education in Adult Education Degree**

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DECLARATION

I, **Banda Martha Malita**, do declare that, ‘The Use of E-voucher by Small Scale Farmers in Chongwe District: An Adult Education Perspective’ is my own work. All the works of other persons cited have been dully acknowledged, and that this work has never been submitted or presented for any degree at any university for similar purposes.

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APPROVAL

The University of Zambia approves the dissertation of Banda Martha Malita as fulfilling part of the requirements for the award of the degree of Master of Education in Adult Education. It is submitted with approval by the Examiners and with full consent from the supervisor.

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Examiner 3: Signature.....Date

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ABSTRACT

Agriculture has been an important source of livelihood and income for small scale farmers in rural areas of Zambia where poverty has continued to be the greatest challenge the nation still faced. This study sought to explore the use of e-voucher by small scale farmers as an input distribution system in Chongwe District. The objectives of the study were to; establish the extent to which small scale farmers use the e-voucher as an input distribution system, identify adult education methods used in the dissemination of information on the e-voucher as an input distribution system, establish challenges faced by small scale farmers and providers of e-voucher as an input distribution system, and suggest strategies aimed at addressing challenges faced in the use of e-voucher as an input distribution system. It was hoped that this study would provide information to policy makers, small scale farmers, Agro-dealers and the Ministry of Agriculture on what was obtaining in the use of e-voucher. The study employed a descriptive design. A sample of 30 respondents comprising 26 small scale farmers, 2 officers from Zambia National Farmers Union and 2 from Zambia National Commercial Bank were purposively drawn from Chongwe District. Data was collected through interview guides and Focus Group Discussions. Data was analysed using content analysis and information was presented thematically and in narrations. The study revealed that smallest scale farmers were accessing farming inputs of their choice through the use of the e-voucher. It also revealed that radio programmes, door to door visits by extension workers and farmer meetings were adult education methods used in the dissemination of information on the e-voucher among small scale farmers. The study further showed that challenges faced by small scale farmers and providers of the e-voucher included late funding, slow loading and activation of e-cards and late delivery of farming inputs. Other challenges include late replacement of lost pin numbers and language barrier. Proposed strategies aimed at addressing challenges faced on the use of e-voucher as an input distribution system were that each area should have a focal person to handle problems faced by small scale farmers, the e-cards should be loaded and activated on time as well as delivery of farming inputs. The study concluded that the majority small scale farmers were accessing farming inputs of their choice using the e-voucher than the Farmer Input Support Programme. However, they faced a variety of challenges which made the system rather problematic. The study recommended that the government through the Ministry of Agriculture and other providers of the e-voucher should fund the Banks on time, specific officers should be used to handle e-voucher and farmer awareness campaigns should be done at the level of farmer cooperatives to enhance farmer participation and dissemination of information on e-voucher be done in the seven official local languages.

Keywords: *E-voucher, Small Scale Farmers and Dissemination*

DEDICATION

First and foremost, I dedicate this dissertation to the Almighty God for the success reached this far. I also dedicated this work to my lovely mother, Judith Chirwa Banda: my dearest late husband Lazarous Sinyinza and my lovely children Temwani, Mbaweme and Matthews Sinyinza for the emotional support rendered to me throughout my study.

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ACRONYMS

| | |
|-----------------|---------------------------------------|
| FAO | Food and Agriculture Organisation |
| FISP | Farmer Input Support Program |
| FSP | Farmer Support Program |
| NAMBOARD | National Agricultural Marketing Board |
| PIN | Personal Identification Number |
| POS | Point of Sale |
| WFP | World Food Program |
| ZANACO | Zambia National Commercial Bank |
| ZNFU | Zambia National Farmers Union |

OPERATIONAL DEFINITIONS OF TERMS

- Adult education:** Education that prepares people regarded as adults to live effectively and efficiently in their own environment.
- Diffusion:** A process by which an innovation is communicated through certain channels overtime among the members of a social system.
- E-voucher:** Electronic coupon issued to a customer with a determined value. The value can be in currency, it can be variable or it can be specific.
- Input:** Resources that are used in farming production such as chemicals, seeds, equipment, and energy.
- Innovation:** An idea, practice or object that is perceived as new by an individual or other unit of adoption.
- Beneficiaries:** Individuals or people targeted to receive or buy agro inputs.
- Agro-dealer:** Companies or organisations that sell farming inputs such as fertilisers, chemicals and equipment.
- Challenge:** Anything that precludes someone from doing something.
- Programmes:** A co-ordinated set of dynamic, result oriented, and educational activities focused on a problem and aimed at achieving the intended objectives.

CHAPTER ONE: INTRODUCTION

1.1 Overview

This chapter presents the background to the study, statement of the problem, purpose of the study, research objectives and research questions. It also presents the significance of study, theoretical framework, and definition of terms, organisation of study and the summary of chapter.

1.2 Background to the study

According to Kombe and Tromp (2006) background is defined as the setting or position of the study. It is a brief overview of the problem the researcher aspires to tackle. In other words, background information describes the history and nature of research problem to the existing literature. Kasonde Ng'andu (2013:13) adds that background:

...is the first section of the journal article, dissertation or scholarly research study. It sets the platform for the entire study. This is a brief overview of the problem because; it helps clarify what has brought about the need for the study; points out the challenges faced due to identified issue; indicates the opportunities for improvements; demonstrates the researcher's view of the research problem; and it shows the reader that the researcher knows the study area as he or she is familiar with what has proceeded.

Adult education has been defined differently by many scholars. Mtonga (2016) states that in many parts of Africa, adult education deals with cross-cutting issues that help adult people operate effectively and efficiently to achieve individual, family, community and societal sustainable development through meaningful active contribution. Kamwendo (2010) defines Adult education as activities designed for the purpose of bringing about learning among those whose age, social roles and self-perception define them as adults. Courtney (1989) and Smith (2001) suggested that adult education could be explored from five basic and overlapping perspectives which include the work of certain institutions, a special kind of relationship, a profession discipline, historical identification with spontaneous social movements and uniqueness to other kinds of education because of its goals and function. Adult education does not prepare people for life. Instead it helps

people to live successfully through gaining competence to deal with social roles or being able to solve their personal and community problems (Courtney, 1989).

Adult education specifically aims to train individuals for more fruitful participation in smaller collective units which do so much to mould significant experiences. The adult learner becomes a spokesman for ideas (Lindeman, 1926) Adult education could be applied to small scale farmers because it equips them with skills, knowledge, values and brings about changes in attitudes towards the introduction of e-voucher to be used to access farming inputs. It is widely acknowledged that the success of production in Agriculture relies on adults improved skills and knowledge which in turn increases production.

The e-voucher system was being used to implement the farmer input support response initiative program in all the ten provinces of Zambia. The Zambian government introduced the fertilizer input support programme (FISP) in 2002, in order to counter challenge that farmer's faced. The FISP was aimed at increasing the supply of agricultural inputs to small scale farmers and contribute to increased household security and income. FISP's specific objective was expanding markets for agro-dealers and increasing their involvement in the distribution of agriculture inputs in rural areas while reducing direct role of government. These mechanisms also increase competitiveness and transparency in the supply and distribution of inputs and serve as a risk sharing mechanism for small scale farmers (Musika, 2016).

FISP guidelines stipulate that subsidy eligibility required membership in a local cooperative. According to an ethnographic research with four cooperatives in Kalomo district, cooperative membership entails a one-off K50 non-refundable member fee along with K200 for every cooperative share the farmer wishes to purchase. A farmer must acquire a minimum of one share to become a cooperative member. Once a farmer has become eligible to receive FISP through the cooperative, he or she must provide k480, 000 per FISP input pack (Sitko, 2010).

FISP has contributed to national food production objectives in Zambia. Mason et al. (2011) estimate that 15% of the increased maize production in 2011 over levels in the mid-2000s was due to increased fertilizer use. However, the apparent assumption that relatively small farms were less efficient users of fertilizer and the effect this assumption has had on FISP targeting have severely limited the potential of FISP to reduce poverty.

The e-voucher has been used as an input distribution system in reaching approximately 241,000 beneficiaries from thirty selected districts across all the ten provinces of Zambia. The districts were Chongwe, Petauke, Katete, Chipata, Chadiza, Mambwe, Lundazi, Mazabuka, Monze, Choma, Kalomo, Sinazongwe, Kazungula, Sesheke, Kaoma, Mumbwa, Chibombo, Kapiri Mposhi, Mkushi, Serenje, Mpongwe, Solwezi, Zambezi, Samfya, Mansa, Mwense, Chiyengi, Kawambwa and Isoka (Hambulo, 2009).

The World Bank (2010) identified several factors that contributed to frequent delays in distributing farmer inputs support programme to farmers. These included corruption in the distributing process and inefficiencies in planning, tendering and procurement. By eliminating the need for tendering, as well as delegating input distribution to private sector, e-vouchers had the potential to reduce delays in input distribution.

Private Sector Participation in Inputs Distribution to Rural Farmers has helped the government to cut on the cost of transport and other logistics. During the 2015/2016 agricultural season, about 230 new agro-dealers came on board as a result of the e-voucher. Registered agro-dealers participating in the program were required to stock their shops with a variety of inputs in addition to fertilizer and maize seed (Musika, 2016).

1.3 Statement of the problem

According to Kasonde-Ng'andu (2013) the statement of the problem refers to an issue or concern that puzzles the researcher. This may be due to its effects or consistence despite the measures taken. It is a general question or statement about relations among some phenomena or variables.

The Farmers Input Support Programme (FISP) had experienced a number of challenges from the time of its implementation. These challenges were late delivery of inputs, difficulty in beneficiary targeting, limited number of fertilizer suppliers participating on the programme and limitations of the variety of inputs. In order to help reinforce agricultural diversification, Cabinet approved the piloting of e-voucher system during the 2015/2016 farming season. According to Nafokho (2005) Adult education has a direct and symbiotic relationship with the environment within which it operates. It responds to societal change and tends to necessitate further change. However, it was observed that small scale farmers were having difficulty in accessing farming inputs using e-voucher as an input distribution system. The magnitude of delays and confusion in the 2017/2018

farming season farmer input distribution was staggering because of the one million farmers targeted for the season e-voucher roll out, only 400, 000 farmers or less had reportedly successfully registering and accessing inputs (Zambian Farmer, 2017). If these challenges are not addressed the government would continue to face delayed distribution of input to the Zambian people which has the potential to affect the food security of the nation. This study, therefore, sought to explore the use of e-voucher by small scale farmers as an input distribution system in Chongwe District from an adult education perspective.

1.4 Purpose of study

Creswell (2007:74) defines the purpose of study as a brief statement that advances the overall concern for the study. The purpose of the study is usually a short paragraph that explains what the study intends to achieve. The purpose of study was to explore the use of e-voucher by small scale farmers as an input distribution system in Chongwe District.

1.5. Objectives of the Study

Kombo and Tromp (2006) define objectives as intensions or purposes stated in specific measurable terms. Therefore, the objectives of this study were:

- 1) to establish the extent to which small scale farmers use the e –voucher as an input distribution system;
- 2) to identify adult education methods used in the dissemination of information on e-voucher among small scale farmers,
- 3) to establish challenges faced by both small scale farmers and providers of e-voucher as an input distribution system; and
- 4) to suggest strategies of addressing challenges faced in the use of e-voucher as an input distribution system.

1.6. Research Questions

This study attempted to answer the following questions:

- 1) What is the extent to which small scale farmers use the e-vouchers as an input distribution system?

- 2) What methods were used in the dissemination of information on the use of the E-voucher as an Input distribution system?
- 3) What were the challenges faced by small scale farmers and providers of e-voucher as input distribution system?
- 4) What strategies could be employed to address challenges faced in the use of the e-voucher?

1.7. Significance of the Study

Kasonde – Ngandu (2013) defines significance of study as a section that elaborates on the importance and implications of a study for researchers, practitioners and policy makers. It was hoped that the findings of this study would provide information to policy makers, farmers, agro-dealers, the Ministry of Agriculture and other stake holders to have insight on what was obtaining on the ground in terms of the use of e-voucher by small scale farmers as an input distribution system. Further, the results of this study would add to the body of knowledge and help the Government of Zambia through the Ministry of Agriculture to improve dissemination of information on e-voucher as an input distribution system.

1.8. Delimitation of the Study

Creswell (1994) suggests that delimitation refers to the geographical area where the study is necessary. This study was conducted in Chongwe district particularly in Chalimbana, Mapulanga, Kapekete, Kakubo and Kalulu. The people targeted were the small scale farmers, Agro-dealers, some Administrative members of the Zambia National Union of Farmers and Zambia National Commercial Bank. Chongwe District with its vast area was selected because there were a wide variety of farm enterprises being run on smallholder farms and a relative better presence of agro dealers and mobile network. It was also one of the districts in Lusaka province which has had high production of maize and participated in the implementation of e-voucher during the 2015/2016 farming season.

1.9 Theoretical framework

Imenda (2014) defines a theoretical framework as the application of a theory or a set of concepts drawn from one and the same theory to offer an explanation of an event, or shed some light on a

particular phenomenon or research problem. Similarly, Kombo and Tromp (2006) define a theoretical framework as reasoned set of prepositions, which are derived from and supported by data or evidence.

This study was guided by Everett Rogers theory of diffusion of innovation. Diffusion of Innovation is a theory that seeks to explain how, why and at what rate new ideas and technology spread. Diffusion has focused on five areas: (1) the characteristics of an innovation which may influence its adoption; (2) the decision-making process that occurs when individuals consider adopting a new idea, product or practice; (3) the characteristic of individuals that make them likely to adopt an innovation; (4) the consequences for individuals and society of adopting an innovation; and communication channels used in the adoption process (1962).

According to Rogers (1996) diffusion refers to the process by which an innovation is communicated through certain channels over a period of time among the members of a social system. Rogers also states that an innovation must be widely adopted in order to self-sustain and within the rate of adoption, there is a point at which an innovation reaches critical mass and information flows through networks. The nature of networks and the roles opinion leaders play in them determine the likelihood that the innovation will be adopted (Rogers, 2003). He asserts that opinion leaders exert influence on audience behaviour via their personal contact and through change agents.

Diffusion of innovation emphasizes characteristic of an innovation and the role communication channels play in adopting the innovation (Rogers, 1995). In terms of communication channels, diffusion of innovation involves both interpersonal channels and mass communication channels for people to get information.

Rogers views four elements as influencing diffusion of new ideas through cultures. The four elements are explained below:

1.8.1 Innovation

An innovation is an idea, practice, or project that is perceived as new by an individual or other unit of adoption (Rogers, 2003).

1.8.2 Communication channels

For Rogers (2003) communication is defined as a process in which participants create and share information with one another in order to reach a mutual understanding. This communication occurs through channels and between sources. A source is an individual or an institution that originates a message whereas a channel is the means by which a message gets from the source to the receiver. Rogers (2003) states that mass media and interpersonal communication are two communication channels. While mass media channels include a mass medium such as television, radio or newspaper, interpersonal channels consist of a two-way communication between two or more individuals. Thus, interpersonal channels are more powerful to create or change strong attitudes held by an individual.

1.8.3 Time

According to Rogers (2003), time is an important element in the diffusion process. Time dimension is involved in the diffusion of the innovation decision were an individual pass from first knowledge of an innovation through its adoption or rejection.

1.8.4 Social System

Social System is defined as a set of interrelated units that are engaged in joint problem solving to accomplish a common goal (Rogers, 1996). Since diffusion of innovation takes place in a social system it is influenced by the social structure of the social system. This theory has been chosen because it explains how an innovation is spread throughout society and why it is adopted at both micro and macro levels of analysis. He further explained that most innovations are technological innovations, designed for instrumental action that reduces the uncertainty in the cause-effect relationships involved in achieving desired outcome. However, people vary greatly in their reactions to innovations. Rogers (1962) identified several different categories of people based on the ease with which they adopted new innovations:

- (1) Innovators: are very eager to try new ideas. This interest leads them out of a local circle of peer networks and into more cosmopolite social relationships.

- (2) Early adopters: are a more integrated part of the local social system than are innovators. These are localites and have the greatest degree of opinion leadership in most social systems.
- (3) Early Majority: are adopt new ideas just before the average member of a social system. These interact frequently with their peers, but seldom hold leadership positions.
- (4) Late Majority: adopt new ideas just after the average member of a social system. Adoption may be an economic necessity and the answer to increasing network pressures.
- (5) Laggards: are the last in a social system to adopt a new idea. They possess almost no opinion leadership. They are the most localite in their outlook of all the adopter categories. Decisions are made in terms of what has been done in the previous generations.

The Innovators think for themselves and are willing to take risks. They will adopt new ideas because the idea is new. Whereas the Early adopters are willing to try new ideas before they have achieved widespread acceptance. Early majority are cautious and risk-averse and will only adopt an innovation once it becomes socially accepted. The Late majority are even more risk-averse than the early majority. They will only consider adopting an innovation after overwhelming evidence from others. The last category are the Laggards who resist the innovation and may never adopt it (Stafanou, 1993). Hence, the innovation of introducing the e-voucher as an input distribution system explains the differences in the period small scale farmers had used the e-voucher in accessing farming inputs. Sixteen (16) small scale farmers out of twenty-six (26) used the e-voucher in 2015/2016 farming season and eleven (11) small scale farmers used the e-voucher in 2016/2017 farming season. The theory was relevant to the study because it helped in comprehending agricultural knowledge and information concepts on why innovations are important and how they can be implemented in agricultural production. However, although diffusion of innovation theory explains the adoption of a technology and various factors considered when adopting innovations, the theory operates at individual level where adopters are voluntary which was not the case with the implementation of the e-voucher. The implementation of the e-voucher involve a top-bottom approach where small scale farmers do not participate in the recruitment of beneficiaries of the e-voucher but were involved voluntarily at the level of registration. The small scale farmers selected were persuaded by the successful input distribution

in 2015/2016 farming season but later encountered challenges in the use of e-voucher which resulted in disillusionment.

In addition, competent governments provide advantages in rational and appropriate usage of the knowledge and technology as one of the most important indicators of development. In a developing nation like Zambia it should be important and possible to observe various groups with different development levels. For example, rural population has had significant disadvantages compared to the ones in the cities in terms of technology advancement. This situation required the innovation to reach rural population and enable them to acquire the introduced technology which in this study was the e-voucher a card farmers use to acquire farming inputs.

1.9 Organisation of the study

The following is the organisation of the dissertation; Chapter one has presented the background to the study, the statement of the problem, purpose of the study, objectives of the study and research questions. It has also presented the significance of the study, delimitation of the study and theoretical framework. The chapter has closed with the operational definition of terms and summary of the chapter.

Chapter two has presented the literature review, which has been divided into sections meant to cover the major area of study. The first part has described the e-voucher and its use globally. The second part has given a historical perspective of the use of the e-voucher. The third part has provided what other scholars have written on the e-voucher. The final part has highlighted the challenges faced by both small scale farmers, agro-dealers and providers of e-voucher as an input distribution system, and strategies that could be employed to address them have been discussed.

Chapter three has provided the methodology that has been employed in conducting this study, in terms of the research design, population, sample, sampling technique, and data collection instruments and procedure. It has also highlighted the limitations of the study and ethical considerations.

Chapter four is a presentation of the research findings. The findings of the study are presented using objectives.

Chapter five: presents the discussion of the research findings of the study. This is done using the study objectives. The discussions are supported by literature reviewed and the theoretical framework.

Chapter six gives the conclusion and recommendations made based on the findings of the study. This chapter is followed by references and appendices.

1.10 Summary of the Chapter

The chapter presented the background to the study, statement of the problem, purpose of the study, research objectives and research questions. It also presented the significance of the study, theoretical framework, and definition of terms, organisation of study. The next chapter reviews literature relevant to the study.

CHAPTER TWO: LITERATURE REVIEW

2.1 Overview

Literature review is a vital component of any research. Welman, Kruger and Mitchell (2005) state that literature review entails compiling a review of research findings on a particular topic that has already been published. In this study literature was reviewed under the following themes: Concept of e-voucher, use of e- voucher globally: a historical perspective, the use of e-voucher outside Africa and within Africa and in Zambia which are related to the study. The study shows how current studies deviate from the reviewed literature and also studies related to this field of study. Literature was reviewed in relation to the objectives which were rephrased and used as headings. Lastly, a summary of this chapter has been provided.

2.1.1 The concept of e-voucher

Vouchers were coupons issued to a customer with a determined value. The value can be in currency (i.e. good for USD 10), it can be variable (good for any one item e.g. rice or wheat) or it can be very specific (e.g. good for one monthly household portion of rice). Vouchers work only at participating locations, this was what made a voucher part of a system and not like a regular currency note. This was a key feature why incorporating electronics and mobiles into a voucher system could be useful for increasing efficiency and transparency (Gregory and Rohrbach, 2012).

Participating retailers not only agreed to accept the vouchers but also agreed to get reimbursed for their value (either their whole value or their partial value) at a time other than the time of sale. Retailers were reimbursed only upon submitting the voucher and proof of sale of the item the voucher was redeemed for. In many developing nations, often food security vouchers from governments were methods to subsidise items related to food security. An example was agricultural inputs, tools or food itself (Gregory and Rohrbach, 2012). The figures that follow show general voucher system, mobile voucher and using a mobile money platform.

General Voucher System Structure

Dissemination  Redemption  Reimbursement

| | | | | |
|---|--|---|--|--|
| 1. Wholesaler produces and distribute vouchers. | 2. Vouches distribution to target customers/beneficiaries. | 3. Customers redeem voucher of participating retailers, take home appropriate purchase. | 4. Retailer submit voucher to wholesaler | 5. Wholesalers receives voucher reimburses retailer. |
|---|--|---|--|--|

Source, Gregory and Rohrbach, (2012)

Mobile Voucher Structures

Dissemination  Redemption  Reimbursement

| | | | | |
|--|--|--|--|----------------------------|
| 1. Vouchers are sent electronically and automatically to targeted customers. | 2. Customers receives vouchers on phone. | 3. Customer redeem vouchers at selected retailers. | 4. Redemption automatically by the wholesaler. | 5. Retailer is reimbursed. |
|--|--|--|--|----------------------------|

Source, Gregory and Rohrbach, (2012)

If using a mobile money platform even more steps can be reduced and time

| | | | |
|--|--|---|--|
| 1. Vouchers are sent electronically to target customers. | 2. Customers receives vouchers on phone. | 3. Customers redeem vouchers at participating retailer. | 4. Redemption automatically received by wholesaler, retailer automatically reimbursed with mobile money. |
|--|--|---|--|

Source, Gregory and Rohrbach, (2012)

2.1.2 The use of e-voucher globally: A Historical Perspective

Historically, vouchers go all the way back to 1887, when Atlanta businessman Asa Candler used paper coupons as they were called, to encourage people to try a free glass of his new soft drink

Coca Cola. Candler's invention transformed Coca – Cola from an insignificant tonic into a market dominating drink. His hand-written tickets offered consumers a free glass of Coca Cola, then priced at five Cents. Between 1894 and 1913 one in nine Americans had received a free Coca-Cola totalling of 8,500,000 free drinks (Brad, 2010).

Brad (2010) further suggested that in the early 1900s, discounts were available on cereals thanks to coupons, and then coupon usage really took off in the Great Depression, as Coupon Sherpa n's timeline (which, unsurprisingly, was heavy on the importance of mobile coupons). Coupons quickly found their way online in the years of the web. During this time, the internet primary served as a distribution channel for shoppers to locate and then print coupons they would later use in-stores. Once E-commerce became more widespread, some opportunistic marketers developed a new more streamlined approach: the coupon code.

During the Great Depression coupons were provided to American families struggling to afford groceries and by the 1940's supermarkets were issuing coupons to attract customers away from neighbouring stores and by 1965 half the households in the USA were clipping paper coupons. In 2008 merchants began using mobile phones to deliver electronic coupons to their customers and in 2009 coupons were used by the US government to encourage transition to digital television.

The advantages of the use of the Coupons were clear, rapid creation, simplified distribution, as well as improved tracking and accountability resulted in widespread adoption of the codes often supplanting their printable predecessors and rendering them obsolete. This resulted into a fully digital version of the coupon, has shown itself to be incredibly versatile and effective for online merchants (Aagaard, 2013).

In the United Kingdom After World War's I & II coupons were used in the UK to ration the distribution of food in short supply and beyond the reach of working households. Deserving families registered at chosen shops and were provided with a ration book containing coupons which the shopkeeper would cancel in exchange for specific food items such as sugar, cheese and meat.

Rationing was introduced temporarily by the British government several times during the 20th Century, during and immediately after the war. At the start of the World War II in 1939 was importing 20,000,000 long tons of food per year, including about 70% of its cheese and sugar,

nearly 80% of fruits and about 70 % cereals and fats. The UK also imported more than half of its meat, and relied on imported feed to support its domestic meat production (Patten, 2005).

Patten (2005) further, argued that the civilians' population of the country was about 50 million. It was one of the principal strategies of the Germans in the battle of the Atlantic to attack shipping bound for Britain, restricting British industry and potential starving the nation into submission. To deal with sometimes extreme shortages, the Ministry of Food instituted a system of rationing. To buy most rationed items, each person had a register at chosen shops, and was provided with a ration book containing coupons. The shopkeeper was provided with enough food for registered customers. Purchasers had to take ration books with them when shopping, so that the relevant coupons could be cancelled.

2.2 The use of e-voucher in Syria

The mobile voucher that was sent to a refugee's phone was part of a larger electronic system that managed the entire distribution, reporting, monitoring and transaction process. This system was used to register information on the demographic profile of each household, their UNHCR verification code, entitlements, voucher collection date, voucher exchange dates, and products and quantities exchanged. This made it possible to reconcile transactions and accounts, provide real-time reports on the pilot, allow prompt reporting and monitoring and decreased the risk of misuse of the vouchers. When UNHCR registered a beneficiary household, their details were entered into the database. Within 48 hours, the WFP server automatically sent an SMS to the household, advising them on distribution dates, their specific entitlement in Syrian pounds and their unique WFP Personal Identification Number (PIN).

For each transaction between the beneficiary and the shop, the beneficiary presented two items for verification: their bar code and their PIN number. With these the shop drew up the beneficiary file using the online system. The shopkeeper entered details of the items and quantities of the transaction. Once submitted the system automatically sent the shop an electronic invoice and sent the beneficiary an SMS with the updated amounts on the voucher (WFP, 2010).

WFP partnered with the GESMAAP shops for the e-voucher pilot. At the end of each distribution cycle GESMAAP shops sent WFP the electronic invoices which were reconciled with database

records. These shops carry mostly locally produced goods and some locally demanded imported goods. They do not sell any tobacco or alcohol.

Also with GESMAAP agreeing to fix the prices during the pilot, beneficiaries were protected from price fluctuations and the effects of inflation. However, this was not essential as the electronic system made it easy to change the price for a particular item and implement immediately. For scaling up and long term deployment this was a critical feature for adapting quickly to local markets and not damaging or warping the private economy (Gregory and Rohrbach, 2012).

According to the WFP (2010) the following were the outcome and feedback of the pilot programme by the World Food Programme in Syria. 97% of surveyed households were satisfied with the voucher programme, 13% would have rather received money than vouchers, and 17% reported they had sold part of the food ration (reported need to pay for utilities, wanted different food, shared with neighbours). The overall resale of food was reduced in comparison to in-kind food distribution and three of the shops selected for the pilot had problems with connectivity and could not continue exchanging vouchers. They were in an area with the highest concentration of beneficiaries. About 60% were happy with the distance to the nearest participating shop (it is deduced many had to go from one shop to another to retrieve their ration). Despite the wait due to queuing, overall time taken for the transaction was dramatically reduced (from 3-4 hours to 30-45 minutes). The help desk log revealed that the highest proportion of problems were related to problems with SIM cards not working and SMS not received.

Pros and cons of mobile vouchers compared with in-kind food distribution as reported by the WFP (2010) were as follows, Queuing time was reduced to about 30–40 minutes rather than 4–5 hours. The voucher programme facilitates diversification of food items and diet and helped much the variety of food types sold in GESMAAP shops. It met local preferences better than the in-kind basket. There was less resale of commodities, means fewer leakages and beneficiaries had choice of products according to their needs. The programme recorded a reduction of the value of donor money lost in re-sales.

It further contributed to less spoilage, as beneficiaries were able to exchange their vouchers any time during the distribution cycle, rather than receiving their two-month ration at once. The electronic system allowed efficient management of the voucher scheme, prompt reporting and monitoring is enabled and rapid adjustment of activities thereof is possible. Reduction in leakages

electronic transactions in real-time reduce possibility of illegal entry and modification of records and strengthens partnerships with government and the private sector (WFP, 2010).

2.3 The use of the e-voucher in Haiti

Another example of mobile vouchers came in 2012 in Haiti when CARE and Catholic Relief Services jointly launched the Grand`anse Relief and Recovery Programme with the mobile vouchers. Beneficiaries received a mobile voucher code and PIN on two scratch cards. Transactions with the vendor were done on the vendor`s basic mobile phone, with the beneficiary providing their voucher number and their confidential PIN number (CRS, 2010).

The E-voucher Transfer platform was a tool that made it easier, more efficient, and more secure to reach participants with social protection programmes such as cash transfers. E-vouchers were used successfully in Care Haiti s Kore Lavi program to improve the access of the poorest to adequate and nutritious local food. Using vouchers strengthens local markets by creating a stable demand for local producers and suppliers to produce diverse and nutritious food (CRS, 2010).

Kore Lavi used the Haitian Deprivation index to reach the most vulnerable families. Each family in the target group received monthly vouchers equal to approximately 25% of the average local household food consumption. Households were provided with two types of vouchers: paper and electronic. Paper vouchers could be used to purchase fresh items like fruit and fish while electronic vouchers could be used to purchase staples such as maize and bean. Both vouchers could be used to purchase locally grown products in order to support local farmers (CRS, 2010).

Beneficiaries who had access to fresh fruits and vegetables were able to participate in formal markets and exercise their sense of dignity by being able to make their own food choices. In turn, local farmers were able to receive a fair price for their products, participate in a stronger market, and met the needs of their community.

2.4 The use of the e-voucher in Zimbabwe

The Government of Zimbabwe, through the Ministry of Agriculture, Mechanization and Irrigation Development issued national guidelines to govern the provision of support to smallholder farmers in the form of agricultural inputs and extension for the 2011 and 2012 summer cropping season.

These sort to minimise direct input distribution and eliminate the provision of free inputs to farmers (AGRA, 2013).

The 2011 and 2012 season marked the second season in which the voucher mechanism was being used in Zimbabwe. The electronic vouchers mechanism was redeemable at competing rural agro dealer outlets identified to participate in the programme. This empowered farmer to choose the agricultural inputs they needed for their cropping season from a selection offered under the programme. The electronic voucher programme was implemented through a partnership with Ministry of Agriculture, Mechanization and Irrigation Development, various implementing partners, a technical provider and agro dealers. The programme was implemented in three districts (AGRA, 2013).

The electronic cards allowed the farmers to purchase agricultural inputs classified according to four broad categories; seeds, fertilizer and lime, agrochemicals and implements and spare parts for farming equipment. During implementation of the programme, the FAO procurement team would carry out additional spot checks on agricultural inputs held by the agro dealers twice a month. These checks would begin the redemption process. The team would also collect additional samples during the spot checks to ensure that the specifications were consistent with those verified at the beginning of the programme (AGRA, 2013).

The national guidelines proposed that the value of the voucher be no less than USD 160, with the farmer contributing ten percent (USD 16). The electronic cards would therefore be produced in values of USD 144. The top up of USD 16 was provided directly to the agro dealer, if the farmer purchased inputs up to USD 160. In addition, necessary security features were associated with the electronic card, such as the farmer's name, national identity, and gender to ensure that only the intended beneficiaries were able to redeem inputs using the cards. The system prompted for a pin number before any transactions were processed (AGRA, 2013).

2.5 The use of the e-voucher in Malawi

In Malawi 88% of the population lives in rural areas and slightly more than half of these were poor. There was a dependence on market purchases of maize which left the poor households vulnerable to the high and volatile maize prices. The Agricultural Input Support Programme in Malawi initiated in the 2005 and 2006 season built upon a long tradition of subsidising agricultural

inputs. The objective of this programme was to increase resources to poor smallholder farmers and cash crop production. This programme had little evidence of a long term effect on household assets or general wellbeing (World Food Summit, 1996).

In 2013, the Government of Malawi decided to pilot the use of electronic vouchers for farmer input subsidy programme otherwise known as FISP, which reached a total of 1.5 million farmers each year. This programme was implemented by the African Institute for Corporate Citizenship with the support of USAID, and NORAD, the e –voucher pilot used Zoono Innovative technology platform to deliver targeted e-vouchers that beneficiaries could redeem at local agro dealers (small retail shop) for seed to improve their yields of maize and legumes (Julius, et al. (2007).

2.6 The use of e-voucher in Zambia

Since independence, maize and input subsidies to support its production had been central to the social contract between GRZ and the Zambian people (Jayne 2008). Under this social contract, a core role of government was to keep maize prices low for urban consumers while maintaining remunerative prices for maize producers. Prior to structural adjustment, GRZ sought to uphold the social contract through consumer maize price subsidies and an integrated system of government support to maize production and marketing through the parastatal National Agricultural Marketing Board (NAMBOARD). Via NAMBOARD, GRZ provided farmers with subsidized fertilizer and seed on credit. The loans were to be recuperated when farmers sold their maize to NAMBOARD, which purchased the grain at a pan-territorial and pan-seasonal price (Smale and Jayne 2003). However, the massive government expenditures on these programs were not fiscally sustainable, and GRZ embarked on a structural adjustment program (SAP) in the early 1990s. Under SAP, NAMBOARD was abolished, direct input price subsidies were eliminated, the parastatal seed company Zamseed was privatized, and seed, fertilizer, and maize markets were liberalized (Howard and Mungoma 1996; Smale and Jayne 2003; De Groote et al., 2012).

Zambia, like in other countries, especially the Southern African countries, the farmer input subsidy programs had a long and varied history in Zambia. Due to the Structural Adjustment Programme in the 1990s, these programs were partially scaled back due to pressure on the Zambian Government to scale down both consumption and production subsidies. In the 2002/03 agricultural season, the Government of the Republic of Zambia (GRZ) established the Fertilizer Support

Program (FSP). FSP was initially envisaged to be a three-year program under which the subsidy level would start to reduce from 50% in the first year, to 25% in the second, to 0% in the third year (Ministry of Agriculture and Cooperatives Implementation Manual, Zambia 2002). However, FSP ended up running through from 2002/2003 agricultural year to date (2012/2013 agricultural season). In 2009/2010 agricultural season, FSP was slightly redesigned and renamed as the Farmer Input Support Program. This program has been implemented each year from 2009/2010 to present.

Despite these reforms, the entrenched ethos of the social contract made it difficult for GRZ to fully abandon efforts to subsidize inputs. Moreover, the advent of multiparty democracy in Zambia in 1991 made it even more difficult for leaders to wholly eliminate input subsidies, as doing so would have opened them up to attacks from the opposition (Jayne 2008). After all, such subsidies were a highly visible way for politicians to demonstrate that they were ‘doing something’ for the rural populace (ibid). Thus, despite some attempts to move away from direct input subsidies during President Frederick Chiluba’s first term (1991-1996), after his re-election for a second term, Chiluba was quick to establish the Fertilizer Credit Programme in 1997.

In the Zambian context, the greatest problem which the agricultural sector was facing in relation to increasing production and productivity were difficulties smallholder farmers were experiencing in terms of accessing agricultural inputs. This has been due to the high cost of agricultural inputs which most farmers could not afford. According to Claasen (1991), from the mid-1970s to the early 1990s, the Zambian Government financed a universal fertiliser subsidy which completely collapsed as a result continuing liberalization and structural adjustment programme. This saw the birth of fertilizer support programme 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 Food and Agricultural Organisation and Non-Governmental Organisations on agriculture, the rate of increase in agricultural production did not seem to correlate with the cost of programme investment. In this study he focused on understanding how to effectively build capacity among smallholder farmers which was based on countries outside Zambia whereas this study focused on the extent to which farmers use the e-voucher as an input distribution system.

Kalinda and Simfukwe (2007) did a study whose aim was to identify whether and how input vouchers are being used in Malawi, Kenya and Mozambique. Their study deviates from my study

in that it creates a platform of comparing the different kinds of inputs delivery systems and that this study was done in countries outside Zambia.

It is in the context of above limitations that the E-voucher system was introduced by Food and Agricultural 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 local farmers (FAO, 2000).

In 2009, Zoono formally known as Mobile Transactions pioneered the introduction of E -vouchers in Zambia as an alternative method of delivering payments, targeting subsidies and creating demand for specific products or services. The farmer input support programme (FISP) Electronic Voucher initiative implemented in 2015/2016 farming season had opened a window of opportunity to smallholder farmers to diversify farming enterprise (Musika, 2016).

2.7 Advantages of use of e-voucher

The Farmer Input Support Programme (FISP) has been in place since 2002, but has been marred with several weaknesses. The overall objective of FISP was to increase private sector participation in the supply of agricultural inputs to small-scale farmers, and contribute to increased household food security, improve agricultural productivity, and income. Due to the weaknesses associated with the program, very few of these objectives were met. The Government in 2015 and 2016 piloted the e-voucher, first in 13 districts during the 2015/16 agricultural season, and expanded to 39 districts during the 2016/17 farming season (Chapota et al., 2017).

E-voucher system allowed small scale farmers to access farm inputs such as seeds, fertilizers and herbicides using electronic cards. E-vouchers can improve targeting because they are linked electronically to individual beneficiary's national registration card numbers. During redemption, the beneficiaries go to the agro-dealers and present their national registration card and voucher. The agro-dealer enters registration number and reference pin into the system. The agro-dealers account was instantly credited and the beneficiary was given the input. This ensured that the beneficiaries that were the ones that accessed the inputs (Kalinda, 2006).

The Government in 2017 started the process of rolling out the e-voucher countrywide for the 2017/18 farming season. For a successful rollout, the government was urged to timely fund the

programme, in order for farmers to redeem agro inputs early as well as sensitise all stakeholders to ensure they clearly understood the program objectives clearly (Chapota et al., 2017).

The system when fully functional will use the e-farmer register with more than 1.2 million farmers. The e-system would help monitor the implementation of the programme in real time. For example, the selection and training of input dealers and agro-dealers, harmonisation of FISP input catalogue, and the integration of the E-FISP system with banks where farmers' payment of deposits, redeeming of inputs, and payment would be monitored was on almost completed (Chapota et al., 2017).

Nationally, about 72 percent of the rural households used improved seed in 2017 (irrespective of crops produced) compared to 66 percent in 2016. For maize, the number of farm households using improved seed was 63.6% percent, decreasing marginally by 0.7 percentage points from 64.3 percent in 2016 (Chapota, 2017).

Generally, there has been an upward increase in improved seed use in Zambia. Between 2003 and 2017, the number of farm households using improved seed increased by 27 percentage points. The highest was 2015, while the lowest was in 2003. Increased private sector participation in the seed sector has contributed to the adoption of improved seed use (Chapota, et al., 2017).

Also, the traditional FISP might have contributed to this increase especially that hybrid maize seed was part of the subsidised package. Further, the Government's Food Security Pack (FSP) which distributes free hybrid maize seed to vulnerable households may have partly accounted for this increase in use of improved seed.

Mwango (2013) suggested the following advantages:

1. An e-voucher system is likely to improve the competitiveness of fertilizer distribution in rural Zambia, which is currently more underdeveloped than the seed sector. This growth in competitiveness will likely reduce the costs of fertilizer in rural areas and encourage the distribution of fertilizer types that are appropriate for Zambia's varying agro-ecological zones. The current FISP system is seen to discourage crop diversification. Our data shows that the choices of input selected by e-voucher beneficiaries do not differ much from that under FISP. Despite a range of inputs being available under the e-voucher, the majority of

farmers will first get basal dressing, maize seed and top dressing before getting any other non-maize products.

2. Targeting of beneficiaries is likely to be improved through improved monitoring of who gets the inputs and how much they get, because e-voucher systems use an improved database that electronically links beneficiaries to inputs to be collected.
3. E-voucher systems effectively address the issue of timeliness of input delivery by relying on the private sector to assume the responsibility of input procurement and distribution to rural retail outlets. Our evidence shows that virtually all beneficiaries had procured their inputs by November.
4. As much as agro-dealers still find it easy to stock seed, probably due to high competition levels among seed suppliers, they still have a problem stocking fertilizers as most of them do not have supply relationships with suppliers. This is an important obstacle that must be addressed if FISP is going to be successfully implemented through an e-voucher system.
5. By transferring responsibility for input distribution from MACO staff to private sector the e-voucher is not only likely to build local business capacity and free time for MACO staff to concentrate on their core business, but also increase farmers access to extension as agro-dealers were also found to provide extension services in a bid to improve customer relationships.
6. Some remote areas only had one agro-dealer each. These agro-dealers were too small and lacked the capacity to supply even the small e-voucher quantities in the pilot programme. This leads to questions about their ability to handle the larger FISP programme. However, our evidence shows that in isolated areas where local agro-dealers struggled to meet demand, the guaranteed market provided by the e-voucher served as an incentive for other agro-dealers to fill the gap. However, there were reports that in filling this gap, agro-dealers hiked prices, provided farmers with limited choices of inputs, and only gave farmers a very short window in which to redeem the vouchers.

2.8 The use of e-voucher by small scale farmers as an input distribution system

Chapota (2017) argued that the e-voucher system allowed small scale farmers to access farm inputs using electronic cards. E-voucher can improve targeting because they are linked electronically to individual beneficiary's national registration card numbers. Nationally, about 72% of rural households used improved seed in 2017. The study for Chapota (2017) was in tandem with this study in that small scale farmers were accessing farming inputs using the e-voucher.

According to Mwangi (2013) e-voucher has a range of inputs available and majority farmers get basal dressing. The e-voucher system effectively addresses the issue of input delivery by relying on private sector to assume responsibility of input procurement and our evidence show that virtually all beneficiaries had procured their inputs by November.

A study by Musika (2016) argue that some of the major success achieved over the years including the most recent partnership with the Zambian Government in piloting the 'E-voucher' system implemented in the 13 districts in Southern, Lusaka, Central and Copperbelt provinces are increasing private partnership in the distribution of inputs coupled with the extension services and that the e-voucher gives farmers a wide selection of inputs to choose from, giving them an opportunity to diversify. The point of difference between the study by Musika (2016) and this study lies in the fact that it was a pilot study conducted in thirteen districts unlike this study which was conducted after the implementation of the e-voucher.

During implementation of FISP in the past 12 years, the programme has experienced challenges which included late delivery of inputs, difficult in beneficiary targeting, limited number of fertilizer suppliers and variety of inputs. Unlike under the conventional FISP where inputs were delivered to few warehouses found across the country, under the E-voucher Agro-dealers and input suppliers follow farmers to their door step to deliver inputs of their choice (Ministerial Statement, 2015).

Another study conducted by Chikobala and Tembo (2018) on Gaps in the Implementation of the e-voucher system in Zambia: implications for strategies to make the model efficient and effective indicated that input vouchers were introduced to reduce transaction costs, beneficiaries were given a choice regarding the type and quantity available to any input and allow for the participation of

the private sector. The study by Chilobala and Tembo (2018) dealt with gaps in the implementation of e-voucher in Northern and all the eleven district in the country where as this study focused on the use of e-voucher in Chongwe district.

2.9 Adult education methods of disseminating information on e-voucher to small scale farmers

Adult Education in all its ramifications accommodates all forms of education whether formal, non-formal and informal aspects of education whose ultimate goal is to develop the process by which members of the community may learn to work together to identify problems and to seek out solutions to such problems (Oyebamiji, 2014). Further, Darkenwald and Merriam (1982) defines Adult Education as a process whereby persons whose major social role is characteristic of adult status, undertake systematic and sustained learning activities for the purpose of bringing about changes in knowledge, attitudes, values or skills. On the other hand, Mbozi (2011) defines Adult education as an instrument of personal growth.

Knowles (1980) argues that the mission of adult education is one of satisfying the needs of individuals, institutions and society. In order to meet the needs of learners, it's imperative to be aware of two important terms associated with teaching and learning: pedagogy which refers to the art and science of teaching children and andragogy designating the art and science of helping adults learn. Knowles observed that many principles of learning as well as teaching methods have developed with and for children, and argued that teaching adults requires a different set of instructional strategies (Knowles, 1980). According to Nafukho, Amutabi and Otunga (2005) stated that the theory of andragogy is based on the five important assumptions about the differences between children and adult learners. These are:

1. Self-concept: As people mature, their self-concept moves from one characterised by independence and self-direction. Adults have a need to be seen by others as being capable of directing themselves
2. Experience: As people mature, a growing reservoir of experience is accumulated that becomes an expanding resource for learning. Adults like to apply their existing knowledge and experience to their new learning experience to their new learning experiences.

3. Readiness to learn: As people mature, their readiness to learn becomes focused on their developmental tasks of their social roles. This assumption is important in that adult's time learning experience with their developmental task.
4. Orientation to learning: As people mature, their time perspective changes from knowledge acquired. In the same way, focus towards learning shifts from subject orientation to problem orientation. Adults want to apply what they have learnt today. Therefore, they enter into education with a problem centred orientation of learning (Knowles, 1973).
5. Motivation to learn: As people mature, their motivation to learn an internal drive. Knowles, Holton and Swanson (1998) have stated that even though adults can be motivated by external factors, they are more motivated to learn by internal pressures, such as increased job satisfaction, self-esteem and quality of life issues.

Having looked at Adult education and Andragogy theory which is also known as adult learning, it's necessary to explain adult education methods used in dissemination of information on e-voucher among small scale farmers. Gillard (2005) define a method as a way of assembling participants. It involves identification of target participants. The concept of Adult Education was used in this study with the intention of showing the role adult education methods play in the dissemination of information on the E-voucher as an input distribution system.

Dissemination involves communicating relevant information which can be understood by a person and can be stored for later retrieval and use (Garforth, 1998). Strata (2004) defines agricultural research information as an essential input in agricultural education, research, development and extension services. Farmers need agricultural research information to improve harvest and income. Dissemination of information at the right time on new farming practices had the potential of speeding up farmers' adoption of new improved practices (Brown et al. 2003). Farmers need information as Sadaf et al. (2006) confirms that information from outside the area can bring fresh ideas and awareness of new opportunities.

A study by Haliso et al. (2014) on the New Approach to information Dissemination Methods to Female Crop Farmers in Lagos State reveals that information is a contributing factor to farming success therefore, farmers require and need diverse information in order to support their work. Agricultural knowledge and information need to be managed like other key business input.

Another study conducted by Kuteya et al. (2016) on 'Farmer Input Support Programme Electronic Voucher Implementation' established that Agriculture assistants were responsible for making small scale farmers aware of the operation of e-voucher as an input distribution system. The report on Agricultural Technology for Development (2011) affirms that vast store of information on agriculture has been built up in the world over many years, with the ultimate aim of increasing agricultural production. The report further indicates that the information that is made available to farmers is the prerequisite for effective agricultural development.

There are different methods of disseminating information to farmers: Adekule et al. (2002) identifies some of these methods in disseminating information such as personal contact which includes the use of farm extension agents, radio and television, publications, field days, agricultural shows and demonstrations. He further states that these methods are used for different groups based on their information need and best ways to disseminate the information to them.

Chuma (2005) suggested that methods of Extension Education can be classified as individual, group and mass methods. They are described below:

2.9.1 Individual extension method

Individual methods are used in Agriculture Extension in recognition of the fact that learning is an individual process and that the personal influence of the Extension worker is an important factor in securing peoples` participation in extension activities. Although the approach is time consuming, its importance cannot be stressed enough. It is through working individually with the clientele that the Extension worker learns about the people of the area, how they think, what their needs are, and how they carry on their work. Equally, what are of more importance are the opportunities individual contact provides for the local citizen. They have been found to be highly effective when dealing with illiterate farmers in particular than to get to know the extension workers. The use of this method provides the extension worker the opportunity to show his credibility and integrity. Examples of individual methods are discussion, visits, phone calls, letter writing, result demonstration and client model (Ngoma, 1992).

2. 9.2 Group extension method

Obibuaku (1983; 55) defines a group as *an aggregate of small number of people in reciprocal communication*. He further, suggests that group methods take into account the inclination of the individual to respond to pressures and opinions of groups in which he participates and to listen to the views of others before arriving at a decision about making changes in his farming operations. Group method include teaching techniques such as demonstration, field trips, general meetings, informal or group discussions, exhibits, tours, role playing and modified conference method.

Group teaching techniques are more frequently used in Extension work than individual teaching techniques. By utilizing group technique, an Extension worker can reach more people than is possible. These techniques prove important information when time and staff are limited. Group techniques are especially effective in persuading Extension's clientele to try a new idea or practice. A group decision to try a new practice, for example, is likely to carry more weight in an area than a similar decision made by an individual. The demonstration based technique have been, in many ways, the corner stone of Extension work. The technique fall into a grouping which could be informally called "seeing is believing", because they include the physical demonstration of practices the Extension worker wishes to promote, or the exhibition of the results of good farming practices.

2.9.3 Mass extension method

Mass media methods are useful in reaching a wide audience at a very fast rate. They are important in stimulating farmers' interest in new ideas and practices. Normally group boundary gets obliterated in this method, the Extension agent communicates with a vast and heterogeneous mass of people, without taking into consideration their individual or group identity (Adams, 1982). This method is valid when a large and widely dispersed audience is to be communicated within a short time. There may be a few communicators such as the Extension agent and some subject matter specialists. The various methods which come under mass method are classification newspapers, radio, television, publications (National Open University of Nigeria, 2008: 40-44).

On the other hand, techniques used in mass Extension Education include, lectures, panel discussion, debate, field trip, symposium, forum, buzz group discussion, role-play and demonstration.

According to Ngoma (2009), the best technique is one which suits the facilitation, the learning situation and the learning needs of your learners. In other words, the facilitator is free to choose a technique or method which will assist him or her and their learners to achieve the objectives of each session in a particular learning situation.

2.10. Challenges faced by small scale farmers in the use of the e- voucher and the FISP

The Government of Zambia has committed to rolling out the electronic voucher countrywide in an effort to increase productivity, incomes, food security and consequently reduce poverty. Zambia as a whole and farmers in particular, were faced with many challenges. One of the key challenges of FISP has been high budgetary cost and crowding out private sector participation coupled with inefficiency in the delivery of inputs to smallholder farmers (IAPRI, 2017).

A study conducted by Chikobola (2018) on Gaps in the Implementation of E-voucher System in Zambia: Implications for Strategies to make the Model Efficient and Effective indicated that FISP provided the same type of fertilizer across the different agro ecological zones, which led to the inefficient use of fertilizer because it failed to recognise the variability on soil fertility and climate conditions. Furthermore, the focus of this programme was mainly on maize, which restrained agricultural diversification.

FISP involves government physically distributing inputs to all parts of the country, the e-voucher system is decentralised mechanism involving private sector agro-dealers who supply government subsidized inputs to farmers by use of personalised card and is specifically intended to ensure effective targeting of eligible beneficiary farmers, reduce leakages and increase the number of beneficiaries (Kuteya et al., 2016).

According to the speech that was delivered by then the Minister of Agriculture Given Lubinda in parliament in 2016 reported that during the implementation of FISP in the past twelve (12) years meaning 2015/ 2016 farming season, the programme experienced a number of challenges. These challenges included late delivery of inputs, difficulties in beneficiary targeting, limited number of fertilizer suppliers participating on the programme and limitations on the variety of inputs under the programme. In view of these challenges and also in order to help reinforce the government policy of agricultural diversification, Cabinet approved the piloting of the electronic voucher system during the 2015/2016 agricultural season in thirteen (13) districts, the districts were

selected based on relative presence of agro dealers, better mobile network and a wide variety of farm enterprises being run on smallholder farms, the programme was implemented in collaboration with the Zambia Government (Parliamentary Report, 2016).

National Farmers Union conducted a field visit by the monitoring team that revealed that in some cases, farmers' choices were restricted to maize and fertilizer because the cooperative chairpersons in collaboration with extension officers only arranged the delivery of maize seed and fertilizer to their members instead of the farmers themselves visiting the agro-dealer shops (Musika, 2016).

Another challenge cited by the farmers was that the e-voucher program was still biased towards maize because the start and closing period for redemption of the e-card coincided with the maize production season. This was seen as a huge impediment to agricultural diversification because non-maize producers were disadvantaged. For example, livestock production was not just limited to the period October to February but production took place the whole year.

In addition, a third challenge was with the data capturing system used during the 2015-16 E-voucher pilot implementation. The Management Information System (MIS) used to capture information of agro-dealer/farmer transaction missed an opportunity to collect the type of input redeemed. The focus was mainly on the value of the inputs redeemed. The inability of the system to capture such pertinent information was critical because it did not allow us to record the demand for various inputs by location (Musika, 2016). Therefore, it would not be possible to use the data to measure the extent of the program on agricultural diversification.

Nicholas et al. (2012) conducted a study on assessing the feasibility of implementing the farmer input support programme through an electronic voucher system in Zambia in which their findings reviewed that a number of problems plague the current farmer input support programme (FISP), including late delivery of inputs, distribution of standardized inputs that may not be appropriate for all agro-ecological zones or soil type, poor targeting, and high cost to the government. His study differs with this study in that it looked at the possibility of implementing the electronic voucher whilst this study focused on the extent the electronic voucher has been used in accessing farming inputs.

A survey conducted by Musika (2016) discovered that despite these problems, more than 90% of the farmers interviewed during the baseline survey indicated they were aware of the e-voucher and

its benefits. However, 4.3% of the farmers interviewed initially associated the system to Satanism and refused to get their e-cards. Hence, there was need to intensify the sensitization program of all the stakeholders including Ministry personnel, local leaders, farmers, and agro- dealers, especially on the benefits of the program, what inputs could be redeemed, role of cooperatives, and who could benefit from the program. To be successful, different media possibly translated in local languages should be used to sensitize and educate stakeholders about the benefits of implementing the input subsidy program through an e-voucher program instead of the traditional FISP. Ministry of Agriculture District Officers had a key role to play in the sensitization process. However, it was noted that in all the 13 districts, Ministry of Agriculture district offices did not have adequate resources to carry out their duties effectively. This was mainly attributed to delayed operational budget releases (Musika, 2016).

It was also observed during the monitoring visits that some agro-dealer shops did not stock all the inputs on the voucher. Among inputs that farmers could redeem included live animals, veterinary drugs, herbicides, livestock feed, and sprayers. It would be unrealistic to expect that all agro-dealers would have these inputs in the pilot phases because fertilizer and maize seed still remain strongly associated with the input subsidy program. However, there were incidences where some farmers indicated that some agro-dealers redeemed the cards for inputs that were not in stock and asked the farmers to wait for delivery. Essentially, this meant that the agro-dealers were financing the orders from pre-payments by the farmers. This reinforced the need to collect information about what the farmers were buying in order to help input suppliers and agro-dealers respond to spatial demand for different inputs covered under the e-voucher. Also, there was need to think of ways of making affordable financing to reputable agro-dealers to help them stock their shops (Musika, 2017).

One of the major complaints by farmers and agro-dealers was the long delays in e-card activation. Farmers received the e- cards but could not work because they had no money on them, hence, could not redeem inputs in a timely manner. Ninety-two percent of the farmers interviewed in the baseline survey indicated that the major problem was delayed card activation, and 46% indicated that they did not have any information about whether their cards were activated or not. The problem of e- card activation was also compounded by errors about the beneficiaries. About 8% of the households in the pilot districts reported that their names or national registration card

numbers were wrongly entered when they registered and this delayed their e-cards activation. Other cards that were recorded as activated were failing to be redeemed (Zambia National Farmers' Union, 2017). The high incidences of E-card failures at redemption point curtailed the success of the e-voucher program because major input suppliers threatened to stop delivering inputs to agro-dealers on credit as they were delaying to remit money to them.

A study that was conducted by ZNFU (2016) reported that the interviews that were carried out with some agro-dealers revealed that they felt that there was selective activation of cards, suggesting that there was no transparency within the system. There was also inadequate staffing at ZNFU to deal with high volumes of activation problems. Therefore, there was an urgent need to review the way the program was structured to remove all unnecessary human related impediments in the E-card activation system. Preferably, the current manual system should be eliminated. There was need for an electronic system that was activated whenever the correct identification codes were entered. In addition, the farmer registration and verification process should be done well in advance as well as the need to consider full proof biometric registration process to hasten the registration and verification process.

Infrastructure was another challenge that had to do with the realisation that in areas, especially the rural setup, where agricultural extension programmes were a must, road networks and other infrastructures were almost non-existent. Therefore, it was imperative that construction and improvement of infrastructure were given a priority. For example, if rural areas were opened up to good roads, electricity and other social amenities, extension officers would be encouraged to live in rural areas where there was lack of transport, which was compounded by poor road network. In such areas, there were times when trucks ferrying farming inputs would get stuck for a number of days before delivering them to the intended destinations (Kodamaya, 2011). In addition, there was a partial drought in most parts of the country. The country experienced partial drought that affected smallest scale farmer plant. Some of the Provinces that were much affected were Southern, Central, Lusaka, Western and part of Eastern Provinces.

Illiteracy was one of the major challenges among small scale farmers. Illiteracy is the inability to read, write, calculate and interpret symbols for use and application for effective function of oneself, family, community and environment in which one is found (Mwansa, 2005). It was from this fact that, illiteracy resulted in under-utilisation of the resources. In Zambia, this was compounded by

the high cost of education, which contributed to higher levels of illiteracy. In rural areas, illiterate people lack agricultural knowledge which results into incorrect use of farming inputs.

2.11 Strategies aimed at addressing challenges encountered by small scale farmers

A study conducted by Chikobola and Tembo (2018) on Gaps in the Implementation of e- voucher system in Zambia: implications for strategies to make the model effective and efficient suggested that the e-voucher FISP preparations should start early so as to achieve timeliness and allow for a longer transaction window for farmers. The study further suggested that the district should receive funds early to allow for farmer registration and sensitisation. Funds are also needed for early production of e-voucher cards by banks for farmers without cards.

This study also indicated that there was need for e-voucher cards to be printed and delivered on time since the cards are protected by a PIN number so the beneficiary should inform the banks when the cards are lost or stolen in order that the card can be stopped and a replacement is issued to avoid delays in resetting pins and replacing cards as well as farmers waiting.

Another study was conducted by Kuteya et al. (2016) on the Farmer Input Support Programme Electronic Voucher Implementation suggested that government should have a contingency fund to immediately cushion the effects of unexpected development. The study further suggested that the cost savings from the traditional FISP can be used to raise the number of beneficiaries or the value of the e-voucher.

ZNFU (2013) survey on Agriculture Production suggested that E-voucher system would free up public resources which could be channelled to other programmes like infrastructure development as private fertilizer companies pick up the financing, procurement and distribution of inputs competitively. Henceforth, it was important that this study should look into the problems faced by small scale farmers in accessing inputs and provide solutions to challenges encountered in the use of e-voucher as an input distribution system.

2.12 Summary of the Chapter

This chapter has presented literature related to the study. It has allowed the researcher to interact with different literature on the use of e-voucher as an input distribution system. The study has explained the concept of e-voucher, discussed the use of e-voucher globally, given a historical

account of e-voucher and highlighted the challenges face by small scale farmers and providers of e-voucher in using the e-voucher as an input distribution system. The chapter that follows presents the methodology of the study.

CHAPTER THREE: METHODOLOGY

3.0 Overview

The previous chapter presented literature relevant to the study. This chapter presents the methodology that was applied by the study. It describes the research design, population, sample, sampling technique and instruments of data collection. It further discusses data analysis and ethical considerations. Finally, a summary of the chapter is given.

3.1 Research Design

The research design is the overall plan. It is designed to guide research in collecting, analysing, interpreting observed facts and specifies which of the various types of research to be adopted (Moore and McCabe, 1989). This study adopted a descriptive design. Kombo and Tromp (2013) defined a descriptive design as a method of collecting information by interviewing or administering questionnaires. The researcher adopted a descriptive design because it is mainly used when collecting information about people's attitudes, opinions, habits or any other variety of education or social issues. The researcher employed qualitative approach in order to allow the researcher analyse the data that was collected.

3.2 Population

A population is a set of people or entities to which findings are to be generalised (Merriam and Simpson, 1995). Gay (1990) says regardless of the technique to be used in selecting a sample, the first step in sampling is the definition of the population. The population is the group of interest to the researcher, the group to which she or he would like the results of the study to be generalizable. The defined population has at least one characteristic that differentiates it from other groups.

Parahoo (1997) also describes a study population as the total number of units from which data can potentially be collected. The units may be individuals, organisations, events or artefacts. The nature of the problem concerning the use of e-voucher by small scale farmers made it necessary to focus on the following units: small scale farmers, Agro-dealers, staff members from Zambia National Commercial Bank and Zambia National Farmers Union. The population of this study

included small scale farmers in Chongwe District, staff members from Zambia National Commercial Bank and Zambia National Farmers Union.

3.3 Sample

A sample is a sub-set of a sampling unit from the universe population (Ghosh, 1992). The sample for this study comprised forty (30) respondents, broken down as follows: one (1) officer from Zambia National Farmers Union, one (1) from Zambia National Commercial Bank, two (2) agro-dealers and twenty-six (26) small scale farmers from Chalimbana, Mapulanga, Kakubo, Kapekete and Kalulu of Chongwe District.

3.4 Sampling Technique

A Sampling Technique is the process of selecting a number of individuals or objects from a population such that the selected group contains elements representative of the characteristics found in the entire group (Kasonde, 2013). In this study purposive sampling was used to select all the respondents. Kombo and Tromp (2013) defined purposive sampling as, ‘a sample method where the researcher purposively targets group of people believed to be reliable for the study.’ In purposive sampling, the researcher’s judgement is used to choose some appropriate characteristics needed for the sample members.

Therefore, purposive sampling was used to select bank officials from Zambia National Commercial Bank (ZANACO) who were well equipped with information about how they managed to communicate with the farmers and other stakeholders such as the agro dealers in terms of disbursing the funds. It was also used to select officers from the Zambia National Farmers Union (ZNFU) and also Agro-dealers who were better placed to give information on how the e-voucher system was implemented. The staff from the ZNFU were directly involved in the provision of e-voucher cards and agricultural activities in the district. In addition, they were better placed to give vital information on the success, failures, challenges faced by both the government and the small scale farmers on the use of e-voucher as an input distribution system.

The twenty-six small scale farmers were selected by way of reaching data saturation point. This was done by conducting seven focus group discussions of about five (5) to seven (7) small scale farmers. It was from the fourth focus group discussion when no new information was obtained

from further data. Hence, the researcher totalled the number of respondents in the four focus group discussions which was twenty-six (26).

3.5 Instruments of Data Collection

Kasonde (2013) defines data collection as the gathering of information to answer research questions. This study employed two data collection methods namely; interviews and focus group discussion. Research instruments refer to the tools or techniques that the researcher uses in data collection. Research instruments include questionnaires, interview schedules, observations, and focus group discussions (Kombo and Tromp, 2006). It is advisable to use appropriate data collection instruments because the process of data collection is critical. Ngoma (2006:55) as cited by (Mabbolobolo, 2015) states that “without high quality data collection technique, the accuracy of research conclusions are easily challenged”.

Interview guides were used to collect data from both staff members of Zambia National Commercial Bank, Zambia National Farmers Union and Agro-dealers. An interview guide is a written list of questions or topics that need to be covered by the interviewer. Borg and Grill (1991) argue that an interview guide is a method used to get people to express their views broadly on a certain issue and this consists of asking people to comment on widely defined issues. The use of the interviews allows the researcher to probe deeper with additional questions and the friendly atmosphere could be an advantage in gathering more sensitive information (Mulwa, 2008).

Focus group discussions were used to collect data from small scale farmers. A focus group discussion is a small, but demographically diverse group of people and whose reactions are studied, especially in market research or political analysis in guided or open discussion about a new product to determine reaction from a large population. It is a form of qualitative research consisting of interviews in which a group of people are asked about their perceptions, opinions, beliefs and attitudes towards a particular issue or topic of discussion (Mulwa, 2013). Focus group discussions were used to collect data from small scale farmers.

3.6 Data Collection Procedure

To collect data from officers from Zambia National Farmers Union, Zambia National Commercial Bank and Agro-dealers, the researcher employed semi-structured interview guides. Mulwa (2008)

asserts that an interviewer can stimulate discussion and obtain more information by probing which motivates the respondents to communicate. Thus, the researcher probed for specific answers on certain issues from the interviewees. The interviews were conducted in a quiet, safe environment and lasted from twenty to thirty minutes (20-30). Responses from interviews were recorded using a tape recorder and notes were taken in a diary during the course of the interview.

Creswell (2009) states that data collection refers to a process through which data is collected from participants by use of necessary instruments. To collect data from twenty-six (26) small scale farmers, the researcher used focus group discussions in which the small scale farmers were put into three groups of seven and one group had five participants. The discussions were conducted on two separate days and each lasted for thirty (30) minutes. The researcher selected focus group discussions because it allowed the interactive discussions among the participants and the researcher. Participants were free to talk to each other allowing the researcher to get diverse information from the participants. During the process the researcher was taking notes and recording the important views from the group. Members were selected carefully for effective and authoritative responses. The focus group discussions allowed the researcher to cut and save on time as compared to other data collection instruments. Similarly, Mulwa (2008) states that focus group discussions are a highly efficient technique for data collection since the amount and range of data are increased by collecting from several people at the same time.

3.7 Data Analysis

Data analysis means categorizing, ordering and summarizing the data and describing them in meaningful terms (Merriam and Simpson, 1995). In addition, Kombo and Tromp (2006) state that data analysis is the crucial examination and scrutiny of the coded data in order to make deductions, inductions and draw inferences. In this study, therefore, data was analysed by content analysis and information was presented in emerging themes and narrations. Verbatim which were found useful and relevant were also considered.

3.8 Ethical Considerations

Babbie (2003) asserts that social science researchers often come into contact with their subjects. Hence, ethical considerations are cardinal in all social science research. Cohen, Manion and

Morrison (2000) also observe that ethical issues in educational research may arise from the context of the study, the procedures to be adopted, methods of data collection, the nature of participants, the type of data collected and that which is to be done with the data. Thus, before data collection commenced, the researcher collected an introductory letter from the Directorate of Research and Graduate Studies (DRGS). She also obtained from the ethical Clearance University of Zambia Ethics Committee.

Additionally, the researcher assured all the respondents that participation was on voluntary basis and they were free to terminate their participation at any point during the research process if they felt the need to do so. As a way of maintaining confidentiality, respondents were not being asked to reveal their identities. During separate interviews with administrators at Zambia National Commercial Bank, Zambia Farmers Union and Agro-dealers, the researcher sought consent of the interviewees to record the interviews using a tape recorder. Furthermore, participants were assured that the data to be obtained would not be disclosed to any other persons and would only be used for academic purposes.

3.9 Summary of the Chapter

This chapter focused on the methodology that was employed by the study. The study adopted a descriptive design which allowed the researcher to collect, present and analyse research information on assessment of the use of e-voucher by small scale farmers as an input distribution system in Chongwe District. The other aspects included in the chapter were: research design, population, and sample, sampling technique, data collection instruments, data collection procedure, data analysis and ethical considerations.

CHAPTER FOUR: PRESENTATION OF FINDINGS

4.0 Overview

The previous chapter presented the methodology that was used to collect data on the use of the e-voucher from small scale farmers in Chongwe District. This chapter presents the findings of the study based on the objectives which were to; establish the extent to which small scale farmers use the e-vouchers as an input distribution system, identify adult education methods used in the dissemination of information on e-voucher among small scale farmers, establish challenges faced by small scale farmers and providers of e-voucher as an input distribution system and suggest strategies aimed at addressing challenges faced in the use of the e-voucher as an input distribution system.

4.1 RESEARCH QUESTION 1: What is the extent to which small scale farmers use the e-voucher as an input distribution system

With regards to the question that sought to establish the extent to which small scale farmers' use the e-voucher as an input distribution system. Respondents were asked on how long they had served as small scale farmers, types of farming inputs they used and the frequency with which the e-voucher was used to access farming inputs. To determine the extent to which small scale farmers use the e-voucher as an input distribution information collected from the banks and the Zambia National Farmers Union (ZNFU) provided the data that helped to determine the extent to which small scale farmers use e-voucher as an input distribution system

ZNFU reported that there were about 17,000 small scale farmers in Chongwe District during the 2015/2016 farming season who accessed farming inputs using the e-voucher. The bank (ZANACO) further said that it was very difficult for the government to support all small scale farmers instead only 60% are supported.

Twenty-one (86%) out of twenty-six stated that they had used the e-voucher to access farming inputs and served as small scale farmers for a period of 1- 10 years. One of the small scale farmers said: *"I started farming in 2007 when I got a piece of land in Chalimbana where I have settled with my family."* 3 (i.e.8%) had served ranging from 11-20 years, 2(i.e. 6%) had served as small scale farmers for the period ranging from 21-30 years.

The findings of the study therefore showed that 86% of the small scale farmers who participated in this study used the e-voucher to access farming inputs and had served as small scale farmers for a period not less than ten (10) years whereas 14% were not able to access farming inputs using the e-voucher as an input distribution system.

Chapota (2017) reported that the e-voucher allowed small scale farmers access farm inputs such as seed, fertilizers and herbicides using electronic cards. Nationally, about 72% of the rural households used improved seed in 2017 compared to 2016. E-voucher can improve targeting because they are linked electronically to individual beneficiary's national registration card numbers.

With regards to the farming inputs small scale farmers cultivated, the study indicated that 18 (i.e. 69%) cultivated maize, 5 (i.e. 19%) cultivated groundnuts and soya beans while 3 (i.e. 12%) cultivated cowpeas. This implies that the majority (69%) small scale farmer cultivated maize because there was a readily available market. As one farmer elaborated: *"I used to grow cowpeas but it was difficult to find a market to sell them hence I would end up selling them at a very cheap price so that I raise some money."* The respondents further mentioned that groundnuts and cowpeas were not easy to sell compared to maize.

It was established from the findings that small scale farmers used the e-voucher to access farming inputs from 2015/2016 farming season. With reference to how user friendly the farmers found the e-voucher as an input distribution system, the findings indicated that 24 (i.e. 92%) were able to use the e-voucher with ease. One participant said: *"we go to the shop and swipe then we get input... in addition, just take the card to the agro dealer they swipe and you get the fertilizer."*

Officers from the Zambia National Farmers Union and Zambia National Commercial Bank stated that the majority small scale farmers use the e-voucher as an input distribution system to access farming inputs. One of the officers from Zanaco said, *'the e-voucher is a programme designed to grow the agricultural sector. Unfortunately, due to challenges the government faces only 60% of small scale farmers are supported.'*

Additionally, the officer from Zambia National Farmers union said, *'only targeted small scale farmers were using the e-voucher as an input distribution system.'*

4.1.1 Advantages of using e-voucher as an input distribution system

The officers from ZNFU, ZANACO, Agro-dealers and small scale farmers were asked to indicate the advantages of using the e-voucher as an input distribution system. In response to the above, the first respondent from ZNFU said, *“the e-voucher identifies the real beneficiaries of subsidized farming inputs.”* The second respondent explained that the e- voucher had the following advantages, *“creates a platform for competition, a market for using point of sale machines and has reduced government costs on transport to deliver farming inputs to farmers.”* The third respondent said, *“The e-voucher has helped us to participate in input distribution and promoted employment”*

The findings of the study showed that only targeted farmers benefit from collection of farming inputs of their choice and it has created employment for Agro-dealers. It was further reviewed that the e-voucher system allows the small scale farmers not only to collect fertilizer and maize but also agricultural equipment one wished to collect. One of the respondents said, *“The e-voucher system allows farmers to collect medicines, vegetables and sprayers as well.”* Apart from providing small scale farmers with a variety of crops, they do not have to cover long distances to swipe e-voucher cards because agro-dealers are placed within their communities. He further said, *“Small scale farmers are able to collect inputs after being screened so that only right beneficiaries receive inputs.”* The findings also showed that ghost farmers were done away with thereby giving more farmers a chance to receive farming inputs unlike with the old system (Farmer Input Support Programme) where individuals who were not beneficiaries would collect inputs on behalf of individuals who did not exist and also it had helped government on cost saving in warehouse storage and transport. The other respondent stated that, *“under FISP some farmers would get inputs using names of those who had died but with e-voucher only the owner of the card can collect inputs.”*

The study also revealed that in the second year of using the e-voucher system, the banks had overloaded the small scale farmer’s cards in which agro-dealers allowed them to collect fertiliser and medicine. The overloading of these cards made small scale farmers to suffer double deductions which made them incur costs they were not ready to bear. The other respondents who hire workers because they do not have tractors or oxen to work in their fields were disadvantaged the most in that the banks deducted their money yet the farmers were not provided with farming inputs on time

for that season. They were not able to pay their workers, production was low and were not able to meet daily needs. One of the respondent said, *“It was not our fault that more money was put in our accounts and yet they have deducted it all at once which has caused us to suffer.”* Apart from the above, farming during the 2017/2018 farming season was a problem because they had no inputs.

4.1.2 Benefits of handling the e-voucher as an input distribution system

The respondent pointed out that, *“Zambia National Farmers Union being a union has benefited by increasing membership base from small scale farmers who have joined the union.”* He further stated: *“handling the e-voucher exposed many small scale farmers to the benefits of belonging to the union who represent problems that small scale farmers encountered in farming.”* The other respondent said: *“Zambia National Farmers Union receives a commission from banks which had contributed to an increase in their funds as a union and it has enhanced donor confidence in the union for influencing change among the small scale farmers in the districts the programme has been piloted.”*

The respondent from the Zanaco explained: *“The Banks as providers of the e-voucher benefit from handling the e-voucher by getting a commission each time the farmers use the e-voucher cards and also a transaction fee is charged to farmers union on processing the transaction.”* He further explained: *“administrators have subsidized the farmer cost of the farming inputs such that farmers pay less than expected.”*

The respondent from Agro-dealers said that: *“the introduction of the e-voucher has broadened the data base for Agro-dealers and has cut down the cost of paying to the council and Zambia Revenue Authority.”*

4.2 RESEARCH QUESTION 2: What adult education methods were used in the dissemination of information on e-voucher as an input distribution system?

To identify adult education methods used in the dissemination of information on e-voucher as an input distribution system. Respondents were asked to indicated adult education methods they were aware of which were used to disseminate information on the use of the e-voucher. The findings from the study showed that radio programmes were aired on the use of the e-voucher as an input

distribution system. Other methods used were door to door visits by agricultural extension officers, meetings with leaders from the cooperatives, Musika, Zambia National Farmers Union and farmer group meetings. One of the small scale farmer's leader reported that:

Some of the measures that were put in place to disseminate the information on the e-voucher was radio programmes. They also arranged meetings with various cooperatives in all the parts of our communities and in particular in areas where these programmes were being implemented. The camp extension officers from the Ministry of Agriculture and the cooperative leaders were used to conduct door to door sensitization of the programme to different farmers. Other stakeholders that were used were Zambia National Farmers Union and Musika.

Small scale farmers mentioned that, *“dissemination of information on the e-voucher was mostly done by agricultural extension officers who would visit once in a while due to lack of transport and sometimes it is shared on the radio”*. Another small scale farmer said, *“We had a number of meetings on the e-voucher with the National Farmers Union the time they brought e-voucher cards.”* Another respondent from Agro-dealers said, *“Farmers had meetings with the leaders from ZNFU who taught them how to use the cards, the importance of keeping the card to themselves and not losing the pin numbers.”*

The findings of the study showed that radio, door to door visits by agriculture officers and cooperative leaders, farmer to farmer meetings were adult education methods used in the dissemination of information on the e-voucher as an input distribution system.

Respondents from ZANACO and ZNFU were asked to highlight adult education methods used to disseminate information on e-voucher as an input distribution system. They stated that small scale farmers were sensitized on financial literacy to help them have information on the money they pay for their e-voucher cards and also how they can use the money realised from their produce.

One of the respondents from ZANACO said: *“Radio programmes, farmer meetings, camp extension officer's meetings and door to door meetings were used in the dissemination of information on the E-voucher.”*

Another respondent added: “*co-operative officers had a training with the farmers where the introduction of the e-voucher was explained to them as a new system which they would use to access farming inputs every farming season.*” He also explained that, “*cooperative leaders had the responsibility of training small-scale farmers on what they had learnt on e-voucher so as to guide farmers on how to use the e-voucher in order to access farming inputs.*”

A respondent from *Zambian National Farmers Union* went on to explain:

Some of the measures that were put in place to disseminate the information about e-voucher was radio programmes. Several paid up programmes were arranged with community and commercial radio stations with the aim of reaching out to many farmers. They also arranged meetings with various cooperatives in all parts of the country and in particular in areas where these programmes were being implemented. The camp extension officers from the Ministry of Agriculture and the cooperative leaders were used to conduct door to door sensitization of the programme to different farmers. Other stakeholders that were used were Zambia National Farmers Union and Musika.

4.3 RESEARCH QUESTION 3: What were the challenges faced by small scale farmers, Agro-dealers and providers of e- voucher as an input distribution system

In order to establish challenges faced by small scale farmers, agro-dealers and providers of e-voucher. The challenges are described below:

4.3.1 Challenges faced by Small Scale Farmers and Agro-dealers

The study revealed that small scale farmers faced challenges of late funding by the government even if they had paid the K400.00 towards their e-voucher cards. The other challenge was late delivery of inputs to farmers to a point where inputs are delivered almost at the end of farming season making it difficult for the farmers to cultivate their fields while Agro-dealers faced poor infrastructure, lack of finances and difficulty in the use of the code system under *Zambia Integrated Agriculture Management Information System*.

Late activation of the cards was another challenge which hindered small scale farmer’s access farming inputs and contributed to some Agro-dealer’s failure to expand their business. One of the farmers explained: *‘I collected inputs for the last farming season 2016 in February and with poor*

rains experienced my produce was poor'. The study further revealed that due to late activation of the e-voucher cards small scale farmers were forced to make frequent visits to Zambia National Farmers Union offices to check if their cards were activated which proved to be costly. The response from one Agro-dealer was that: *"We have problems in accessing sufficient inputs to supply small scale farmers from the national supplier."*

Another challenge identified was delay in replacing lost pin numbers of small scale farmers by the banks. Another respondent lamented: *"my pin number was lost and I reported to the cooperative leader who asked me to travel to Lusaka to have my card replaced and it took the bank two months to replace the pin number."*

For the pin number to be replaced, a farmer had to travel to Lusaka because it could not be done in Chongwe. The findings indicated that there were poor or wrong documentation on entering names of small scale farmers which disadvantaged some from collecting farming inputs. One of the respondents said: *"the e-voucher system has disadvantaged small scale farmers and made them to fail to farm in times when rains delay or when rains come early because inputs are delivered late."*

Another Agro-dealer said, *"Poor infrastructure like roads and warehouses in most of the rural areas, lack of finances and Zamis were challenges we faced"*

4.3.2 Challenges faced by providers of e-voucher

The third objective sought to identify challenges faced in the use of the e-voucher by officers from Zambia National Farmers Union and Zambia National Commercial Bank. Challenges faced by providers included political interference, replacement of lost e-card pin numbers and late activation of cards.

The first respondent from ZNFU said: *"There were external challenges from politicians in that the E-voucher became a political programme such that their failure to load money for small scale farmers was blamed on Zambia National Farmers Union and also it was difficult for leaders of the co-operative and farmer groups to accept the change of Zambia National Farmers Union to be in charge of the e-voucher."* He further said that, *"it was very difficult for small scale farmers to accept the change from the previous way of accessing inputs to the use of e-voucher."*

The second respondent said: *“the whole exercise was hectic and took most our time because the concentration was only on the e-voucher and not any other programme because there was great expectation from the Government, the small scale farmers and also all the other stakeholders monitored the programme to see if the programme was going to be implemented effectively and efficiently.”*

Additionally, a respondent from ZANACO claimed: *“Most small scale farmers did not understand instructions on how to use these cards because some cannot read which possess a challenge for them to use it and another problem was losing the Pin numbers. Hence, at times cards get blocked and the process to have individual cards reactivated takes long.”*

He added, *“Activation of individual cards was a challenge by our stakeholder the Government because funding of e-voucher cards was not done on time hence the Banks could not load cards at the right time as expected by the beneficiaries who are small scale farmers.”*

Another respondent from ZANACO stated: *“Any electronic error in loading the e-voucher cards can cost the bank. An example was given where the bank double loaded the e-voucher cards and so had to recover their money from small scale farmers through double deductions.”* He further pointed out that, *“due to late funding of the e-voucher the stakeholders play a blame game were the responsibility for failing to fund and load the cards was blamed on banks.”*

4.4 RESEARCH QUESTION 4: What strategies could be employed to address challenges faced in using e-voucher as an input distribution system

Research question number four suggested strategies that could be employed to address challenges faced in using the e-voucher as an input distribution system.

Respondents were asked to state how the identified challenges could be addressed. The first strategy was that funding of e-voucher should be done within the stipulated period. Secondly, there should be early verification of farmers’ details. The third strategy was to conduct training using local languages and fourthly there was need to use reputable Agro-dealers and financial organisations in areas where there are no banks and improvement of poor infrastructure.

One respondent asserted: *“immediately small scale farmers pay k400.00 the Government should load their cards within a stipulated period so that small scale farmers can easily have e-voucher*

cards activated, farming inputs should not be delivered on the last day of the planting window as this hinders them from cultivating their fields in good time for planting.”

Another respondent said: *“The whole process of documentation of details of small scale farmers should begin as early as the mid of the year to give ample time to stakeholders to verify their details and therefore avoid situation where some member’s cards are not activated due to wrong submission of information.”*

A respondent from ZANACO stated *“Training on the use of the e-voucher as an input distribution system should be done in local languages for easy understanding as most of our small scale farmers may not have attained the kind of education to enable them use the e-voucher as expected.”*

Another respondent from ZANACO added: *“The Government should come up with genuine Agro-dealers who should deal with small scale farmers who understand the use of the credit facility as well as being in a position to assist the small scale farmers on confirmation of registration.”*

He further said: *“In areas where there are no Banks the Government should engage other reputable financial organisations to manage the process of the e-voucher system.”*

Respondents from ZNFU were also asked what they felt about the e-voucher. They explained that the e-voucher as an input distribution system has empowered small scale farmers to select farming inputs of their choice but the government was too quick to introduce another program which made the e-voucher too complicated for small scale farmers. They suggested that some small scale farmers should go back to accessing inputs through farmer input support program (FISP).

In addition, from Zambia National Farmers Union one of the respondents said: *“The government of Zambia should fulfil its part of the bargain by funding the banks adequately so that e-voucher cards can be loaded and activated in good time, the banks should also transmit information to districts banks to trigger farmer payments within seconds and replace lost pin numbers within the shortest possible time, inputs should be delivered in good time to give farmers time to prepare and plant seeds within the season of planting and also farmers details should be correctly documented so that every registered farmer’s name should not be left out.”*

The respondent from the Zanaco added:

“The e-voucher is a good system. Government should probably involve the ZCF and small scale farmer’s union in the management of this programme and use reputable financial organizations to manage the process of e-voucher system in areas where Banks are not available.”

Furthermore, small scale farmers and Agro-dealers were asked to suggest measures that should be put in place to improve e-voucher as an input distribution system. They said that there was need to have specific officers to handle problems small scale farmers face so as to help create enough time for them to work in their farms unlike following up issues in distant places. There was also need to involve the Zambia Cooperative Federation (ZCF) in the management of the e-voucher and improve poor infrastructure and access to finances.

4.5 Summary of the Chapter

This chapter presented the findings of the study regarding the assessment of the use of the e-voucher by small scale farmers in Chongwe District. The next chapter is chapter five and it is dealing with the discussion of the finding. It has highlighted the extent small scale farmers use e-voucher as an input distribution system, adult education methods used in dissemination of information on e-voucher. Furthermore, challenges faced by providers of e-voucher and strategies aimed at addressing challenges have been presented. The chapter that follows presents the discussion of findings.

CHAPTER FIVE: DISCUSSION OF FINDINGS

5.0 Overview

The preceding chapter presented the findings of the study whose purpose was to establish the use of the E-voucher by small scale farmers as an input distribution system.

This discussion will be guided by the following objectives, a) to establish to the extent to which small scale farmers use the e-voucher as an input distribution system, b) to identify adult education programmes used in the dissemination of information on the e-voucher among small scale farmers, c) establish challenges faced by both small scale farmers and providers of the e-voucher as an input distribution system, and d) suggest strategies aimed at addressing challenges faced in the use of the e-voucher as an input distribution system. Interpretation of the findings in this study, were done in relation to the purpose of the study, Rogers theory of diffusion of innovation and examined studies that were reviewed as part of literature.

5.1 Extent to which small scale farmers use the e-voucher as an input distribution system

The study established that the majority targeted small scale farmers were accessing farming inputs using the e-voucher which was a better input distribution system. It also revealed that the government supports 60% of small scale farmers who use the e-voucher as an input distribution system and 17 000 small scale farmers used the e-voucher to access farming inputs in the 2015/2016 farming season in Chongwe District.

The findings were in line with Chapota (2017) who reported that the e-voucher system allowed small scale farmers to access farm inputs such as seed, fertilizers and herbicides. Nationally, about 72% of the rural households used improved seed in 2017 compared to 2016.

The revelations above authenticate Rogers (1996) definition of diffusion which refers to the process by which an innovation is communicated through certain channels over a period of time among the members of a social system. Rogers also states that an innovation must be widely adopted in order to self-sustain and within the rate of adoption, there is a point at which an innovation reaches critical mass and information flows through networks. Therefore, the theory shows that small scale farmers are at a level where they can use the e-voucher to access farming inputs as shown from the numbers of those who find it easier to use the card.

Similarly, the findings of the study above were in agreement with the theory of diffusion of innovation by Rogers (1962) which allows the process of talking useful ideas and converting them into methods of operation. Hence the e-voucher system has been rolled out in thirteen district as an input distribution system. Regarding how often they used the e-voucher, the study revealed that the e-voucher was used once in a year during the farming season (period from October to February).

Furthermore, it was revealed that the e-voucher system allows these small scale farmers not only to collect fertilizer and maize but also agricultural equipment one wishes to collect. One of the participants said, *'the e-voucher system allows farmers to collect medicines, vegetables and sprayers as well.'*

The above findings are in conformity with the findings of Chikoloba and Tembo (2018) who stated that the e-voucher system has enabled farmers to access not only seed but also feed, fingerlings and farming implements.

Musika (2016) is also in agreement with the findings that small scale farmer's access farming inputs of the choice. He indicated that the e-voucher gives farmers a wide selection of inputs to choose from, giving them an opportunity to diversify.

In contrary, the above views were not in agreement with (Kamwengo, 2010) who argues that Adult education is voluntary and adults come voluntary to learn. Because they are voluntary learners, they may choose to ignore, participate or withdraw from the educational experience.

Mwango (2013) states that the current FISP system is seen to discourage crop diversification and choices of input selected by e-voucher beneficiaries do not differ much from that under FISP.

The study also revealed that in the second year of using the e-voucher system, the banks had overloaded the small scale farmer's cards in which agro-dealers allowed them to collect fertiliser and medicine. The overloading of these cards made small scale farmers to suffer double deductions which made them incur costs they were not ready to bear. The other respondents who hire workers because they do not have tractors or oxen to work in their fields were disadvantaged the most in that the banks deducted their money yet the farmers were not provided with farming inputs on time for that season. They were not able to pay their workers, production was low and were not able to meet daily needs.

It was therefore concluded that small scale farmers were accessing farming inputs using the e-voucher and 92% of them found it easy to use the e-voucher as an input distribution system. This was supported by members from Zambia National Farmers Union and Zambia National Commercial Bank who said that the e-voucher allows small scale farmers to access farming inputs of their choice.

The established gap in the findings was selective activation of e-voucher which demotivated farmers whose cards were not activated and caused misunderstanding why some had their cards loaded and others not.

5.2 Adult education methods used in the dissemination of information on the e-voucher

The study revealed that adult education methods such as radio programmes, farmer meetings, door to door visits by agricultural extension officers and with cooperative leaders were used to sensitize them on the e-voucher. The programme respondents were also aware of meetings conducted by Zambia National Farmers Union and Musika. However, these findings led to the revelation that dissemination of information on the e-voucher as an input distribution system was rarely done by extension workers due to lack of transport. Therefore, this showed that there was need for more awareness on farming inputs that small scale farmers were accessing using e-voucher so as to increase their production.

The respondents echoed that the National Agricultural Informational Services (NAIS) disseminates agricultural information through media to enhance improved farming methods as a way of increasing their production.

The study also established an individual method of disseminating information through door to door visits of small scale farmers by the camp officers. Another method used was the farmer's meetings in which extension officers or representatives of Zambia National Farmers Union bring the farmers together in one form to sensitize them on agricultural information.

The above adult education methods of disseminating information among small scale farmers agree with Rogers (1962) theory of diffusion of innovation which stated that communication channels are the means by which messages get from one individual to another and mass media channels are

more effective in creating knowledge of innovation, whereas interpersonal channels are more effective in forming and changing attitudes towards the new the new idea.

The findings are similar with Adekule et al. (2002) who states that methods of dissemination of information are used for different groups based on their information need.

Moreover, Rogers (2003) has pointed out that in order for opinion leaders to spread messages about an innovation, they must have interpersonal networks with their followers and one indicant of such accessibility is social participation, face to face communication about new ideas occur at meetings of formal organizations and informal discussions. Providers of the E-voucher.

Haliso et al (2014) holds that since information is a contributing factor to farming success, farmers require and need diverse information in order to support their work and should be managed like other key business input.

Findings from providers of the e-voucher revealed that trainings of cooperative representatives were conducted and then these representatives sensitized the small scale farmers on the use of the e-voucher and how it could be used in accessing farming inputs. However, Kuteya et al. (2016) indicates that more farmer awareness and information sharing must be done at the level of farmer cooperatives and associations through radio, television and print media, and this must not be left to the Ministry of Agriculture alone. Musika (2016) is of the view that there was need to intensify sensitization programmes for all stakeholders including Ministry personnel, local leaders, small scale farmers and agro-leaders on what inputs could be redeemed, the role of cooperatives and who could benefit from the programme.

5.3 Challenges faced by small scale farmers, Agro-dealers and providers of e-voucher

The study established that there were many challenges that were faced. The prominent ones were as follows: late funding, late loading and activation, delays in input delivery, late replacement of lost pins and language barrier. One respondent was quoted saying: *'I received fertilizer in March which was too late because the crop was destroyed.'*

The findings are in tandem with the Parliamentary report (2016) which reported that the implementation of the FISP during the 2015/2016 farming season experienced challenges such as

late delivery of farming inputs, difficulties in beneficiary targeting, limited number of fertilizer suppliers participating on the programme and limitations on the variety of inputs.

However, Lindeman (1926) points out that Adult education specifically aims to train individuals for a more fruitful participation in smaller collective units which do so much to mould significant experiences.

Another challenge cited by small scale farmers was that the e-voucher as an input distribution system was still biased towards maize because the start and closing period for the redemption of the e-card coincided with maize production (the period from October to February).

The above findings were supported by many scholars. For instance, the above findings were in tandem with the findings of Mbozi (2009) who asserted that lack of correlation between input and output in the agricultural sector has mostly contributed to the late delivery of inputs to farmers.

Another study by Nicholas et al. (2012) on assessing the feasibility of implementing the farmer input support programme through an electronic voucher system in Zambia reviewed that a number of problems plague the current farmer input support programme (FISP), including late delivery of inputs, distribution of standardized inputs that may not be appropriate for all agro-ecological zones or soil type, poor targeting, and high cost to the government.

In addition, a study by Chikobola and Tembo (2018) on the gaps in the Implementation of the e-voucher system in Zambia: Implications for strategies to make the model Efficient and Effective indicated that FISP provided the same type of fertilizer across the different agro ecological zones, which led to the inefficient use of fertilizer because it failed to recognise the variability on soil fertility and climate conditions. Furthermore, the focus of this programme was mainly on maize, which restrained agricultural diversification.

Similarly, National Farmers Union conducted a field visit and the findings revealed that in some cases, farmers' choices were restricted to maize and fertilizer because the cooperative chairpersons in collaboration with extension officers only arranged the delivery of maize seed and fertilizer to their members instead of the farmers themselves visiting the agro-dealer shops (Musika, 2016). This could be the main reason why most farmers redeem mostly fertilizer and maize seed.

The study also revealed that agro dealers could not manage to stock inputs like veterinary drugs, live animals, herbicides and sprayers. There were incidences where some agro dealers redeemed the cards for inputs that were not in stock.

Further, the study revealed that small scale farmers were having difficulties understanding the instructions on how to use the e-voucher and losing PIN numbers resulted in e-cards being blocked. The officers from ZANACO indicated that the process to have individual e-cards reactivated and replacement of PIN numbers takes a very long time. As a result, the small scale farmers who lost PIN numbers could not access farming inputs within the expected farming season.

Inadequate members of staff at Zambia National Farmers Union was another challenge raised by small scale farmers. This made it difficult for the small scale farmers to report challenges they faced hence the need to have specific people who should handle problems farmers faced. It also led to delay in handling activation, registration and verification process.

Additionally, Illiteracy was one of the major challenges among small scale farmers. Illiteracy is the inability to read, write, calculate and interpret symbols for use and application for effective function of oneself, family community and environment in which one is found (Mwansa, 2005). It was from this fact that, illiteracy resulted in under-utilisation of the resources. In Zambia, this was compounded by the high cost of education, which contributed to higher levels of illiteracy. In rural areas, illiterate people lack agricultural knowledge which results into incorrect use of farming inputs.

5.3.1 Strategies aimed at addressing challenges faced by Small Scale Farmers and Agro-Dealers

The fourth objective was to establish strategies aimed at addressing challenges faced by small scale farmers in the use of e-voucher as an input distribution system. The strategies that were given by the respondents included funding of e-voucher to be done within stipulated period, early verification of farmers' details, training to be done in local languages, use of reputable Agro-dealers, financial organisations, improvement of poor infrastructure and access to finances.

Immediately small scale farmers pay k400.00 the government should load their cards within a stipulated period so that small scale farmers can easily have e-voucher cards activated, farming

inputs should not be delivered on the last day of the planting window as this hinders them from cultivating their fields in good time for planting.

The whole process of documentation of details of small scale farmers should begin as early as the mid of the year to give ample time to stakeholders to verify their details and therefore avoid situation where some members' cards are not activated due to wrong submission of information.

Training on the use of the e-voucher as an input distribution system should be done in local languages for easy understanding as most of our small scale farmers may not have attained the kind of education to enable them use the e-voucher as expected.

The finding is in agreement with Nafukho (2005) who points out that as people mature, their time-perspective changes from one where application of knowledge is postponed to one where there is immediate application of knowledge acquired. In the same way, focus towards learning shifts from subject orientation to problem orientation. The targeted small scale farmers need to be trained on the use of the e-voucher in order to easily access farming inputs.

The Government should come up with genuine Agro-dealers who should deal with small scale farmers and who understand the use of the credit facility and sensitise Agro-dealers on the code system under the Zambia Integrated Agriculture Management Information System as well as being in a position to assist the small scale farmers on confirmation of registration.”

In areas where there are no Banks the Government should engage other reputable financial organisations to manage the process of the e-voucher system.

Respondents from ZNFU were also asked what they felt about the e-voucher. They explained that the e-voucher as an input distribution system has empowered small scale farmers to select farming inputs of their choice but the government was too quick to introduce another Zambia Integrated Agriculture Management Information System, a computerized web-based system which made the e-voucher too complicated for small scale farmers. They suggested that some small scale farmers should go back to accessing inputs through farmer input support program (FISP).

Similarly, a respondent from Zambia National Farmers Union explained that the government of Zambia should fulfil its part of the bargain by funding the banks adequately so that e-voucher cards

can be loaded and activated in good time, the banks should also transmit information to districts banks to trigger farmer payments within seconds and replace lost pin numbers within the shortest possible time, inputs should be delivered in good time to give farmers time to prepare and plant seeds within the season of planting and also farmers details should be correctly documented so that every registered farmer's name should not be left out.

Government should probably involve the Zambia Cooperation Federation and small scale farmer's union in the management of this programme and use reputable financial organizations to manage the process of e-voucher system in areas where Banks are not available.

Furthermore, small scale farmers were asked to suggest measures that should be put in place to improve e-voucher as an input distribution system. They said that there was need to have specific officers to handle problems small scale farmers face so as to help create enough time for them to work in their farms unlike following up issues in distant places. There was also need to involve the Zambia Cooperative Federation (ZCF) in the management of the e-voucher.

5.5 Summary of the chapter

In this chapter, the findings of the study were discussed in relation with the objectives of the study. It has been found out that majority small scale farmer's access farming inputs using the e-voucher as an input distribution system which has triggered employment for Agro-dealers. However, they faced challenges which included late funding, slow loading and activation, late delivery of farming inputs, replacement of lost PIN numbers as well as poor infrastructure and lack of finances by Agro-dealers. The chapter which follows presents the conclusion and recommendations highlighted in relation to the findings.

CHAPTER SIX: CONCLUSION AND RECOMMENDATIONS

6.0 Overview

The foregoing chapter discussed the key findings and discussion of the study. This chapter presents the conclusion and recommendations of the study based on the findings and discussions of the study that aimed at assessing the use of e-voucher by small scale farmers as an input distribution system in Chongwe. The conclusion section provides answers to both the research questions and objectives. The objectives of the study were: establish the extent to which small scale farmers use the e-voucher as an input distribution system; identify adult education methods used in the dissemination of information on the e-voucher; establish challenges faced by small scale farmers and providers of e-voucher as an input distribution system; and suggest strategies aimed at addressing challenges faced in the use of e-voucher as an input distribution system. Finally, some of the recommendations pertaining to the use of e-voucher as an input distribution system were made.

6.1 Conclusion

The study concluded that the extent to which small scale farmers use the e- voucher was about 60% of the total population of farmers in Chongwe District. Zambia National Farmers Union and ZANACO reported that about 17, 000 small scale farmers in Chongwe District used the e-voucher as an input distribution system to access farming inputs in the 2015/2016 farming season. This was in support with Musika (2016) who states that the ‘e-voucher’ programme is an effort by the Zambian Government, supported by Musika, which aims to improve the distribution of subsidised inputs to smallholder farmers. During the 2015/2016 farming season, 241,000 farmers across the 13 pilot districts in Southern, Lusaka, Central and Copperbelt Provinces received the input subsidy through pre-paid VISA bank cards as opposed to receiving physical inputs centrally procured by Government.

Apart from improving beneficiary targeting and promoting timely access to inputs by increasing private sector participation, the ‘E-voucher’ programme has the potential to accelerate diversification of the smallholder sector by allowing farmers to purchase a wide range of

recommended inputs such as veterinary drugs, agricultural equipment, livestock, poultry and fingerlings.

Furthermore, it was revealed that the e-voucher system allows these small scale farmers not only to collect fertilizer and maize but also agricultural equipment one wishes to collect. The e-voucher has also created employment for Agro-dealers. The study also established that small scale farmers cultivated maize unlike inputs such as soya beans and groundnuts because there was a readily available market. It revealed that the number of beneficiaries has increased because ghost farmers had been done away with. However, they faced a variety of challenges which made the system rather problematic.

Regarding adult education methods used in the dissemination of information on the e-voucher as an input distribution system, the study revealed that radio programmes, door to door visits by extension workers and farmer meetings were methods used in the dissemination of information on the e-voucher.

This was in line with Chuma (2005), suggested that methods of extension education can be classified as individual, group and mass methods. Individual methods are used in Agriculture Extension in recognition of the fact that learning is an individual process and that the personal influence of the extension worker is an important factor in securing peoples` participation in extension activities. Although the approach is time consuming, its importance cannot be stressed enough. It is through working individually with the clientele that the extension worker learns about the people of the area, how they think, what their needs are, and how they carry on their work. Group method include teaching techniques such as demonstration, field trips, general meetings, informal or group discussions, exhibits, tours, role playing and modified conference method.

Mass media methods are useful in reaching a wide audience at a very fast rate. They are important in stimulating farmers` interest in new ideas and practices. Normally group boundary gets obliterated in this method, the extension agent communicates with a vast and heterogeneous mass of people, without taking into consideration their individual or group identity (Adams, 1982). This method is valid when a large and widely dispersed audience is to be communicated within a short time. There may be a few communicators such as the extension agent and some subject matter specialists. The various methods which come under mass method are classification newspapers, radio, television, publications (National Open University of Nigeria, 2008: 40-44).

The third research objective and question sought to establish the challenges faced by small scale farmers, Agro-dealers and providers of e-voucher as an input distribution system. The study revealed that late funding, late loading, late activation and late delivery of inputs, poor infrastructure affected the farming season. The study also showed that delaying in replacement of lost or stolen pin numbers was a challenge and posed to be a barrier to access farming inputs. It can be concluded that the e-voucher as an input distribution system which was specifically intended to ensure effective targeting of eligible farmers and improve delivery system of farming inputs as well as grow the agricultural sector. The findings were in line with ZNFU (2017) which reported that the major problem was card activation in which small scale farmers did not have information about whether their cards were activated. It was observed that there was selective activation of e-cards which disadvantaged some from accessing their farming inputs.

These challenges were also echoed by Minister of Agriculture Given Lubinda in parliament in 2016 reported that during the implementation of FISP in the past twelve (12) years meaning 2015/2016 farming season, the programme experienced a number of challenges. These challenges included late delivery of inputs, difficulties in beneficiary targeting, limited number of fertilizer suppliers participating on the programme and limitations on the variety of inputs under the programme. In view of these challenges and also in order to help reinforce the government policy of agricultural diversification, Cabinet approved the piloting of the electronic voucher system during the 2015/2016 agricultural season in thirteen (13) districts, the districts were selected based on relative presence of agro dealers, better mobile network and a wide variety of farm enterprises being run on smallholder farms, the programme was implemented in collaboration with the Zambia Government (Parliamentary Report, 2016).

6.2 Recommendations

The recommendation contained in this section are aimed at contributing to the optimisation of the effectiveness and operational efficiency of the use of e-voucher by small scale farmers as an input distribution system in Chongwe District. In view of the discoveries, some of the recommendations are as follows:

- (1) The Government of Zambia should fund the e-voucher adequately and on time to enhance early delivery of farming inputs to farmers who in turn can use inputs within the farming season.
- (2) The Ministry of Agriculture should undertake farmer awareness campaigns and Information sharing in local languages so that many small scale farmers become aware and participate in the farmer meetings at cooperative and association levels.
- (3) Banks providing e-voucher should decentralise their services to rural areas in order to make it easier to access their services.
- (4) The Government should come up with genuine agro dealers who understand the credit facility and financial organisations in rural areas to help farmers access farming inputs as well as cut down costs of transport.
- (5) The Government should load e- cards immediately farmers pay the k400.00 so that small scale farmers could easily have e-voucher cards activated and farming inputs delivered within the planting season.
- (6) The whole process of documentation of details of small scale farmers should begin as early as the mid of the year to give ample time to small scale farmers verify their details.

6.4 Summary of the Chapter

The chapter has presented the conclusion and recommendations of the study based on the research objectives, findings and theoretical framework. The study concluded that the extent to which small scale farmers use the e- voucher was about 60% of the total population of farmers in Chongwe District. Zambia National Farmers Union and ZANACO reported that there are about 17, 000 small scale farmers in Chongwe District used the e-voucher as the input distribution system to access farming inputs. This was in support with Musika (2016) who states that the ‘E-voucher’ programme is an effort by the Zambian Government, supported by Musika, which aims to improve the distribution of subsidised inputs to smallholder farmers. During the 2015/2016 farming season, 241,000 farmers across the 13 pilot districts in Southern, Lusaka, Central and Copperbelt

Provinces received the input subsidy through pre-paid VISA bank cards as opposed to receiving physical inputs centrally procured by Government.

It was also concluded that adult education methods used in the dissemination of information on the e-voucher as an input distribution system were radio programmes, door to door visits by extension workers and farmer meetings were methods used in the dissemination of information on the e-voucher.

Additionally, the study revealed that late funding, late loading, late activation and late delivery of inputs affected the farming season. The study also showed that delaying in replacement of lost or stolen pin numbers was a challenge and posed to be a barrier to access farming inputs. It can be concluded that the e-voucher as an input distribution system was specifically intended to ensure effective targeting of eligible farmers and improve delivery system of farming inputs as well as grow the agricultural sector. The findings were in line with ZNFU (2017) which reported that the major problem was card activation in which small scale farmers did not have information about whether their cards were activated. It was observed that there was selective activation of e-cards which disadvantaged some from accessing their farming inputs.

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APPENDICES

Appendix 1: Information Sheet

THE UNIVERSITY OF ZAMBIA
SCHOOL OF EDUCATION
DEPARTMENT OF ADULT EDUCATION AND EXTENSION STUDIES

INTRODUCTION

Dear Respondent

I am a student at the University of Zambia doing a Master's program in Education (Adult Education). I am currently collecting data for a research study on "*An assessment of the use of the e-voucher by small scale farmers as an input distribution system in Chongwe district: An adult Education perspective*"

You are therefore invited to participate in the study. You must be 18 years or older to be able to participate in the study. Your participation is completely voluntary. Please take as much time you can to read through the information sheet to understand what this study is all about. You may also decide to discuss it with your family or friends. You will be given a copy of this form.

NOTE: Completion and return of the questionnaire or response to the interview

questions will constitute comment to participate in the research program.

PURPOSE FOR THE RESEARCH

The purpose of this research is to assess the use of the e-voucher by small scale farmers as an input distribution system.

PROCEDURE

You will be interviewed as one of the members of staff of Zambia National Commercial Bank (ZANACO). The interview will take approximately 20 minutes and location will be according to your preference. This means it can be conducted in your office, at a nearby coffee shop, or other locations convenient to you. You will be asked questions regarding the topic of study stated above.

POTENTIAL RISKS AND DISCOMFORTS

There are no anticipated risks to your participation in this study. However, when and if you feel some discomfort in responding to some questions, please feel free to skip the question.

POTENTIAL BENEFITS TO SUBJECTS AND/OR SOCIETY

The findings of this research are likely to benefit you and the society at large through the program providers as it is anticipated that the study will enhance the running or provision of the program.

PAYMENT/COMPENSATION FOR PARTICIPANTS

Be informed right from the start that you will not receive any payment for your participation in this research study.

POTENTIAL/COMPENSATION FOR PARTICIPANTS

The investigator of this research does not have any financial interest in the sponsor or product of the product being studied.

CONFIDENTIALITY

Confidentiality in this research will be guaranteed through all or any of the following;

- i Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law.
- ii The information collected about you will be coded using a fake name (pseudonym) or initials and numbers for example ABC-004, etc.
- iii As in (i) above, the information which has your identifiable information will be kept separately from the rest of your data. The data will be stored in the investigators office in a locked file cabinet/password protected computer.
- iv The data will be stored for approximately seven years after the study has been completed and then destroyed.
- v Your consent will be asked for audio recording. You may decline to be taped. The principle investigator will transcript the tapes and may provide you with a copy of the

transcript upon request. You have the right to review and edit the tapes. Sentences that you leave the investigator to leave out will not be used and they will be erased from all relevant documents.

Declaration of consent

I have read and fully understand this document.

I therefore agree/disagree to participate in the exercise.

Signature:.....

Date:.....

Appendix 2: An Interview Guide for small scale farmers

THE UNIVERSITY OF ZAMBIA

SCHOOL OF EDUCATION

DEPARTMENT OF ADULT EDUCATION AND EXTENSION STUDIES

An Interview Guide for small scale farmers

1. How long have you been a small scale farmer?
2. What farming inputs do you grow?
3. Have you used the e-voucher?
4. How often do you use e-voucher?
5. Do you find it easier to use the electronic voucher system?
Yes
No
6. If 'Yes' what are the reasons?
7. If 'No' explain your answer
8. How long have you used the e-voucher to access your inputs?
9. How have you been accessing farming inputs?
10. What methods on the dissemination of information on e-voucher are you aware of?
11. What challenges do you experience in acquiring farming inputs?
12. In your opinion, what are the advantages of using the e-voucher?
14. What suggestions would you make to improve E-voucher system?
15. What would you recommend as the best way to provide inputs to farmers?
16. Is there anything else you wish to share on the e-voucher?

We have come to the end of our interview. I wish to thank you very much for participating in this interview.

Appendix 3: Interview Guide for Officers in the Bank

1. Current Position/Title:
2. To what extent do the small scale farmers use the E-voucher as an input distribution system?
3. How many small scale farmers are helped by your Bank?
4. In your own opinion, what are the advantages of using the E-voucher?
5. Do you face any external challenges in handling the E-voucher as an input distribution system?
6. What methods have you put in place for dissemination of information on the E-voucher?
7. In what ways has the Bank benefited in handling the E-voucher as an input distribution system?
8. To what extent have the administrators been involved in supporting the use of the E-voucher as an input distribution system?
9. What challenges do you experience as providers of the E-voucher?
10. What do you think should be done to address challenges faced in the use of the e-voucher?
11. What strategies do you think should be put in place to improve E-voucher as an input distribution system?
12. Is there anything you wish to say about the E-voucher as an input distribution system?

We have come to the end of the interview. I wish to thank you for participating in this interview.

Appendix 4: An interview Guide for staff at Zambia National Farmers Union

- (1) Current position/ Title
- (2) To what extent do small scale farmers use the E-voucher as an input distribution system?
- (3) In your own opinion, what are the advantages of using the E-voucher as an input distribution system?
- (4) What methods of disseminating information on e-voucher as an input distribution system have you put in place to sensitise small scale farmers on its use in accessing farming inputs?
- (5) In what ways has ZNFU benefited in handling the E-voucher as an input distribution system?
- (6) What challenges do you face in handling the E-voucher as an input distribution system?
- (7) What challenges do you experience as providers of the E-voucher as an input distribution system?
- (8) What should be done to address challenges mentioned above?
- (9) What strategies should be put in place to improve the E-voucher as an input distribution system?
- (10) Is there anything you wish to say about the e-voucher?

We have come to the end of the interview; I wish to thank you for participating in this interview.

Appendix 5: Interview guide for Agro-Dealers

1. Current Position/Title:
2. In your own opinion, what are the advantages of using the E-voucher?
3. Do you face any external challenges in handling the E-voucher as an input distribution system?
4. What methods are used in the dissemination of information on the E-voucher?
5. In what ways have you benefited in handling the E-voucher as an input distribution system?
6. What challenges do you experience as supplying farming inputs?
7. What do you think should be done to address challenges faced in supplying farming inputs?
8. Is there anything you wish to say about the E-voucher as an input distribution system?

We have come to the end of the interview. I wish to thank you for participating in this interview.

Appendix 6: Budget

| ITEM No | DESCRIPTION | QUANTITY | UNIT-COST (K) | TOTAL COST |
|---------------------|--|--|--|--|
| A | <u>Stationery</u> Realms of paper Notebook Pens 1box Pencils Flash Disks Staples Folder Rubbers | 5 1 1 box 1 box 2 1 box 5 5 | K40 K10 K25 K25 K55 K25 K5 K2 | K200 K10 K25 K25 K110 K25 K25 K10 |
| | | | <u>Sub-total=</u> | <u>K430</u> |
| B | <u>Typing</u> Proposals Questionnaire | 1 1 | K70 K14 | K70 K14 |
| | | | <u>Sub-total=</u> | <u>K84</u> |
| C | <u>Photocopying Services</u> Proposals Questionnaires | 2 50 | K8 K80 | K8 K80 |
| | | | <u>Sub-total=</u> | <u>K88</u> |
| D | <u>Travel, Lunch and pay</u> Research assistants Principal Researcher | 5 1 | K500 K500 | K2500 K500 |
| | | | <u>Sub-total=</u> | <u>K3000</u> |
| E | <u>Binding Services</u> Proposals | 2 | K5 | K10 |
| | | | <u>Sub-total</u> | <u>K10</u> |
| F | <u>Information services</u> Internet Browsing Private Library Use | Several Several | K200 K200 | K200 K200 |
| | | | <u>Sub-total</u> | <u>K400</u> |
| G | <u>Editing of work</u> Editing the Proposal | | K500 | K500 |
| | | | <u>Sub-total=</u> | <u>K500</u> |
| H | <u>Contingency</u> At 10% of the sub-total | 10% | TOTAL= Sub-total- | K4512 K451 |
| GRAND TOTAL: | | | | <u>K4963</u> |

Appendix 7: Activity Schedule

| CORE ACTIVITIES | DETAILS OF ACTIVITIES | DURATION | PERIOD |
|------------------------|---|-----------------|------------------------------|
| Proposal Writing | a). Problem formulation b). Literature Review c). Designing of the Research | 5 months | May 2017 to September 2017 |
| Data Collection | a). Interviews b). Questionnaire Distribution and Collection | 6 months | October 2017 to March 2017 |
| Data Analysis | Preparation, Presentation, Organization and Analysis | 4 months | April 2017 to July 2018 |
| Report Preparation | Reporting Writing, Typing and Editing | 4 months | August 2018 to November 2018 |
| Report Submission | Final Submission | 1 Month | December 2018 |

Appendix 8: Approval Letter



THE UNIVERSITY OF ZAMBIA

DIRECTORATE OF RESEARCH AND GRADUATE STUDIES

Great East Road | P.O. Box 32379 | Lusaka 10101 | Tel: +260-211-290 258/291 777
Fax: +260-1-290 258/253 952 | Email: director@drgs.unza.zm | Website: www.unza.zm

Approval of Study

20th June, 2018

REF No. HSSREC: 2018-MAY-018

Ms. Banda Martha Malita
Mumana Primary School
P.O.Box 310050
LUSAKA

Dear Ms. M. M. Banda,

RE: "AN ASSESSMENT OF THE USE OF THE E-VOUCHER BY SMALL SCALE FARMERS AS AN INPUT DISTRIBUTION SYSTEM IN CHONGWE DISTRICT: AN ADULT EDUCATION PERSPECTIVE"

Reference is made to your resubmission. The University of Zambia Humanities and Social Sciences Research Ethics Committee IRB resolved to approve this study and your participation as Principal Investigator for a period of one year.

| Review Type | Ordinary /Expedited Review | Approval No. REF No. HSSREC: 2017-MARCH-007 |
|--|---|---|
| Approval and Expiry Date | Approval Date: 20 th June, 2018 | Expiry Date: 19 th June, 2019 |
| Protocol Version and Date | Version-Nil | 19 th June, 2019 |
| Information Sheet, Consent Forms and Dates | • English. | 19 th June, 2019 |
| Consent form ID and Date | Version | 19 th June, 2019 |
| Recruitment Materials | Nil | |

There are specific conditions that will apply to this approval. As Principal Investigator it is your responsibility to ensure that the contents of this letter are adhered to. If these are not adhered

1

to, the approval may be suspended. Should the study be suspended, study sponsors and other regulatory authorities will be informed.

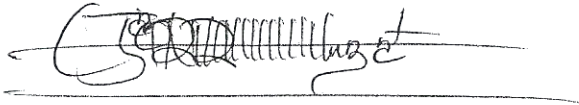
Conditions of Approval

- No participant may be involved in any study procedure prior to the study approval or after the expiration date.
- All unanticipated or Serious Adverse Events (SAEs) must be reported to the IRB within 5 days.
- All protocol modifications must be IRB approved by an application for an amendment prior to implementation unless they are intended to reduce risk (but must still be reported for approval). Modifications will include any change of investigator/s or site address or methodology and methods. Many modifications entail minimal risk adjustments to a protocol and/or consent form and can be made on an Expedited basis (via the IRB Chair). Some examples are: format changes, correcting spelling errors, adding key personnel, minor changes to questionnaires, recruiting and changes, and so forth. Other, more substantive changes, especially those that may alter the risk-benefit ratio, may require Full Board review and approval. In all cases, except where noted above regarding subject safety, any changes to any protocol document or procedure must first be approved by the IRB before they can be implemented.
- All protocol deviations must be reported to the IRB within 5 working days.
- All recruitment materials must be approved by the IRB prior to being used.
- Principal investigators are responsible for initiating Continuing Review proceedings. Documents must be received by the IRB at least 30 days before the expiry date. This is for the purpose of facilitating the review process. Any documents received less than 30 days before expiry will be labelled "late submissions" and will incur a penalty.
- Every 6 (six) months a progress report form supplied by The University of Zambia Humanities and Social Sciences Research Ethics Committee IRB must be filled in and submitted to us. There is a penalty of K500.00 for failure to submit the report.
- The University of Zambia Humanities and Social Sciences Research Ethics Committee IRB does not "stamp" approval letters, consent forms or study documents unless requested for in writing. This is because the approval letter clearly indicates the documents approved by the IRB as well as other elements and conditions of approval.

Should you have any questions regarding anything indicated in this letter, please do not hesitate to get in touch with us at the above indicated address.

On behalf of The University of Zambia Humanities and Social Sciences Research Ethics Committee (IRB), we would like to wish you all the success as you carry out your study.

Yours faithfully,



Dr. Jason Mwanza

BA, MSoc, Sc., PhD

CHAIRPERSON

**THE UNIVERSITY OF ZAMBIA HUMANITIES AND
SOCIAL SCIENCES RESEARCH ETHICS COMMITTEE IRB**

CC Director – DRGS
Assistant Director - DRGS