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The Impact of Beliefs and Values on Agricultural Change: A case of Murombedzi Irrigation Scheme, Zimbabwe.

By

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DECLARATION

This work has not been previously submitted in whole, or in part, for the award of any other degree. Each significant contribution to, and quotation in this dissertation from the work of other authors has been acknowledged, and has been cited and referenced.

Signature: ..... Date: 25 - 03 - 2013

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ABSTRACT

Since the mid 1970s there has been an increasing effort to raise the level of adoption of agricultural innovations in small-scale farming for improved production. NGOs and governments have engaged in a participatory approach not only to empower local people, but also to give them an opportunity to learn, access, and utilize innovations that have been introduced in the agriculture sector. However due to several factors small-scale farmers in Zimbabwe have failed to fully adopt these changes that would enhance their farming activities. Most of these farmers have rather preferred maintaining and practising their preliterate farming methods. Like most irrigation schemes Murombedzi Irrigation Scheme is self funded due to the fact that the government has failed to fund most of such projects. This has subsequently left projects such as the Murombedzi Irrigation Scheme to provide for their own agricultural needs. NGOs have in the past provided assistance to these small-scale farmers but mostly in cases of drought. This study is an assessment of the impact of beliefs and values on the adoption of agricultural change in Murombedzi Irrigation Scheme. The study investigates the extent to which beliefs and values have an effect on small-scale farmer's access and utilization to adopting innovations. Research findings reveal that farming production in Murombedzi is low and the local farmers have been passive participants in gaining training and education that can assist them in gaining knowledge on the effectiveness of implementing innovations. However; the farmers prefer to maintain their traditional methods that have been effectively used by their fore fathers. It is a common belief among the informants that their ancestors are to be kept pleased at all times and this means practicing traditional farming which, for them, has proved to be effective in the past. As a result, this calls for an empirical

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research to be carried out at the grass roots level to explore the dynamics that influence the status quo on the ground. This study was conducted to help agricultural change to be implemented in small-scale farming for the benefit of agricultural production. The focus was on a local irrigation scheme that is self funded. Data was gathered using an ethnographic research design.

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DEDICATION

This work is dedicated to my mother Tsitsi Chadenga. She has always been a constant source of inspiration.

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LIST OF ACRONYMS AND ABBREVIATIONS

AIDS: Acquired Immune Deficiency Syndrome.

FAO: Food and Agriculture Organization.

FHHs: Female Headed Households.

FSN: Food Security and Nutrition.

GDP: Gross Domestic Product.

GMB: Grain Marketing Board.

GOZ: Government of Zimbabwe.

HIV: Human Immune Deficiency Syndrome.

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ICTs: Information Communication Technologies.

LAA: Land Appointment Act.

MIS: Murombedzi Irrigation Scheme

NGOs: Non-Governmental Organizations.

SCCF: Small Scale Commercial Farming.

UN: United Nations

UNESCO: United Nations Educational, Scientific and Cultural Organization.

WB: World Bank.

WFP: World Food Program.

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TABLE OF CONTENTS

University of Fort Hare
Together in Excellence

University of Fort Hare
Together in Excellence

University of Fort Hare
Together in Excellence

University of Fort Hare
Together in Excellence

LIST OF FIGURES AND TABLES

FIGURES

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TABLES

Chapter One: Introduction

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1.1 Background

Murombedzi, also known as Murombedzi Growth Point, is a small town in Zvimba District, Mashonaland West Province, in Central Northern Zimbabwe. The town lies about 48 kilometres, by road, south of the town of Chinhoyi, in neighbouring Makonde District. This location lies approximately 54 kilometres by road, north of the town of Chegutu. Murombedzi is located about 110 kilometres, by road, west of Harare, the capital of Zimbabwe and largest city in that country. The coordinates of the town are: 17° 42' 0.00"S, 30° 12' 0.00"E (Latitude: 17.7000; Longitude: 30.2000).

Murombedzi is under the agricultural region four because, Zimbabwe is divided into five agro-ecological region, known as natural regions, on the basis of the rainfall regime, soil quality and vegetation among other factors (FAO, 2010:2). Region Four is characterized by low rainfall (450-650 mm), periodic seasonal droughts and sometimes dry spells during the growing season. This makes this region prone to household food insecurity. Villages in this area consist of households sparsely located, as most rural areas in Zimbabwe are non planned structures. Administratively, Murombedzi is under Chief Murombedzi.

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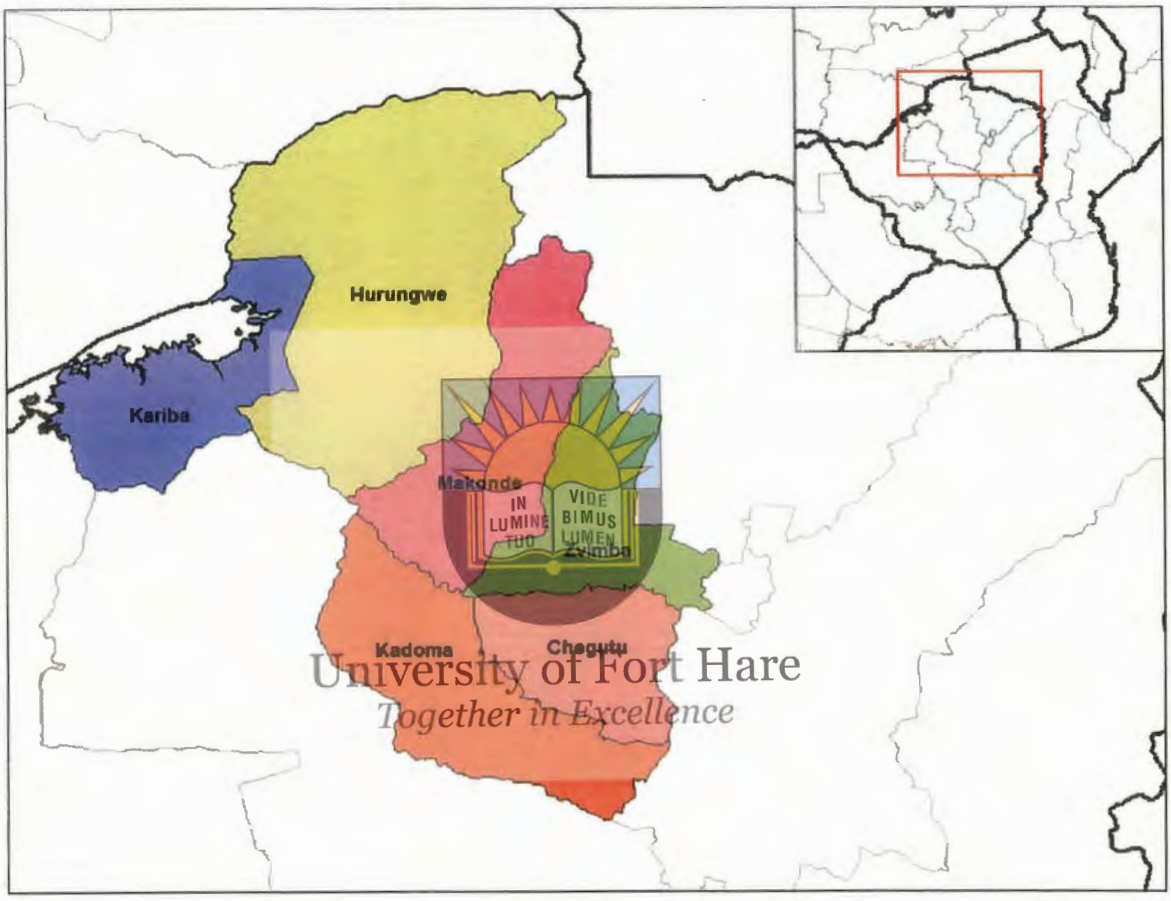
Murombedzi Irrigation Scheme (MIS) also known as Chimutamba Irrigation Scheme is approximately 20 kilometres from Murombedzi growth point and it covers an area of 25 hectares mainly arable land. This land was initially individually owned by liberation war veterans. They donated the land for the benefit of the small community.

Figure 1: Map of Mashonaland West Province: Conyers 2002:183



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The main industry at Murombedzi is agriculture but low rainfall makes the sustenance agriculture activities very difficult. The transport and telecommunication networks are poor. Most households are located away from the transport network in non-motor able roads and in hilly or rocky pathways (MOLARS : 2004:24).In many cases distance observed was considerably long to access the post office, police station, community centres, churches, hospitals, clinics, schools and shops. This situation also reduces the speedy access to information channels and to information sources available in these areas.

Murombedzi is an area that is characteristic of cultural activities that influence agricultural productivity. Land ownership is governed by traditional value systems and is granted by the chief who makes decisions. For example, women can only gain access to land through marriage or inheritance. This study was influenced by the high regard for beliefs and values that have an influence on the acceptance of agricultural change.

Values as defined by Turner (2004:1) describe, and provide a means of talking about, what is important to us. These values are ideals that we hold and give significance and meaning to our lives and hence they influence the decisions we make, the actions we take, and the life we lead. This is further supported by Aleedz (2008:1), who states that values are about how we have learnt to think things ought to be or people ought to behave, especially in terms of qualities such as honesty, integrity and openness. Values are also ideas that we hold to be of important and they govern the way we behave, communicate and interact with others.

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On the other hand, "beliefs are the assumptions we make about ourselves, about others in the world and about how we expect things to be" (Aleedz, 2008:1). Beliefs are about how we think things really are because they are usually convictions that we generally hold to be true, usually without proof or evidence. Hence values and beliefs may differ from country to country, society to society or culture to culture, for instance, while some cultures are not strict about premarital sex (Aleedz, 2008:1). Welzel and Inglehart (2008:129) note that beliefs and values are needed to translate structure into action. This is because all actions are inspired by shared goals in which when people are informed, motivated and inspired they will believe in a system or action and will in the end implement the change.

Murombedzi is a village in the Mashonaland province of Zimbabwe. The main economic activity around Murombedzi is farming from which the communal lands surrounding rural communities rely on produce that comes from the village. Murombedzi Irrigation Scheme was initiated in 1990 by the government in its endeavour to provide the farmers with a source of self-sustenance (Svubure, 2010:16). The Scheme covers mainly 25 hectares of land that was donated by local farmers that were no longer making use of their land. The whole purpose of the Scheme is to provide sustenance therefore the food crops that are produced by the farmers are mainly maize, peanuts, beans, potatoes and vegetables.

This study seeks to investigate the impact of beliefs and values held by small-scale farmers of MIS that may influence agricultural productivity thereby increasing rural poverty. The 2003 poverty assessment study survey showed substantial increase in poverty, between 1990 and in which the poverty rose from 25 per cent to 65 per cent (FAO, 2005:5). This is further supported by Makadhure, Jowa and Mazuva (2001:13) who state that the balance between demand and supply has not improved but deteriorated, for instance, in 1997 to 1998 and 1998 to 1999 seasons, maize production in Zimbabwe has been estimated at 1, 42 million tonnes and 1, 54 million tonnes respectively falling far too short of approximately 2, 5 million tonnes required for human consumption and livestock feed.

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MIS has experienced decline in agricultural produce by approximately 50 per cent over the past five years resulting in most farmers migrating from commercial farming to subsistence farming. Their levels of produce have been affected by many factors that also include lack of sufficient resources and the implementation of pre-literate farming methods.

1.2 The Research Problem

Social and cultural factors are characteristic of the society to which the farmer belongs and dominate human behaviour. These include beliefs and values of behaviour which may constitute formidable barriers to technological innovations, and cannot be easily changed by exhortations, regulations or logic.[1] Agriculture as noted by Greene and Greene (2001:3) constitutes to Zimbabwe's economy as 66% of the population depends on agriculture, but it is mostly subsistence farming. Although there have been some drastic changes that have been introduced in the agriculture sector at Murombedzi by the government and other NGOs there however are some farmers within the initiated project that have not embraced and implemented these changes within their farming practices. It seems to me that the reason why farmers at Murombedzi may not embrace these changes in the agriculture sector is largely the influence of beliefs and values held by farmers which may be cultural, economic, religious etc.

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1.3 Research Questions

This study sought to explore how beliefs and values influence agricultural change at MIS in Zimbabwe. The assumption was that various beliefs and values hinder the adoption of various innovations implemented in the agricultural sector. The central questions explored in the study were:

- **What kind of beliefs and cultural values that are held by farmers in MIS that influence agricultural productivity?**

[1] Arnon, I. (1981). Modernization of agriculture in developing countries.

- **What are the levels of utilization of agricultural innovations by the small scale farmers of Murombedzi Irrigation Scheme?**
- **What are the effects of beliefs and cultural values on agricultural change?**

1.4 Research Aim and Objectives

The overall aim of the study was to explore the impact of various beliefs and values held by the farmers involved in the MIS. The study sought to illustrate how beliefs and values influence the response of farmers on technological change. Beliefs and values play an important role in Murombedzi as they do in most southern African countries. A mixture of traditional beliefs and Christianity is the preference of 50 per cent of the population of Murombedzi. Some of the common beliefs are, ancestor worship (the belief that prayers to ancestors will affect outcomes), and animism (the belief that all objects such as trees and mountains have spiritual power) (Greene and Greene, 2001:5). The study sought to:

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- **Determine the level of agricultural production in MIS.**
- **Identify and examine the beliefs and values held by farmers that influence agricultural productivity.**
- **Determine utilization of agricultural innovations by the small scale farmers of Murombedzi Irrigation Scheme.**
- **Ascertain the effects of beliefs and values on agricultural change.**

1.5 Delineations and Limitations

1.5.1 Delineations

The study was carried out at Murombedzi in Zvimba communal lands located 115 Km North East of Harare in the Mashonaland West Province of Zimbabwe. The 50 small-scale farmers of the Murombedzi Irrigation Scheme were the informants. The study explored the community of Murombedzi Irrigation Scheme because it is a community driven by agriculture and being a rural community it holds cultural traits that are favourable for the study. The research was limited to 50 small-scale farmers study because they were the active members of the Irrigation Scheme and they all have tasks that they perform for the benefit of the Scheme. Values and beliefs are cultural traits that have an influence on the decisions that we make and these including in farming practices. Agriculture has been part of the African culture and it is comprised of individual or cultural traits and these personal beliefs and values can act as a hindrance to accepting new innovations that might want to change the traditional way of farming.

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1.5.2 Limitations

Strong cultural beliefs and values that were held by the farmers of Murombedzi were a limitation because in everything they did they had to consider if the act was in accordance with their beliefs. Accepting change was a challenge because they believed that their pre-literate and traditional methods are an inheritance from their fore fathers and it would be an abomination to abandon them.

It was evident that for most of the farmers, there was lack of information required to guide them in making decisions. The methods they used in their farming practice were

traditionally taught to them and hence changes that have been implemented require these farmers to hear, read and learn about them. As most of the farmers are elderly this would require adult literacy drives which these farmers are complacent to embrace.

The farmers are in dire need of assistance when it comes to other resources and therefore I had to be very careful not to make any false promises but to clarify the intentions of the research. The informants were very aware of my presence among them and it was a challenge to them to maintain their normal and usual behaviour. However to overcome this limitation I made it known to the informants that I was interested in studying and understanding their culture in farming and that I was not there for any other purpose. Some of the activities were done seasonally which was a challenge to me because it meant that more time had to be spent in the field in order to collect the desired information.

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1.6 Definition of Terms

Innovations

The introduction of new ideas, goods, services and practices which are intended to be useful (Rogers, 1997:124).

Livelihoods

Means of supporting, ones existence or subsistence especially financially or vocationally (Pao, 1999: 76).

Household Food Security

Household or country's ability to provide future physical and economic access to sufficient, safe and nutritious food that fulfils dietary needs and food preferences for living an active healthy lifestyle (Pao, 1999: 74).

Small-scale Farmer

A farmer who farms on a small-scale usually on a small piece of land and is dependent on hand labour (Pond, 1932: 472).

Utilization

The extent to which a given group or individual uses a particular service in a specified period (Yaagoub, 1982: 36).

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Adoption

The act of choosing and making something to be one's own which originally was not (Hammersley and Atkinson, 1995: 125).

Land Tenure

The relationship whether legally or customarily defined among people as individuals or groups with respect to land (Mazuva, 2001:142).

Kinship

A relationship or connection by blood, marriage or adoption (Kottak, 2000:22).

1.7 Assumptions

My assumptions of the researcher in the present day study are that:

- Beliefs and values constitute formidable barriers to the acceptance of technological innovations.
- The level of agricultural production and development is low as a result to the absence of some new and improved innovations.
- Some farmers in the agriculture sector at Murombedzi have not embraced changes within their farming practices.

1.8 Significance of the Study

The rationale of carrying out this study had to do with the lack of implementation to agricultural innovations among the farmers of the MIS. Although most urban communities and farmers of Zimbabwe have adopted changes introduced in the agricultural sector, this is not the case for the Irrigation Scheme, for this reason the study was aimed at providing more light on the specific values and beliefs held by famers that influence their decision making. The study would provide knowledge to the agricultural sector, or development agencies with more knowledge on how to assist the small-scale farmers to implement changes that also accommodate their beliefs and values for more agricultural productivity and eradication of poverty.

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1.9 Brief chapter overviews

In this first chapter I have explained what I am going to do and why it is worth doing. I have attempted to make it clear what my work investigates and the

importance of that. In order to achieve this, I detailed the elements of the introductory chapter. The aforementioned elements include the following:

- Background
- Research problem
- Research aim and objectives
- Delineations and limitations
- Definition of terms
- Assumptions
- Significance of the study

The second chapter strives to review and highlights the works of other scholars that have conducted similar studies. This chapter also examines a theoretical framework that underlies the present-day study. The major conclusion drawn from this chapter reveals that there are a number of factors that influence agriculture change and these include, of age and educational level of the farmer, lack of resources for farming as well as cultural beliefs and values of the farmer.

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In the third chapter I document what particular type of research methodology I have used in gathering data and how I employed it in providing answers to research questions. The chapter encompasses the research design, methodology, limitations of the study and ethical considerations.

The fourth chapter attempts to depict how social and economic dynamics impact on Murombedzi Irrigation Scheme. In this chapter it is concluded that the farmers of MIS experience low crop yields due to situations of inexperienced people being left to work in these farms and hence more of subsistence than commercial framing is practiced.

Food security is not ensured as the farmers barely harvest enough to last them for the next harvest.

In the fifth chapter I focus on the role played by characteristics of the study population in agricultural practices. In the last chapter I synthesize the findings and draw conclusions based on primary and secondary data.

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CHAPTER TWO: Literature Review

2.1 Introduction

The purpose of this chapter is to explore the existing literature on the beliefs and cultural values that influence agricultural change. The literature review is a vital component of research, as Inglehart (2008:34) explains literature review provides a background to the study being undertaken. This chapter begins by examining a theoretical framework, diffusion of innovations theory which is relevant to the study after which, the study will review and highlight various works of scholars that focus on some of the challenges faced in the adoption of agricultural change with emphasis on beliefs and cultural values.

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2.2 Theoretical Framework: Diffusion of Innovation Theory

The main assumption of this research is that certain beliefs and values hinder agricultural change thereby increasing poverty. This study therefore seeks to test the assumption that among other constraints beliefs and values are barriers in small scale farmers embracing agricultural changes. The study is influenced by the Diffusion of Innovation (DOI) theory commonly referred to as Rogers's theory. The theory illustrates the process in which innovations can be accepted and adopted in which the study seeks to investigate how innovations are introduced in Murombedzi which motivates adoption. Rogers (1983:32) explains the process of innovation diffusion as one which is dictated by uncertainty reduction behaviour amongst potential adopters during the introduction of technological innovations. Even though innovations typically offer its adopters novel ways of tackling day-to-day problems, the uncertainty as to whether the new ways will be superior to existing ones presents a considerable

obstacle to the adoption process. To counter this uncertainty, potential adopters are motivated to seek additional information, particularly from their workplace peers.

Robinson (2009:17) notes that Diffusion of Innovations as a theory seeks to explain how innovations are taken up in a population. An innovation is an idea, behaviour, or object that is perceived as new by its audience. Diffusion of Innovations offers three valuable insights into the process of social change which is firstly what qualities make an innovation spread successfully. Diffusion of innovations takes a radically different approach to most other theories of change. Instead of focusing on persuading individuals to change, it sees change as being primarily about the evolution or "reinvention" of products and behaviours so they become better fits for the needs of individuals and groups (Hornor, 1998:37).

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The foregoing sentiment is reinforced by Rogers and Bettinghaus (1966:10) who assert that, in the Diffusion of Innovations theory it is not people who change, but the innovations themselves. The second important insight is that impersonal marketing methods like advertising and media stories may spread information about new innovations, but it is conversations that spread adoption and lastly understanding the needs of different user segments this is because diffusion researchers believe that a population can be broken down into five different segments, based on their propensity to adopt a specific innovation: innovators, early adopters, early majorities, late majorities and laggards.

According to Sunding and Zilberman (2000:15), this approach has potential for contributing both to the development of innovation diffusion theory and to providing guidance to development experts faced with the challenge of successfully introducing

an innovation. Diffusion research is focused on how the major elements of dissemination or dispersion relate to facilitate or hinder embracing of new products or practice among a social system of adopters. It provides a framework that may help information professionals and development experts understand the variation in the acceptance and use of agriculture based information and innovations. It also provides opportunities to predict and account for factors that affect the dissemination of innovations (Emenyeonu, 1987:12).

For Rogers (2003:177), adoption is a decision of full use of an innovation as the best course of action available" and rejection is a decision not to adopt an innovation. Rogers defines diffusion as "the process in which an innovation is communicated thorough certain channels over time among the members of a social system. As expressed in this definition, communication channels, time, and social system are the four key components of the diffusion of innovations.

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2.2.1 Communication Channels

Rogers (2003:203), defines communication as a process in which participants create and share information with one another in order to reach a mutual understanding. On the other hand Robinson (2009:6) notes that communication occurs through channels between sources in which a communication channel is the means by which messages are transmitted from one individual to another or from the source (an individual or institution that originates information) to the receiver. Mass media and interpersonal communication are two communication channels. While mass media channels include a mass medium such as, TV, 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. In interpersonal channels, as described by Sahin (2006:15), the communication may have a characteristic of homophily. Mass media channels are more effective in creating knowledge of innovations, whereas interpersonal channels are more effective in forming and changing attitudes toward a new idea, and thus in influencing the decision to adopt or reject a new idea. Most individuals as have been elaborated evaluate an innovation, not on the basis of scientific research by experts, but through the subjective evaluations of near-peers who have adopted the innovation (Moser and Barrett, 2003:85).

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2.2.2 Time

According to Rogers (2003:172), the time aspect is ignored in most behavioural research. He argues that including the time dimension in diffusion, research illustrates one of its strengths. The innovation-diffusion process, adopter categorization, and rate of adoptions all include a time dimension. The time dimension as stated by Rogers (1997: 70) is involved in the diffusion of innovations in three ways. These include the innovation decision process, which is the mental process through which an individual (or a decision making unit) passes from the first knowledge of an innovation to forming an attitude toward the innovation, to a decision to adopt or reject, to implementation of the new idea, and to confirmation of this decision.

The second way in which time is involved in diffusion is in the innovativeness of an individual or other unit of adoption. Innovativeness is the degree to which an individual or other unit of adoption is relatively earlier in adopting new ideas than other members

of a social system. The third way in which time is involved in diffusion is in the rate of adoption. The rate of adoption is the relative speed with which an innovation is adopted by members of a social system. The rate of adoption is usually measured as the number of members of system that adopt the innovation in a given time period (Rogers, 1995:126).

2.2.3 Social System

The fourth main element in the diffusion of new ideas as noted by Rogers (2007:82) is the social system. A social system is defined as a set of interrelated units that are engaged in joint problem-solving to accomplish a common goal. The members or units of a social system may be individuals, informal groups, organizations, and/or subsystems. The social system constitutes a boundary within which an innovation diffuses. This is reinforced by Sahin (2006:15) who states that a set of interrelated units engaged in joint problem solving to accomplish a common goal. Since diffusion of innovations takes place in the social system, it is influenced by the social structure of the social system. In the opinion of Rogers (2003:24), structure is "the patterned arrangements of the units in a system. He further claims that the nature of the social system affects individuals' innovativeness, which is the main criterion for categorizing adopters.

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Through the diffusion of Innovations approach, the study addressed the issue of channels that are used in the adoption of agricultural innovations. The study sought to establish if beliefs and values that are held by the informants of MIS have an effect on the adoption of agricultural change. Balit (2006) points out that it is progressively becoming more fact that increased agricultural production may be only realized

through integrated knowledge applications such as greater use of biotechnology, and effective Irrigation management. This creates the need for timely adoption and absorption of new technologies and innovations particularly in agriculture. It is therefore useful to apply the views of diffusion theory to this study to better understand the diffusion of agricultural innovations to small-scale farming. The study established that although a number of modern agricultural innovations have been introduced in the agricultural; sector, the informants exhibited a lack of knowledge to some of these changes due to issues of low literacy levels and unavailability of extension workers to demonstrate new changes.

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2.3 Review of Existing Literature

2.3.1 Beliefs and Values

Farming is essentially an economic activity which is profoundly influenced by social, political and economic considerations (Haines 1982:5). The fundamental point made by Haines (1982:5) is that famers constitute one of the most cohesive occupations groups in any society, whose personal values have generally survived the impact of changes. Cannon (2000:16) notes that most people in Zimbabwe have a mixed belief structure, although Christianity is predominant and most practices and beliefs include: witchcraft, ancestor veneration and various traditional religious practices that entail the use of totems. It is a common belief that when certain practices are forgotten, such as, *kurova guva* (a celebration held a year after the death of someone) bad luck can occur.

In 2009, Iteyo conducted a study on the belief in the spirit of the dead in Kenya. His study was centred on the notion that in the world we live today, science and

technology seem to permeate every aspect of the human life, for instance, among the myriad innovations there is in-vitro fertilization, genetic engineering, life support devices. Thus technology attends to the material needs of human beings, thereby perhaps putting to doubt the value of knowledge, reality and existence. Iteyo was able to conduct his study in two cultural societies, the Luba and the Akan.

The study was qualitative in nature and used structured interviews to collect data. The research revealed that beliefs are the key components of culture, largely influencing human behaviour. The findings of the study in the Luba suggested that there was a belief that the dead fathers known as ancestors of the community still exist but in spirit form. The ancestors constitute the most important chain, bounding humans to God. There is the conception that the spirit of the dead is manifested in their religious language, attitude, and practices. In everything that they do in their daily lives they belief that glory and honour should be given to the ancestors for they have the power to bless and punish.

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Another similar study conducted by Mbiti in 1999 described cultural beliefs as an influence because it provides them with an identity and a world view through which people understand and interpret the universe. Consequently, enculturation is the cultivation of ideas, principles, beliefs and values that automatically result in certain behaviours. This is because knowledge begets behaviour and theory is followed by practice.

In 2003, Paarlberg studied the influence of values, beliefs and myths in agricultural and rural policy on farmers in the United States of America. He concluded that the

elements common among values, beliefs and myths are their subjective nature, and the fact that all can embrace enough truth to make them credible and enough error to make them dangerous.

Paarlberg (2003) stated that the real world considers the aspects of values, beliefs and myths as part of one's life because myths are needed to provide the consensus necessary for collective action. According to Paarlberg (2003:5) there are myths, beliefs and values that are held by farmers, for instance, among other beliefs there is the belief that to reward people equally is to treat them fairly. He further explained that there are various kinds of wheat and they have different uses. Nevertheless, they cut all acreages by the same percentage in accordance with the myth that to treat the wheat growers equally is to treat them fairly. It may be equal, but it is not equitable. Although farmers rely on this belief it is however unfair because one stands to gain more than the other. This then means that there is less competition to achieve more or adopt agricultural changes among farmers because they will in the end be rewarded the same.

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Brewster (1958:34) is of the view that beliefs and values play a role in agricultural methods. He argues that new methods are only adopted when they do not contradict a person's values and beliefs. The latter notes that because people for years have been surviving on agriculture and their methods have proven to be efficient it then becomes a belief that the same methods will keep sustaining them. This is supported by Aleedz (2008:3) who argues that our beliefs grow from what we see, hear, experience, read and think about and from these things we develop an opinion that we hold to be true and unmovable. Although the world is experiencing modernization and globalization

some beliefs and values cannot be changed over time either by education or technology.

2.3.2 Agriculture and Change

Change is one of the factors that affect beliefs and values because it entails moving from one system or situation to another. Drucker (2010:2) defines change as moving from one condition to another. Most changes within the agricultural sector are new innovations or mechanizations which is the application of mechanical technology and increased power to agriculture, largely as a means to enhance the productivity of human labour and often to achieve results well beyond the capacity of human labour (Mrema and Cruz, 2008:8). Agricultural mechanizations include Irrigation systems, use of tractors, animal and human powered implements and tools, internal combustion engines etc. Most farmers in African countries are slow to adopting these innovations which hinders development (Balassanian, 2008:6). A common factor as noted by the Balassanian (2008) is the issue of motivation which refers to the initiation, direction, intensity and persistence of behaviour. Incentives have to be introduced that will influence motivation and behaviour of individuals or groups to adopt changes.

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In 1982, Sobahle conducted a study on the agricultural practices in the Ciskei (now Eastern Cape Province) with emphasis on the human factor. The study focused more on how farmers are more responsible for the production and development of their farms. According to Sobahle (1982:52) development of agriculture is as much a human or social problem as it is an economic and technological one. This is because there are several factors that complicate developing agricultural programs in production. This assertion is further buttressed by Pond and Wilcox (1932:12) who

state that most farm management studies on factors affecting the financial success of the farmers have dealt with farm organization and practices. Therefore little attention has been given to the farmer himself who develops and directs the organization and determines the practices followed.

Farmers, just like anyone else posses beliefs and values that are influenced by tradition. Thomas (2007:2) defines tradition as a set of customs and beliefs that have been passed from one generation to the next over a long period of time. Sobahle (1982:60) observed that most farmers in the area west of the Kei River were not agriculturally enlightened and this means that most of their actions were still influenced by tradition, and this influenced their attitude to crop farming. The influence of tradition is noticeable in the reluctance of people to abandon the practice of their forefathers. In this regard, one is tempted to say that the extension officers have a very difficult task in trying to persuade the peasant farmers to change their old beliefs.

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Sobahle (1982:60) contends that farmers are resistant to change because of reasons pertaining to superstition, entailing the belief in conforming to certain practices because failure to do so may attract bad luck, for instance, African farmers grow maize all year round, therefore they do not practice crop rotation. Maize is regarded as a traditional crop in which when not grown people will experience hunger. This is further supported by Mosk (1999:34) who states that agriculture is influenced by superstitions in which decisions on what, where and when to cultivate is depended on beliefs.

For Sobahle (1982:61), these superstitions influence the resistance to change. He further explains that African farmers in particular are traditionally not in favour of using bold initiatives or methods that may involve risks. They always want to do what is well known and safe. Their lack of innovativeness leads to an unfavourable attitude towards change. One reason for their attitude might be the fact that Africans, unlike

Whites who take agriculture as a career, or through chance, agriculture is a way of life; Africans are farmers by tradition and not by chance. Hence they are determined to stick to their beliefs and agricultural practices (Sobahle 1982:61).

Mean while, Sobahle (1982), concluded that farmers are resistant to change because of the absence of able-bodied men within the farms. Young men are away working in the cities and mines. As a result innovative ideas are preached to old men, women and children who have neither the capacity as a result of old age, inclination nor the required strength to implement the new ideas gained.

In 2010, Mudefi who also based his study on 'Diffusion Innovations Theoretical Framework' when he studied the land reform programs and food security in Mutare district of Zimbabwe, discovered that farmers are resistant to accept agricultural innovations due to their geographical location. Mudefi (2010) furthers explains that in terms of technology acceptance depends with the place that a farmer is situated for instance, there are remote places especially most rural areas in Zimbabwe were farmers do not have access to information due to lack of or limited broadcasting of the radio, television or literature. Farmers are not aware of new technologies that they can adapt and are forced to keep practicing pre-literate farming.

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2.3.3 The Need for Agricultural Innovations

Innovation is bringing something new into existence. This means that a new idea is brought to improve and modify the already existing idea. As Mbiti (1991:132), notes in the world today science and technology seem to permeate every aspect of human life and this includes the agricultural sector. Helping Africa's smallholder farmers grow more food is a proven pathway out of hunger and poverty and almost no country has managed a rapid rise from poverty without increasing its agricultural productivity (Chrispeels and Mandoli, 2003:1).

In 2010, Gates examined the notion of agricultural change by investigating the effects of agricultural change in Sub-Saharan Africa. His study showed that agriculture provides 70 per cent of Sub-Saharan and 30 per cent of Sub-Saharan Africa's gross domestic product. Gates (2010) discovered that Sub-Saharan Africa's agriculture growth rate increased from an annual average of 3 per cent in the 1990s and 2000s to 5, 3 per cent in 2008. In the case of Ghana's agricultural sector, Gates reported that, the sector is growing at more than five per cent a year while the level of people living in poverty fell from 52 per cent in 1991/92 to 28, 5 per cent in 2005/6. Therefore Ghana has made the fastest progress in the world on reducing hunger and is on the track to achieve the UN Millennium development goal of halving poverty and hunger. On the other hand Malawi transformed itself from a net profiteer to a net exporter of maize for four years running and even became a food donor to neighbouring Swaziland and Lesotho (Gates, 2010:19).

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These improvements are a result of changes that have been accepted and implemented in agricultural activities for the benefit of the economy. Changes implemented range from improved crops to quality seeds and new techniques. In order to increase productivity there is need for changes like these hence in 2008 Miller described how these changes assisted Africa's farmers raise their yields and incomes. With the introduction of a drought tolerant maize, African farmers using new drought-tolerant maize varieties developed by the international maize and wheat improvement centre and its partners produced up to 30 per cent more maize than those without the improved varieties. This is because with the climate changes, severe droughts in recent years have scorched millions of hectares of maize across the continent. The

drought tolerant maize seed can withstand drought allowing them to thrive even when there is no rain (Egyir and Beinpuo, 2009:90).

In 1997, Fedaku conducted an investigation on the agricultural production system in Ethiopia. He mentions that the study was highly motivated by the fact that Ethiopia is highly dominated by traditional farming. The application of modern inputs has been extremely limited; as a result, yields of various crops are very low. In the absence of an efficient agricultural sector, countries like Ethiopia severely suffer from the inability to feed themselves and hence depend on food imports and food aid. It was noted that agriculture in Ethiopia had not been open to outside information due to many factors and consequently, its technological progress has been restrained for a long time.

IN LUMINE TUO IN BIMUS LUMEN

Fedaku (1997:123) mentions that there is an essential need for agricultural innovations because technological progress has been restrained for a long time. With the aim of increasing production efficiency, improving the livelihoods of rural people and introducing new innovations, the Federal government of Ethiopia in 1995 engaged in a participatory demonstration and training extension system as a national extension interaction program. The aim of the government was to reach as many small holder farmers as possible in a relatively short time promoting diffusion and adoption of extension packages, which consist of four elements namely, technological packages, credit, appropriates communication methods and provision of technologies with the aim of increasing productivity of resources, income and improving the life of rural people.

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The study found out that in most cases, farmers differ in their access and utilization of agricultural information and innovations from extension service and other sources. Such diversity among farmers is related to various personal, social, economic, or institutional factors, hence the study sought to understand reasons behind such diversity and farmers current level of access and utilization of agricultural information. To enhance the production of productivity of agriculture, farmers should have access to well organized and relevant information and proper sufficient utilization of agricultural information requires good facilitation. Rural communities need a wide variety of information such as, availability of agricultural of agricultural support services, government regulations, crop production and managements, disease out breaks, adoption of technologies by other farmers and so on. The scope of the information services needs to reflect their diverse circumstances and livelihoods. Therefore information can be seen as a basic element in many developmental activities and it must be available and accessible to all farmers in order to bring the desired development.

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2.3.4 Acceptance and Utilization of Agricultural Innovations

Mapila, Kirsten and Meyer (2011) argue that the complexity of rural livelihoods and poverty in many third world countries like Malawi has led to a shift in global agricultural research systems from the strengthening of national research systems towards systems that are geared on enabling greater individual and community innovations, proper knowledge utilization and overall transformation. For Malawi, there was a shift towards an innovation systems orientation that was precipitated by the realization that despite stronger national research systems, agricultural productivity remained low as a result not only of the lack of appropriate technologies and the lack of access to the

technologies, inputs, credit and access to markets and rural infrastructure, but also because of gaps in information and skills that prevented rural producers from effectively utilizing and adopting technologies (World bank 2007).

In another recent report compiled by Bacongco (2010) for global forum on food security and nutrition (FSN), it was noted that technologies play an essential role in agricultural production and impact upon the life of farmers everywhere. Technical innovations such as the plough, Irrigation, mills, crop rotations, fertilizers and much more have shaped the history of mankind time and time again. Even in our modern age where technologies are readily available and innovations plentiful, the process, impact and utilization of new agricultural technologies application is complex and challenging and it carries with it many unknowns and risks.

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People typically trust proven technologies that may have been adapted to particular settings and systems over many generations. New technologies, by contrast, can run the risk of being seen as a novelty and/or a tool for the wealthy with emphasis upon boosting income and less on food security. This can sometimes hamper their acceptance among smallholder farmers, who traditionally are averse to risk (Muguwisi, 2000:10)

Factors typically influencing the acceptance of new technologies include inter alia gender, age, and education level of the farmer; farm size, access to information, land ownership, off-farm income and infrastructure. The larger the farm, the more confident the farmer, the higher the level of income from on-farm and off-farm sources and the

better informed the farmer, the more likely the adoption of new technologies (May, Karigia and Ndokwem, 2007:36)

The notion of gender in agriculture is supported by Burton (2007:14) who states that both men and women manage sectors of complex smallholder production systems and when gender is ignored, there is a cost to the acceptance and utilization of agricultural innovations. If an innovation is made and marketed to suit a specific gender, for instance, in many rural areas of Zimbabwe women are responsible for most farming activities in which their days work is spent in the fields but when agricultural innovations are associated with the masculine gender, women will not be able to accept and use these innovations.

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However acceptance of agricultural innovations may gradually rise since the fourth World Congress on Women, held in Beijing in 1985, efforts have been made by national governments and international agencies to provide agricultural extension to women and to increase rural women's access to education. The Farming Systems perspective of the1980s encouraged countries and organizations to look beyond the idea of a household whose members had common interests, for an understanding of the intra-house hold gender relations regarding production responsibilities in agriculture. However, the prevailing stereotype assumed that men "heads of households" made most decisions or were in charge of most aspects of the production processes in which small-scale farm units were engaged.

The forgoing assertion is strengthened by Bacongco (2010:4) who alleges that this view impeded progress in taking women farmers into account as both key actors and

stake holders. Since 1995 information regarding the multiple roles that women play in agricultural production and trade has been mainstreamed. It is now generally known that women and men have different roles within the household and that these roles differ in different societies and in different kinds of production units: small-scale/subsistence, medium-scale, and larger/commercial farm households. We have also learned that it is more difficult for limited-resource farmers, both men and women, to innovate because of the risks and investment required. So, although new opportunities will open up for smaller-scale women farmers to meet the demand for high-value, labour-intensive products, proposals to privatize extension services will need to be reviewed if these farmers are to benefit from them (Bacongco, 2010:5).

The study of Sturdy in 2008 showed that utilization and acceptance of agricultural innovations may be held back with the prevailing economic, educational and infrastructural constraints farmers and others making up rural communities are frequently unable to take advantage of novel technologies and innovations. Further, a 'one size fits all' approach can be detrimental to the application of technologies, and highlights the need to consider the different categories of farmers. The introduction, application and utilization of agricultural technologies need to be supported by capable and well-organized extension services and other service providers. Many novel and valuable agricultural innovations become lost to communities as a result of inadequate information, poor application and mistakes made (Sturdy, 2008:23).

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In order to improve utilization of innovations, Inocencio, Sally and Merry (2003) further affirm that small-scale farmers should be encouraged to group to enable them to match the economies of scale required that will enable them to adopt novel technologies and keep pace with change. Farmer organizations typically have

improved negotiating positions for members, better access to credit and other farm inputs and are more likely to adapt to change.

2.3.5 Factors that Influence Agricultural Change

Humans began to cultivate food crops about 10,000 years ago. Prior to that time, hunter-gatherers secured their food as they travelled in the nearby environment. When they observed some of the grains left behind at their campsites sprouting and growing to harvest, they began to cultivate these grains. From these humble beginnings agriculture began (Pimentel and Hogan 2010:1). With time agriculture began to change even human labour in agriculture has decreased, first because of the use of animals and finally with machinery powered by fossil fuels.

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There are factors that influence change in agriculture in which Akudungu, Guo and Dadzie (2012:2), note that the farm size is the first and probably the most important determinant. This is because, with small farms as compared to large farms, large fixed costs may become a constraint to technology adoption, especially if the technology requires a substantial amount of initial set-up cost. Zilberman and Feder (1985:256) noted that only larger farms will adopt these kinds of innovations as the speed of adoption of some innovations is different for small-scale and large-scale farmers. In Kenya, for example, a study by Gabre-Madhin and Haggblade (2001) discovered that large commercial farmers adopted new high-yielding maize varieties more rapidly than smallholders.

Age is a factor that influences the probability of adoption of agricultural change because it is said to be a primary latent characteristic in adoption decisions (Adesiina

and Badu-Forson 1995). Although age in some countries can be found to be a positive influence in adopting change yet in contrast, age has been found to be either negatively correlated with adoption or not significant in farmers' adoption decisions. This is because there might be a tendency to stick with what worked for someone for years as those traditional practices and farming methods are held at great value. Accepting changes in agriculture might prove to be tiresome and the elderly farmers may feel that they will not be able to cope. In a study conducted by Lawal and Oluye in 2008 on the factors influencing adoption of agricultural technologies among cocoa farmers in Nigeria, it was observed that the majority of the informants who were below 50 years were willing adopters of new technologies and this is because young farmers are more receptive to technologies because they would have received formal education that convinces them to adopt change.

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The effect of education on adoption to change according to Feder and Slade (1984) is generally thought to create a favourable mental attitude for the acceptance of new practices. This notion is also maintained by Rogers (1983) as he explicates that technology complexity has a negative effect on adoption and this could only be dealt with through education. Kaliba, Verkuijl and Mwangi agree that education is vital in adoption and this is why rural people are typically unable to keep abreast with technical development due to lack of education and/or financial resources. Without education they may have difficulties with interpreting and making significant use of information even when it is readily available.

The same fundamental issue is reinforced by Obidike (2011) who conducted a study in Enugu state of Nigeria on the problems of accessing agricultural information of rural

farmers. He ascertained that there is the inability to read and write through lack of education. Information broadcasted through media was reported to be mostly in English which makes it difficult for rural farmers to understand any information that may help them to adopt new innovations.

Lack of resources such as, infrastructure, finance and community service is a factor that also contributes to small-scale farmers not adopting agricultural change. Morris (1999:7) alludes to the fact that, lack of access roads for easy community visits from extension workers, who assist in providing information and education to small-scale farmers in agricultural practices, is a factor that hinders agricultural change. This is justified in the fact that extension workers are not able to reach farmers that are located in remote areas due to bad roads and services.

IN LUMINE TUO VIDE BIMUS LUMEN
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On the other hand Shaw (1985:35) describes how finances may prove to be a challenge in the adoption of agricultural innovations. Access to institutionalized credit is considered a major constraint on the adoption of innovations as further alluded by Shaw, because there are limited numbers of sources from which credit can be obtained so as purchase innovations. The amount that can be accessed from credit sources is limited. Lack of money even means that farmers are not able to purchase any information sources such as, newsletters, or leaflets that can assist them in gaining more information about the changes in agriculture.

The study revealed that all of the informants belong to a religious sect that accommodates their cultural beliefs and values. For people in the rural areas social, religious and cultural norms also limit access and adoption of agricultural innovations. For instance in Murombedzi, girls drop out of schools to allow their male siblings to

continue with school with the hope that they will do well and take care of the family. This then lowers female literacy in the village and according to Argawal (1994:131) men migrate to urban areas leaving women and children to work in farms. Therefore the adoption of agricultural innovations is limited because those with little knowledge on farming are left to practice agriculture.

Age and education are issues that affect or rather limit adoption of agricultural change in Murombedzi and according to the study most of the informants only have primary education which does not give them enough knowledge to understand any new information about improvised technologies. With age some of the informants have strong beliefs especially in their indigenous farming methods and are reluctant to implement and let alone learn about new changes in the agricultural sector.

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The importance of the study was to discover reasons that lead to the lack of implementation of agricultural innovations among farmers of Murombedzi Irrigation Scheme. Agriculture in Zimbabwe as reported by Mugwisi (2000:2) plays an important role in the economies of many developing economies contributing significantly to their Gross Domestic Product (GDP), labour force, sustenance and exports. In Zimbabwe alone agriculture is the dominant sector in the country's economy, contributing 15-20% of the GDP and providing an income to over 75% of the population. However as further elaborated by Mugwisi (2002:2), there has been a decline in GDP contribution from 23.7% in 1999 to 14.6% in 2003. This sharp decline is largely influenced by small-scale farmers who have little skills and knowledge on farming that can help their economy grow.

The study seeks to shed more light on the factors that influence adoption of agricultural change. With the influence of the DOI theory which illustrates the channels that should be taken in order to assist small-scale farmers to accept and adopt new technologies. Agricultural extension workers can be able to take advantage of the strategies of impacting knowledge on new technologies to farmers and how their beliefs and values can be accommodated in new farming methods.

2.4 Conclusion

This chapter aimed at helping me to better understand the research problem by reviewing related literature from researches, books, journals and online journals. Based on the literature I reviewed, it can be concluded that beliefs and values have an effect on human behaviour such that when a foreign innovation is introduced it will likely be adopted when it does not contradict with a person's beliefs and values. The literature illustrated that change can be resisted because of reasons such as superstition, and these results in most farmers deciding to continue with their traditional practices. The relevant studies have also publicized that innovations in agriculture have been proven to increase production efficiency improving the livelihoods of rural people.

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Various researchers (Mugwisi 2009, Sturdy 2008 and Chisango 2010) have argued that innovations have to be accepted by the farmers, in which there are many factors that are associated with acceptance such as, the nature of the technology, how it has been marketed, and how effective it is farming. As in any other sector of the human life agricultural change has it's constraints that hinder it from being accepted by farmers. These factors may vary from country to country, or community to community. It emerged from the literature that factors that influence agricultural change include,

education, age of the farmers, financial situations etc. These factors have been proven to be challenges in the adoption of agricultural innovations thereby posing a threat in the main aim of increasing food production. This is supported by Brooks (2010) in a study that she conducted on African agriculture. In her study she states that agriculture in Africa needs knew research that generates knowledge on the factors that are of main concern in agricultural production and how knew knowledge can be passed on to farmers.

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CHAPTER Three: Research Methodology

3.1 Introduction

The aim of this chapter is to document what particular type of research methodology that I have used in gathering data. The methodology was employed in providing answers to research questions. This chapter encompasses the research design, methodology, limitations of the study and ethical considerations.

3.2 Research Design

Research design as defined by Sarantakos (2005:103) is a planned structure of methods of investigating and obtaining evidence to answer research questions. Gravetter and Forzano (2003:31) conclude that a research design is a conceptual structure within which a research is conducted. A well designed study enables the researcher to explore and find connections of specific phenomena. This is because a research design is a blue print for conducting the study, which maximizes control over factors that could interfere with the validity of the findings. It guides the researcher in planning and implementing the study in a way that it must likely achieve the intended goal. The main function of the research design is to enable the researchers to anticipate what appropriate research decisions should be made so as to maximize the validity and reliability of the eventual outcome.

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The study applied a qualitative research design which is explained by Hale (2009:201) as a system of inquiry which seeks to build a holistic, largely narrative, description to inform the researcher's understanding of a social or cultural phenomenon. He further explains that qualitative research takes place in natural settings employing a combination of observations, interviews, and document reviews. On the other hand

Stangor (2011:15) describes qualitative research as descriptive research that is focused on observing and describing events as they occur, with the goal of capturing all of the richness of the everyday behaviour. Qualitative research takes place in a natural setting of the phenomena to be studies (Ngulube, 2009:28).

Data that formed the basis of this qualitative research mainly included field notes from participating and observing as well as from interviews. This is because qualitative research involves the use of qualitative data such as in-depth interviews, document and participant observation, ethnography to understand and explain social and cultural phenomena (Ngulube and Myers, 2004:156). Qualitative research emphasizes words rather than quantification in the collection and analysis of data and the data is expressed in words that give more information about feelings, values and attitudes (Babbie, 2010:35).

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Babbie (2010:35) further elaborates that qualitative research tends to be associated with the idea that social life is the product of social interaction and relationships and actions characterize the social world. In fact it often focuses on viewing the experiences from the perspective of those involved.

Qualitative research tends to be associated with the idea that social life is the product of social interaction and relationships and actions characterize the social world (Babbie, 2010: 36). In fact it often focuses on viewing the experiences from the perspective of those involved. This sentiment is shown in a similar study to the present study conducted by Mapila, Kirsten and Meyer in 2011 on "Rural Agriculture and Improved Livelihood in Africa: a case of Ukwe planning area in Malawi". The study applied a qualitative research design as the study (Ukwe) area is a village characterized with culturally motivated informants who had to be studied in their

environment to determine the level in which agricultural innovations through the use of agriculture extension officers improved the livelihoods of rural people.

On the other hand qualitative research design has some limitations that may have an influence on the study at hand. Carr (1994:716) states that one of the most common weaknesses of qualitative research is that it generally takes more time to collect the data because informants have to be studied holistically. However George (2000:23) argues that although qualitative research takes time to collect data, quality information is generated with the utmost patience of a researcher because no one can know all about a person or a society within a short pace of time. Another weakness associated with qualitative research is that the results may be easily influenced by the researcher's personal biases and idiosyncrasies (Peters, 2009:114). To avoid being biased the researcher must be able to eliminate his/her feelings, attitudes, opinions or beliefs when conducting the study as this will allow one to see the perspectives of the informants and be able to report it as it was seen in the eyes of the informants (Carr, 1994; George, 2000 and Peters, 2009). In this research my personal experiences in using qualitative research design are covered under research instrument section 3.3.1.

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3.3 Methodology

This section is broken into three major subsections: research instruments, data, and analysis.

3.3.1 Research Instruments

The research made use of an interview guide and participant observation. The interview schedule is in appendix one.

Interviews are face to face meetings between the interviewer and the interviewee (Smith, 1995:18). For the purpose of this study semi- structured interviews were used. The semi -structured interviews are defined as those organized around areas of particular interest, while still allowing considerable flexibility in scope and depth (Neumann, 2000:27). Semi-structured interview questions were used to allow participants to engage in a process of exchanging information and experiences. This technique was deemed appropriate for the data gathering process among the farmers because, according to Babbie and Mouton (2007: 291), it facilitates an open interview that enables the subject to speak freely. The advantages of semi-structured interviews are that they provide the opportunity to pose questions in an open-ended manner as the researcher aims to elicit responses of an introspective nature, it is flexible and participants' ideas guide the process. While the semi-structured interview is a prominent data collection strategy in both qualitative and quantitative research, it is chiefly used within social sciences research (Bryman, 2004:109).

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This study employed a semi-structured interview whereby informants were asked almost exactly the same question. I gave the chairperson an interview schedule in

advance in order to prepare (see appendix two). The interview schedule allowed me to probe when necessary and also asked follow-up questions to get clearer answers. A face-to-face interview provided flexibility that enabled me to get qualitative data from the informants.

Participant observation was chosen in order to be integrated in the research by participating fully and actively in the research process. Participation observation is described by Babbie (2010) as a mostly widely used research approach that is characterized by a participatory element and encountered especially in the underprivileged rural settings. There, the method has emerged as part of the search to render development assistance more responsive to the needs and opinions of local people. Participant observation enables researchers to develop a familiarity with the culture at study that will prove invaluable throughout the project. It gives them a detailed understanding of context that can come only from personal experience (Stangor, 2011).

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I mingled with the farmers during data collection. The manner in which the farmers communicate with each other when designating duties for the day as observed. As in any other organization there is a hierarchy within the Irrigation Scheme in which most decisions are passed by the chairperson to the members. A duty roaster is put in place which assists the farmers in performing their daily duties effectively observation is the recording of events as observed by an outsider (Bless, Higson-Smith and Kagee, 2006:114).

I recorded all the observations with the permission of the informants and then used the data to compile the findings. Participation was done also with the consent of the informants as a measure of avoiding disturbing any activities of the day. I also recorded experiences in participation because participation gave me an opportunity to explain some of the phenomena that existed. Qualitative researchers observe human behaviour as it happens and this needs patience as participating and observing is carried out in an unstructured manner (Ngulube, 2004). I observed and participated in farming activities and in other activities within the informant's households, for instance, I participated in a major activity of harvesting where all the farmers as well as other members of the community come together to assist in harvesting the crops. This is line with Ngulube's assertion mentioned above. The crops being harvested were mainly maize, beans, ground nuts and black eyed peas. This even gave me an opportunity to communicate and get more information as informants were sharing their personal experience both in their households and in the farms.

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I employed this technique because I was able to take on a role in the social situation under observation. I immersed myself in the social setting under study getting to know key actors in the location in a role that was either covert or overt. Being able to participate in the day to day activities of the informants enabled me to gain an experience and clarification that would assist in the interpretation of their beliefs and habits. My participation extended as far as helping in land preparation, seed sowing and cultivation.

Ferraro and Andreatta (2011: 103) mention that participant observation posses certain methodological problems that can jeopardize the quality of the data. For example, the

very nature of participant observation precludes a large sample size because its studies are both in-depth and time consuming; hence fewer people are actually studied than would be if questionnaires or surveys were used. In order to avoid stereotyping and bias the researcher ensured that all the members of the Irrigation Scheme were included in the study and this was achieved through the assistance of the chairperson who made sure that all the members were aware of and present for the study. A second problem with participant observation is the inability to record all observations because it may be difficult if not impossible to record notes while attending a ceremony or activity. However a follow up was made with the informants to go through the stages of an event which helped the researcher to also recall and be able to make a record of the proceedings.

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University of Fort Hare

Oke (1990:59) mentions that the addition of a new member (researcher) to a community or social group, in this case the addition of the researcher may affect the entire structure of the group and the relationship among the members: thus the researcher may change, to some extent the action he is observing. The researcher, by virtue that he/she plays a role in the group, may impose certain restrictions upon his own understanding of the situation. To manage this limitation the researcher was able to establish presence in the community and openly informing the informants about the study as well as their role in the research thrust so as to establish a feasible research working relationship with the subjects of the research.

3.3.2 Data

This section discusses the type of data I gathered, whether it was good enough to my purposes. It covers population and sample, strengths and weaknesses.

3.3.2.1 Population and Sample

A research population as defined by Walonick (1993:22) can refer to all those cases about whom the researcher wants to make a scientific conclusion, with respect to a certain attribute or social phenomenon. This view is supported by Stangor, 2011:110) who argues that a population is the entire group of people that the researcher desires to learn about. It is also a target group who would, in the ideal world, be the subject of the research, and about whom one is trying to say something about. However, Gay (1981:86) described a population as a group of interest to the researcher, the group to which to which she or he would like the results to be generalized. Population is also a term that sets boundaries on the study units and this is also supported by Mc Burney (2001:113) who refers to the population as the totality of persons, events, organization units, case records or other sampling units which the research problem is concerned. The researcher targeted the members of MIS whose main characteristic was the agricultural project situated in a natural and cultural setting.

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According to Powell (1997:66) the population should be selected with great care bearing in mind the selection criteria, the desired size and parameters of the study. In light of the above description of research population, for this study my research population was comprised of the members of Murombedzi agricultural Scheme and their families. The population was also chosen because it was in close proximity to the researcher such that it was fairly easy for the researcher to visit the Irrigation Scheme. Babbie (2007:111) asserts that the population of the study is that group whom we

want to draw conclusions, or simply every possible case that could be included in your study. The entire Murombedzi community was too large to be studied within the time frame hence the need to select a representative group (sample).

3.3.2.2 Sampling Frame

A sampling frame is a list or other device used to define a researcher's population of interest (SAGE, 2004:129). This definition is supported by Sarantakos (2005:110) who notes that a sampling frame defines a set of elements from which a researcher can select a sample of the target population. A researcher rarely has direct access to the entire population of interest therefore a researcher must rely on a sampling frame to represent all of the elements of the population of interest.

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The sampling frame for the purposes of this study, were all the 50 members of Murombedzi Irrigation Scheme including their family members. This is because each member has a certain allocated responsibility within the Scheme and their family members are also involved in the Scheme so as to share the labour.

3.3.2.3 Sample Size

Spat & Kardas, (2005) define sampling as the selection of informants to participate in a research project, usually with the goal of being able to use the informants to make inferences about a larger group of individuals. Thus sampling is the process of selecting a few (sample) from the bigger group (the sampling population) to become the basis of estimating or predicting the prevalence of an unknown piece of information, situation or outcome regarding the bigger group. Sampling is the selection of research participants from an entire population, and involves decisions about which

people, settings, events, behaviours or social processes to observe (Blanche, Durrheim, 2006).

No study can involve everything or everyone (Punch, 2005:101). For this study to have been effectively conducted there was need to sample. The sample was derived from the population and comprised of the 50 Murombedzi Irrigation Scheme members below is the demographic table of informants.

Table 3.1: Demographic table of informants

	Men	**Women**
Age groups	16-25 26-35 36-45 46+	16-25 26-35 36-45 46+
Education	Primary level High school level	Primary level High school level
Religion	Christianity Traditionalist	Christianity Traditionalist

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3.3.2.4 Sampling Method

There are two types of sampling methods, the probability and non-probability sampling. Non-probability sampling as stated by Sarantakos (2005:156) is when chances of selecting any case are not known because cases are non-randomly selected. For the purpose of this study, I made use of the non-probability sampling method through the use of purposive or judgmental sampling technique. Crossman (2012:1) defines a purposive sampling technique which is also commonly called a judgmental sample as one that is selected on the knowledge of a population and the purpose of the study. The perspective of Babbie and Mouton (1998) on judgmental sampling inspired the researcher to employ the outlook in selecting the required informants. Babbie and Mouton (1998:27) explain that the researcher selects a sample on the basis of his/her own knowledge of the population, its elements, and on his/her judgment.

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My sampling frame consisted of all the 50 members of the Irrigation based on their characteristics that were known and favoured by the study. The farmers were purposively chosen because of their participation in the Irrigation Scheme as well as the personal characteristics that they possessed which would meaningfully contribute to the objectives of the study and provide information on agricultural change. In selecting the key informants, I also held preliminary meeting with the senior members of the community to gain more information on the characteristics of the study population that would benefit the research. All the members of the Irrigation Scheme were preferred because they seemed to believe that their traditions, cultural beliefs and values had an impact in their farming methods and also because each member has a specific role to play in the Irrigation Scheme. On the other hand judgmental

sampling is associated with personal bias in selecting the sample because one will choose a sample that has favourable characteristics (Terrain, 2000:12).

3.3.2.5 Sampling Technique

Judgment or non-probability sampling was used for this study which is explained by Ryerson (2005:126) as a technique in which the researcher uses his/her judgment in selecting the units from the population for study based on the population's parameters. This technique is used in cases where the researcher can select a more representative sample according to his/her knowledge that can bring more accurate results. The process involves handpicking of individuals from the population based on the researcher's knowledge and judgment. This technique was favourable in this study because of the nature of the study, in which informants were chosen to participate in the research based on their favourable [illegible] that were known. Having conducted a pilot study the researcher familiarized herself with members of the community and informants in order to gain insight on the informants that would assist in the study.

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Judgmental technique was able to assist in the study in the sense that, being able to handpick informants that would assist in the study allowed the researcher to explain more clearly aspects of the study and what was expected of them. This is because the researcher was competent in the language that the informants preferred in communication and how they also expected to be addressed. Since the study required informants with some knowledge in the field of agriculture there was handpicking of informants with that knowledge which assisted the study and getting some activities explained.

There are limitations to judgmental sampling and one of them as explained by Miles (2012:2) is the difficulty to defend the representativeness of the sample. In other

words, it can be difficult to convince the reader that the judgment you used to select units to study was appropriate. It can also be difficult to convince the reader that research using judgmental sampling achieved theoretical, analytical and logical generalization. On the other hand Williams (2011:12) says that judgmental sampling is associated with personal bias in selecting the sample. This is because the researcher only selects a sample based on his/her knowledge of the population and then generalizes that the findings of the particular sample represents the entire society.

3.3.2.6 Data Collection Methods.

All of the 50 members of the Murombedzi Irrigation Scheme were contacted on a one on one basis to explain the overall aim of the study and its relevance, and to seek their agreement to participate in the study. In these conversations, the general nature of the research was explained to each member for the preparation of interviews and participant observation. It was emphasized to every informant that participation in the study is voluntary. Data was gathered over a period of five months as participation in agricultural activities that are seasonal was required. On average, I took at least six hours daily to participate in the agricultural activities of informants. I had to be available throughout the various sessions to answer any questions.

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In collecting data a qualitative research was adopted as a feasible approach for this study. The qualitative research approach is the generic research approach in social research according in which research takes as its departure point the insider perspective on social research. Qualitative researchers always attempt to study human action from the perspective of the social actors themselves. The main concept of this approach is to explore and gather an in-depth understanding of human behaviour and the reasons that govern such behaviour.

I chose this approach so as to get the holistic perspective of the society, in other words to be able to see and view the community the way its members see it. Murombedzi is a community with members that have different cultural beliefs and values and qualitative approach was employed in collecting data because it would assist in shedding more light on these values and beliefs that have an effect on the informants accepting agricultural changes.

3.3.3 Data Analysis

Data analysis is defined by Sarantakos (2005:344) as the focus given on gathered data, reading it within the context of the setting and research purpose and usually employing a basic, descriptive content analysis. The goal of this method is defined as describing and understanding rather than explanation and prediction of human behaviour (Babbie, 2010:265).

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In this study the main tools for collecting data were semi-structured interviews and participant observation. Qualitative research involves exploration, elaboration and systematization of the significance of an identified phenomenon. Babbie and Mouton (2007:270) define qualitative research as an approach in which research takes as its departure point the insider perspective on social action. It is a research approach that privileges the epic perspective that is, the lived experience of the subject, and the meaning the subjects attach to the phenomena being investigated.

Data that was gathered through interviews, focus groups and notes taken during participant observation was used in description and explanation. During the fieldwork

data was described and further developed from testimonials, individual interviews and field notes, so as to answer the major research questions. All conversations were recorded down and the researcher made notes as these assisted in examining the meaning of people's words or actions and try to make explicit the knowledge that is in them. At irregular intervals a few questions were identified so as to familiarize with the data and the common themes. Data was checked for completeness, comprehensibility, consistency and reliability. This was done to get rid of numerous problems that could arise during analysis.

3.3.4 Trustworthiness and Credibility

The aim of trustworthiness in qualitative research as addressed by Fenton and Mazulewicz (2008:1) is to support the argument that the researcher's findings are worth paying attention to. On the other hand, credibility is an evaluation of whether or not the research findings represent a credible conceptual interpretation of the data drawn from the participants' original data (Lincoln & Guba, 1999:296).

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The research drive ensured trustworthiness and credibility by first piloting the research instrument with two samples so as to determine its validity and relevance. Piloting the research instrument also ensured that discrepancies in the research instrument were corrected before administering the research instrument to the sample. Furthermore, the researcher adequately recorded all the data collected during the interview to make sure that all information was captured.

3.4 Limitations of the Study

Mitchell & Marshall (1986:1) define the limitations of the study as those characteristics of design or methodology that set parameters on the application or interpretation of the results of the study; that is, the constraints on generalizability and utility of findings that are the result of the devices of design or method that establish internal and external validity. I did not anticipate any substantive challenges as gaining entry was done with the informed consent that was granted by the chairperson having discussed with the other members.

Although I was fluent in the language of the land, there were some challenges in having to explain some technical terms such as, Agricultural *Innovation Systems, Livelihoods, or Household Security*, that were relevant to the study. This was because of the low literacy levels within the comm[illegible] most of the informants only managed to finish their primary level of study. However, I was able to overcome this challenge by taking the time to explain and inform the informants about some of the relevant fields that the informants needed to know about.

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Although the research was not gender based most of the informants that were available for interviews were mostly females and this is because women are responsible for most agricultural activities and they spend most the day the day labouring in the fields. This meant that the study would focus more on the views of the women and less of the men. Some of the informants had the view that the study was being conducted so that they could benefit in the form of resources. This made it difficult for me to access valid data as the informants would alter their situations and information so as to qualify for assistance. This situation was addressed by communicating with the chairperson of the Irrigation Scheme who would explain to

them more about the purpose of the study. When more information was provided to them by their chairperson they began to understand more and more about the purpose of the study.

3.5 Ethical Issues

"Efforts have been made to make research more systematic and more accountable through the introduction of laws which regulate the access of information as well as the behaviours of researchers" (Sarantakos, 2005:16). Ethics as defined by Seale (2004:116) embody the science of morality or moral principles of governing or influencing conduct. This view is shared by Babbie (2007:22) who states that ethics denote conforming to the standards of conduct of a given profession or group. Singleton (1988:474) outlines that there are three broad areas of ethical concern which are; the ethics of data collection, the ethics of responsibility to the society and the ethics of treatment of participants. Singleton (1988:474) further elaborates that the norms of the science tacitly require researchers to be unremittingly honest in their observation and analyses. In conducting this study, the researcher had to adhere to ethical and moral obligations with regard to data collection, analysis and report writing. Acting in an ethically irresponsible manner was avoided because this study involved people. The following ethical aspects were considered.

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3.5.1 Avoiding Harm to Informants

It is the researcher's responsibility to ensure that the research will not entail any procedures that can cause harm to informants. The types of harm that can be experienced by informants may be physical, mental or legal. With physical harm,

researchers are expected to exclude from their research instruments or procedures that could injure the informants, such as, chemicals or sharp objects.

Mental harm entails cases where informants are subjected, directly or indirectly to procedures that cause discomfort, stress of some kind, anxiety, loss of self esteem and embarrassment. This is usually caused by asking personal questions or by formulating questions in a demeaning manner. With legal harm this can have serious personal, emotional, social or economic consequences. This occurs, for instance, when the researcher violets any rights of the informants. During the investigation I made sure the informants were not harmed or offended in anyway.

3.5.2 Deception

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Deception as noted by Sarantakos (2005:19) occurs when researchers encourage people to take part in a study by deceiving them. This happens through hiding aspects of the research that informants may find undesirable, or presenting an attractive but false image of the research. For instance, a researcher may not inform participants of a particular cosmetic experiment of the harmful side effects but instead will add the non-existent expected positive outcomes of the experiment. Deception also occurs when a researcher conducts a research without the consent of the informants. In some situations informants are studied without giving their verbal or signed consent.

Participants must also not be coerced into participating in a research. During fieldwork the researcher was able to conduct the research with the informants' verbal consent and the informants were allowed to make a decision to partake or withdraw from the study. In some cases informants had the wrong perception of the study because they thought they were going to be assisted financially at the completion of the study. I made sure that the reasons of the research were constantly discussed so as to avoid

any confusions and expectations. I made sure not to allow any ideas to settle in the minds of informants in order to gain more information.

3.5.3 Privacy, Anonymity and Confidentiality

Ethical standards as noted by Sarantakos (2005:21) prescribe that researchers abstain from delving into the private affairs of the subjects. Informants have the right to privacy and researchers are expected not to ask personal and sensitive questions if they realize that the informants do not feel comfortable revealing certain information. It is the duty of the researcher to safe guard the privacy and identity of the informants.

Anonymity usually entails whether an informant is comfortable with his/her identity being revealed. This is done so as to protect the informant in certain ways such as from any violence, embarrassment or alienation. With confidentiality the researcher is given certain information on the basis that he/she will not produce it or mention the source. When this happens the researcher must be careful enough to maintain the promise and in some cases the researcher may keep names linked to the data, but information made public will neither include the name of the respondent. To this end, participant observation was chosen in order to be integrated in the research by participating fully and actively in the research process. Participation observation is described by Babbie (2010) as a mostly widely used research approach that is characterized by a participatory element and encountered especially in the underprivileged rural settings.

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There, the method has emerged as part of the search to render development assistance more responsive to the needs and opinions of local people. Participant

observation enables researchers to develop a familiarity with the culture at study that will prove invaluable throughout the project. It gives them a detailed understanding of context that can come only from personal experience (Laurier, 2009).

The privacy of the informants was maintained by adhering to the requests of some of the informants who wished to remain anonymous and in some cases informants would request me not to interfere in some of their activities. Information produced by the informants was used for this study only.

3.6 Conclusion

This chapter chronicled the three fundamental sections, namely research design, methodology and the research instruments. It attempted to justify a particular research design was chosen and why a specific methodology was employed. The chapter also outlined why certain research instruments were preferred. Weaknesses of these components were also identified and addressed. The chapter concludes by examining limitations of the study and ethical considerations.

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CHAPTER FOUR: Agriculture Production in Murombedzi Irrigation Scheme

4.1 Introduction

This chapter provides a brief historical background of Murombedzi and its socio-economic orientation. The chapter attempts to depict how social and economic dynamics impact on Murombedzi Irrigation Scheme. Social dynamics include land tenure act, socio-cultural identity and marriage and kinship. Economic variables comprise household food security, land preparation, crops grown at Murombedzi Irrigation Scheme, agricultural innovations and infrastructural activities in the study area.

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4.2 History of Murombedzi Settlement

European penetration into Zimbabwe began through Christian missionaries in 1858 and they were then followed by fortune hunters, soldiers and land grabbing settlers (Chisango, 1998:14). The massive land grab exercise drove thousands of Africans from 50% of the country into reservations, now called communal lands. Since land was taken without compensation to the owner, this was consolidated by the Land Apportionment act of 1930 and the land tenure Act of 1969. From February 2001 over 60 000 liberation war veterans and other landless Africans occupied 1700 farms owned by the white farmers. This was designed to increase the availability of land for resettlement, and to yield higher levels of agricultural production. This assertion is also supported by Mumvuma, Mujajati and Mufute (2009:4) who state that "this reform process was triggered by a number of problems the economy was experiencing during the first decade of independence. These problems were low economic growth, high levels of unemployment, increased poverty, low investment level, disappointing export growth and an unstable macroeconomic environment".

With the ability to own land it is evident that the native people of Murombedzi mainly came from surrounding villages of Zvimba district such, as Maungezi and Chitomborwizi village and other neighbouring towns such as, Chinhoyi, Chegutu and Norton in order to settle on the land which was designated to them. This was also motivated by the government in its endeavour to provide black small-scale and peasant farmers financial and extension services to enable them to undertake large-scale commercial farming as producers of maize (the staple food), cotton and ground nuts.

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4.3 Land Tenure Act

Land tenure is a relationship, whether legally or customarily defined, among people, as individuals or groups, with respect to land (FAO, 2002:2). This sentiment is further supported by Curtin (1999:2) who argues that "land tenure is an institution in which rules are invented by the societies to regulate behaviour. Rules of the tenure define how property rights to land are to be allocated within societies. In addition these rules define how access is granted to rights to use, control, and transfer land, as well as associated responsibilities and restraints".

According to Scoones, Morongwe, Mavadzengi, Mahenene and Sukume (2010:5) the conventional wisdom is that the white settlers who descended on Zimbabwe, then Southern Rhodesia, just over a century ago appropriated all of the best land, and that the indigenous majority was confined to inferior land across the country. Scoones et al (2010:5) proceed to posit that the white farming population, originating from Europe and South Africa first arrived in Zimbabwe in the 1890s and after self-government was

granted in 1923, the Southern Rhodesia House of assembly generated a framework for the distribution of land. The land appointment act of 1930 divided the colony's land into three areas characterized by tribes. On effect of the appointment some families were moved from land they had held for generations. The land appointment act of 1930 formed the basis for subsequent laws and continued in effect until independence.

Herbst (1990:129) reports that in December 1990 parliament passed a bill that licensed the government to seize farmland and pay whatever reparation it chose. Murimbarimba (2003:10) postulates that in the year 2000 the government of Zimbabwe structured a referendum on the new constitution in February. The white owners were forced off the land and this first wave of farm invasions, a total of 110,000 square kilometres of land had been seized. From owning 4% of the land black small-scale farmers are estimated to owning at least 35%.

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Members of Murombedzi Irrigation Scheme were able to benefit from the land redistribution act, in which they report that they seized land that belonged to their forefathers. One key informant, Mr. Mutopo narrated that in order for them to have acquired back their land they had to register their names with the local municipality through their chief as it was not necessarily a grab and take situation. The land had to be redistributed to them legally as directed by the law. In whatever they decide to do with the land, such as, selling or renting, they have to first discuss with the chief who initiates the deals.

Matondi and Dekker (2011:14) reveal that the small-scale commercial farming Scheme was introduced in the 1930's by the Land Apportionment Act (LAA), following

the Morris Curter commission which identified farms in blocks, which were contiguous to a communal area to create what was called native purchase areas now called small scale commercial farming (SSCF). It is an important factor for deriving lessons on tenure provision. Currently 1.4 million hectares have been successfully allocated to the SSCFAs which they occupy 4% of the total agriculture land in Zimbabwe and 7.5% of this land is of poor quality therefore not to be used intensively for crop production without heavy investment in Irrigation.

In terms of owning land, only 48% of the local people of Murombedzi according to The CFU (2003:118) are land holders and have fully paid and received their title deeds hence they are in relation to freehold tenure. Freehold tenure is in relation with an individual fully owning land. Free tenure is regarded as superior in financial and commercial markets, simply because land can be transferred and thus provides certainty and stability in use of land for business purposes. 52% are still leasing the land from the government as they have not yet fully paid their land. The conditions of the lease are that, a farmer resides on the farm permanently, practice farming for exclusive benefit of himself and his family, not to subdivide the farm or enter any form of farming partnerships and must practice agricultural land use. The rental fees that are paid annually by the lessee form part of the purchasing price of the farm.

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Farms still continue to be purchased with no interest fee payments. The GOZ also funds capital investment on individual farms through loans for fencing, dams, boreholes etc. (Masters, 1994:26). When I asked one of my key informants, Mr. Chikowore about the opportunities for land acquisition, he said:

"There are opportunities for us to purchase land and practice agriculture in Murombedzi ever since the new law was passed but some of us are still unable to do so due to lack of finances to even make the down payment. Another reason is that we fall short of the requirements to purchase land as some of us are not in possession of valid documentation such as, birth certificates and identity documents that are required to process land acquisition. However our greatest challenge is that, we do not have enough information about land acquisition as to as how and where to purchase land and even on how to practice agriculture".

These factors pose as challenges in the local people of Murombedzi from practicing agriculture and being able to fend for themselves and their families.

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The land reform in Zimbabwe came into focus in the year 2000 as explained by Richardson (2005:76) that it was also fuelled by the war veterans who had wanted to claim the promise of being given land after the war. However, Zimbabwe's constitution forbad the wholesale seizure of the land without proper compensation but in the year 2000 citizens rejected the call for the new constitution by the president which gave the government powers over land seizures. This was the beginning of the motion to seize nearly 4.500 commercial farms.

Nyambara (2000:117) argues that the land reform of Zimbabwe though it gave the natives an opportunity to practice agriculture and be able to take care of themselves and their families it however had an impact on the agricultural production. This is because most of the land that was occupied by the white people was not only because it was arable or characteristic of high rainfall but it was also typically dry, scorched,

titled and infertile. Agriculture thrived in these parts of the land because the farmers were able to provide good Irrigation systems that would make the land seem fertile and desirable. The natives seized these lands with the hope of producing as much or better than the white men did but unfortunately this was not the case. Agriculture has declined due to the fact that most of the farmers that occupied the once white owned farm lands have little education or knowledge in agriculture. Besides education, access to credit and resources that would assist in effective agriculture is limited to these farmers hence it limits their produce (Moyo, 1996: 101).

4.4 Socio-Cultural Identity

The Shona are the dominant linguistic group in Zimbabwe. According to Beach (1983:12), Shona people settled on the Zimbabwean plateau in about 1 A.D, having moved from the north and across the Zambezi River into the country. Up until the Nguni and White incursions in the 1830s and the 1890s respectively, the Shona were the most dominant political group on the plateau. They were responsible for the creation of the powerful pre-colonial states of Great Zimbabwe, Torwa, Mutapa, and Rozwi (Beach, 1983:7).

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The Shona were a community of crop farmers and animal herders. The principal crops grown were finger- millet, bulrush- millet, and sorghum. Cultivation also included a variety of vegetables such as pumpkins. Of all the crops it was, however, the grain crops that were the most important. Bourdillon (1982:3) argues that life revolved around their production. Their success or otherwise had ripple effects on society. Such effects could include famine, starvation, and, in some cases, civil strife. Because of their importance, grain crops not only contributed to food security, but also to the

nature of social relations among the Shona. In an interview with Mr. Chiyangwa, one of my key informants revealed that Shona people began to grow crops in order to pay tribute or tax to their chief. Tax or tribute was required from each family within a community and it was usually in the form of domestic animals or crops. For most poor families crops were all they could offer hence framing had to be practiced often in order to be able to pay tax. This then began the long process of establishing the distinctive Shona culture that is so much part of Zimbabwe today.

During research sojourns to Murombedzi Irrigation Scheme from 2011-2012, it was observed that the inhabitants of Murombedzi are of the Shona culture as per their cultural habits and the village structure. In response to an enquiry from the researcher about the genesis of their tribe in Murombedzi, an informant; Mr. Chiyangwa narrated that:

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"Our ancestors were Bantu-speaking farmers who migrated from the north and later built great Zimbabwe in the south of Zimbabwe. As early as the 11th century they enslaved and absorbed the San group which however motivated the rise of the Shona culture due to absorption different cultural traits. The Shona people began to migrate from the south due to wars, droughts as well as marriage and kinship and for us our ancestors settled here in Murombedzi."

Tutla (2009:2) describes the Shona culture as a culture that is strongly intertwined with the way the villages are structured. In terms of the village setup, a Shona village known by the Shona people as *musha* is controlled by a hereditary headman, who is the head of the principle unit which originally founded the village.

Murombedzi is one of the capital villages in Zvimba district with the district population at 230,703 people. Chimutamba (Murombedzi) Irrigation Scheme is one of the communities that are situated along the Chitomborwizi River, a community's largest source of water. The Irrigation Scheme was mainly established for the purpose of eradicating poverty in the community. The Irrigation Scheme was named Chimutamba so as to symbolize the purpose of the Scheme to the community.

The local small-scale farmers of Murombedzi are traditional in nature even when it comes to their agricultural practices. There are certain crops that are considered to be traditionally grown all year round, such as, maize and sorghum. This sentiment is reinforced by Tavuyanago, Mbenene and Mutami (2010:121) who postulate that the spread of maize production was propitiated by the demand for the crop, especially in the early years of colonization, when many Africans took to the growing of the crop, not just because it was a useful addition to their stock of food crops, but also because the crop offered a vent through which Africans could raise funds for purposes such as, paying taxes imposed by the colonial government, school fees, hospital fees, etc.

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Growing maize became a tradition in which small-scale farmers at Murombedzi Irrigation Scheme believe was passed to them from their *Madzitateguru* or forefathers and that they are able to make profit through maize as it is in demand. Maize supply within Murombedzi is also greatly motivated because it is a location of a great deports belonging to the Grain Marketing Board (GMB) which requires constant supply of maize so as to maintain food supply to the nation.

4.5 Marriage and Kinship

The sociology guide (2012:1) defines marriage as one of the universal social institutions established to control and regulate the life of mankind. This sentiment is supported by Westermarck (1998:132) who also defines marriage as the more or less durable connection between male and female lasting beyond the mere act of propagation till after the birth of offspring. On the other hand, kinship as illustrated by Brown (1965:23) is "the relation by the bond of blood, marriage and kindred ones. It represents one of the basic social institutions". Kinship can also be viewed as the relationship between people through marriage, family or other cultural arrangements (Mercury, 2010:2).

During an interaction with the informants of Murombedzi community, I discerned that just like in any other community the institution of marriage is a valued tradition that has existed for generations. Enquiry show[illegible]eople interpret marriage as a rite of passage in which a boy passes from boyhood to manhood and also a girl passes from being a girl to being a woman. Informants reported that marriage within Murombedzi is strictly between a man and a woman with the agreement of the two families. The age of which a boy or girl can get married varies from household to household. It usually takes place from the age of 16 for a girl and 18 for a boy. There are however rules that exist especially among the Shona with regards to marriage and some of these rules include, marriage between families that possess the same totem (A totem, also known as *Mutupo* was used by the Mashona to identify the different clans that made up the ancient civilizations of dynasties. The symbols are usually associated with animal names and provide the social identity of the clan. They are also meant to guard against incestuous behaviour).This is prohibited because they are already regarded to be one family because they are descendants of one common ancestor.

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Like in any other society there are different types of marriages that exist within the Shona culture but the most practiced marriage within Murombedzi is the traditional marriage. In the traditional context, marriage is viewed as something that involves the entire families of the two parties. When a boy and girl fall in love, they follow a certain protocol where each part has to inform family members from the most junior to the nucleus parents. This is done so that every member of each family is fully aware of the engagement and possible marriage (Samphada, 1998:2). In the process, members give their recommendations or disapprovals. If elders approve of the engagement, then protocol is again followed and the prospective husband is expected to pay a dowry in form of money and animals. Mahoso (2000:12) reveals that this is considered a token of appreciation, not by any means buying a wife, as it is often interpreted by those who do not fully understand African culture.

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Dowry as defined by Major (2011:1) is material assets such as money or property that is provided by a bride to her husband at the time of their marriage and on the other hand *roora/lobola* is the bride price whereby the man pays the family of his fiancée for her hand in marriage. For the informants the man paying the bride price (*roora*) is highly valued and still practiced as it shows a sign of stability, reliability and appreciation but the culture of dowry is not practiced within the community of Murombedzi and women can only pay or bring materials to the husband's family in cases such as, compensation to be granted forgiveness for wrong done to the family.

When the marriage process has been completed these two families become related which is a definition of kinship. Kinship can also be formed through social or cultural relations. Mostly in small societies people or families might become close over the years in that a relation is formed this relation might extend to them being considered

families and can assist each other in family issues. In some cases kinship is formed by cultural relations in that people may possess the same cultural traits, totems or beliefs. Through this a relation is formed and they regard themselves as related and family.

Through marriage and kinship most households in Murombedzi are characterized of extended families. Extended families in which a family houses relatives such as, an uncle, aunt, cousin, niece, nephew or grandparents. It was made clear in some households by the informants that through kinship one is obliged to assist and house a person, for instance, in death of both parents when children have no one to take care of them a family that has been in relation with the deceased is obliged to house the orphans according to their relations.

When asked if there were any challenges being faced on the aspect of marriage by any community members, Mr. Chiwanza reported that Marriage has gone through a lot of changes.

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He further categorically stated that:

"Our children in the cities are co-habiting and starting families without our knowledge and no roora (lobola) is paid. In some cases our children get married in the courts still with no dowry paid and these are the causes of divorces and unhappy marriages because they would not have consulted with us and the ancestors would be angry with them".

In Murombedzi, marriage and kinship play a role in the agricultural activities in that a man who has just married his bride is given a portion of land by his father for him to farm and take care of his life. He is given this land because he can no longer rely on his father to take care of him but he has to prove that he is now a man. With the piece

of land that he has been given he has to make decisions on crop production, labour and finance .I learned that on that in terms of labour a family has to produce many children that will assist and work in the fields. This means that instead of hiring labour a couple has to have as many children as possible. For some of the informants they became members of the Irrigation Scheme through marriage and also intend on doing the same for their children.

4.6 Household Food Security

Andersen (2004:5) defines food security as "enough food that is available, whether at the global, national, community, or household level. On the other hand Mushita and Manzara (2008:2) define household food security as whether a household has access to enough food to meet dietary energy requirements. A household is required to be self sufficient that is, it should produce [illegible] it needs or that which its dwellers require and demand. Therefore a household is considered food secure if it has the ability to acquire the food needed by its members to be food secure.

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Murombedzi (Chimutamba) Irrigation Scheme was established in 1990 as a source of providing food security for the members of the Scheme and their families. As narrated by Masaka (2011:15), the main economic activity in Murombedzi and its surrounding villages and towns is mainly farming of both crops and animals. The residents of Murombedzi Irrigation had approximately 20Km a day to travel in order to acquire some of the necessary food supplies from the Growth point and other local villages. Before the Irrigation Scheme Mr. Chikowore who is the chairperson of the Irrigation Scheme recalls that, small gardens that grew vegetables and small fields for maize were mainly the source of subsistence within the community. In some cases people

who grew these vegetables would sale to make some money but however, these gardens would not sustain the whole village.

Food security as a concept originated only in the mid-1970s, discussions of international food problems at a time of global food crisis. The initial focus of attention was primarily on food supply problems-of assuring the availability and to some degree the price stability of basic foodstuffs at the international and national level. The Irrigation Scheme was an idea that was purported to ensure food security amongst the members of the Scheme. This is because before the Scheme the community was mainly involved in horticultural practice which only allowed them to only produce what they consumed; therefore there was no guarantee that produce would be available in the near feature.

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In a recent study conducted by Du toit (2011:2), food security is construed as the ability of individuals to obtain sufficient food on a day-to-day basis. However there are certain reasons why household food security may not be assured, for instance, the household preferences may not prioritize food acquisition over the acquisition of other goods and services such as, school fees and housing. On the other hand the existence of a large household as compared to its ability to provide food may result in food insecurity. In the study it was noted that most households within the community are comprised of extended families (a family that consists of, grandparents, aunts, uncles and cousins that move to stay with a nuclear family comprised of parents and children). An extended household will require that more food to be provided so as to sustain the household.

Du toit (2011:14) emphasized that agriculture is a key to food security in many parts of the world. He further indicates that agriculture contributes to poverty alleviation by reducing food prices, creating employment, improving farm income and increasing wages. Making agriculture work must be a central component of policy approaches to food insecurity reduction and increasing economic growth. Increased investment in agriculture will help redress the current inequalities. Empowering people to grow their own food for subsistence or income generation will provide nourishment and potential income to many people in the country.

The informants however do concur with Du toit in that agriculture is a key to food security because they have been able to secure enough food over the years that would last them until the next harvest season. They also reported that they sell some of the crops they harvest which helps them to finance the Irrigation Scheme and also to purchase other goods and services for their households. The informants however do not sell all the crops but they keep some of the crops in their *dura* (barns) for their consumption. Agriculture for some of the informants alleviates them from poverty because they reported that before they were members of the Irrigation Scheme or owned their own farms they worked in nearby farms owned by large-scale farmers and they were able to make a leaving by working in those farms and also given produce form the farm. This motivated them to practice their own farming and with the knowledge they received from working in farms they are able to apply it in their own farms for a better harvest.

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The Irrigation Scheme plays a role within the community of Murombedzi in alleviating poverty because it provides employment opportunities. The informants notified me that

they offer local people from the community to come and assist them in harvesting and this they call *maricho.* In return for participating in harvesting they are rewarded with money but in most cases with crops that have been harvested. In terms of giving back to the community, the Irrigation Scheme also donates some of their produce to local orphanages and schools for their benefit.

The staple food of Zimbabwe is maize in which an average family within Murombedzi would start their day with the traditional porridge from maize, and then the main meal is mainly consisted of *sadza* (thickened porridge from maize). Maize is widely grown for both commercial and subsistence purposes within the area and this is because most families rely on maize for their daily consumption. The informants reported that amongst their crops maize is highly purchased as it is a staple food for the country. For the family, maize is culturally grown because it shows the stability of the home in their tradition. Maize is a crop that has been grown for generations and has been continued to be grown because they believe that it is a crop that was given to them by the ancestors due to its nature of providing a variety of dishes such as, *sadza*, porridge and samp. With maize it is believed that a family will always be provided for and will also sustain even in drought seasons. Other foods such as rice and pasta are also consumed but not as often due to financial constraints and are therefore regarded as luxuries which are not consumed often. The relish with the *sadza* or rice is alternated between a variety of green vegetables such as, beans, okra, dried vegetables, milk and meat such as, beef and chicken is only consumed when available.

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Within the Irrigation Scheme, the livestock that is kept for both rearing and consumption include cattle, goats, chickens, and rabbits. These livestock helps in food

security because they assist in most farming activities and in some cases they can be sold in order to obtain money to purchase supplies for the Irrigation Scheme. Besides maize, food is supplemented with other foods such as, potatoes, butternuts, pumpkins, sweet potato or nuts. Most of these foods are grown in the Scheme and when in season they are sold and consumed by the families.

4.7 Land Preparation

Klein and Date (2010:14) reason that land preparation is a process of clearing the land so as to be able to plant crops. In the opinion of Mazvimavi, Ndlovu and Nyathi (2010) land preparation is an activity that is done in order to loosen the soil so that the roots can grow and the rain can penetrate more easily, to turn organic matter (and sometimes manure or fertilizer) under into the soil, to control the growth of weeds, and to shape the seedbed (into ridges,. beds, or mounds).

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Land preparation is a method that has been practiced for generations and as described Mrs. Chishanu a member of the scheme, it is a tradition that has been passed on from generations to generations and like any other tradition it has evolved and it is not practiced the same way as their forefathers did. Although land preparation has evolved, there is however some traditional aspects that they still maintain and practice. Land preparation before the usage of technology as further explained by Mrs. Chishanu was done as soon as the first rains fell as this would make it easy for them to loosen the soil. As compared to the new age she states that land preparation can be done in any season through the use of tractors and Irrigation systems. The tools used for land preparation such as, the *badza* (hoe), are still being used by small-scale

farmers. The hoe is mainly one or more blades fixed on a frame drawn over soil to turn it over and make furrows.

Through exposure to insights from Makwara (2010:187), I learnt that land can be prepared in three ways and these include: by hand (using a spade, hoe, rake, etc.), by animal-drawn implements (a plough, harrow, etc.) and by heavier tractor-drawn implements. Land preparation by hand loosens the top soil and gets rid of the weeds. Implements drawn by animals and tractors can penetrate more deeply into the soil and can do a better job of preparing the land. There are various land preparation methods that are practiced in the study area but however it is a common belief among the small-scale farmers of Murombedzi Irrigation Scheme that livestock, especially cattle are to be used in the process of land preparation especially in ploughing.

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Although there are tractors and cultivators, the Murombedzi community still relies on draught power to work with the land. Cattle are used in this case because of their strength. The use of an oxen and plough has been used for generations as narrated by the informants and hence they believe that in order to achieve a successful yield cattle have to play a role in the process of cultivation. Another common method that is used for land preparation is the hoe, which is an ancient and versatile agricultural tool used to move small amounts of soil and used especially for weed control. This tool is commonly used not only because it is a traditional tool that has been used for generations but also because it is cheaper to purchase than other newly introduced tools such as, the sweeps, rolling disks and torsion weeder.

Figure 4.1: Informants in the process of land preparation at Murombedzi

Photo by the author

Land preparation is a process implemented prior to planting and as reported by the informants each method is dependent on the type of crop to be grown on the piece of land. For instance, as explained by Mr. Mushawakwa, an informant said that:

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"*When planting peanuts, the soil must be clear of weeds and be loose to a depth of 15 cm. However, the soil should not be worked to a fine powder, as this will make it more likely to erode and wash away in heavy rain. On some soils, working the soil until it is very fine will cause it to set quite hard, which can cause problems at harvest. It is however best to start preparing the land 2–3 months before planting. This provides time to control weeds that may germinate".*

Firstly, as noted by Zvarevashe (2000:123) land tillage which is the preparation of soil for planting has to occur. It is used for the process of keeping the soil loose and free from weeds during the growth of crops. The farmers will then continue to make ridges on the ground and seeds are planted on the top of the ridge which is then covered to

preserve the seed. Plants need soil, water, air and light to grow, hence these crops are constantly irrigated.

4.8 Crops Grown at Murombedzi Irrigation Scheme

Various crops are grown within the Irrigation Scheme but however some of the crops are seasonal. The research drive started with the study area in the beginning of the winter season, June of 2011. As this is not a favourable season or most crops, however the farmers have to concentrate on crops that do very well within the season. Wheat is a crop that is mostly grown within the winter because it consists of two types of seed which is the winter (hard) wheat and spring (soft) seed. For the Irrigation Scheme, the small-scale farmers prefer the winter (hard) wheat because one of the advantages of growing wheat is that, it can be grown under irrigated culture. Besides wheat, vegetables are mostly grown within the winter season and these include onions, spinach, cabbage and indigenous vegetables.

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Duma and Thomas (2008:8) are of the opinion that is not wise to leave the land idle especially in winter because the weather might not be favourable. This is because the chemical composition of the soil might decrease and the soil fertility will also decrease. There are plants that do very well in the winter season because it is not too dry or too wet, especially leguminous plants, such as beans, round nuts, peas and black eyed peas (Leguminous plants in Murombedzi Irrigation Scheme are traditionally grown because they provide food security in that they can be dried and then eaten and sold when they are off season. Dried legumes such as black eyed peas, ground nuts and dried maize can be cooked to make a delicacy during the dry season).

Figure 4.2: Informants showing plants grown at Murombedzi Irrigation Scheme

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The farmers of Murombedzi Irrigation Scheme are mostly traditional even in their farming methods; this is evident in the fact that maize is grown all year round despite the season or challenges faced. Maize is a staple crop that sustains a household hence it is required that it be available all the time. Another crop grown traditionally is sorghum although as reported is a lot challenging to produce but however it is a crop that is the main ingredient in brewing beer for a thanks giving ceremony. This ceremony is mainly conducted at the end of a harvest season. A ceremony is also conducted when there have been low yields and the farmers want to appease the ancestors so as to receive a better harvest next time. It is a common belief among the Shona people of Murombedzi that land is a sacred property that anyone can ever own and to keep it idle would not appease the ancestors. Hence the farmers have to practice crop rotation methods that allow the soil to be fertile all year round.

Table 4.1: Seasonal plants grown at Murombedzi

Crop	Season
Maize	All year round
Beans	Winter
Potatoes	Spring
Tomatoes	Summer
Vegetables	All year round
Butter nuts	Summer
Sweet potatoes	Summer
Wheat	Winter
Peanuts	Winter
Onions	All year round

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4.9 Agricultural Innovations

Agricultural innovations as defined by Robles (2005:1) are new ideas introduced that have an economic outcome. In addition to Roble's definition, Saraka (2009:2) mentions that an innovation is something new that is useful and increases human productivity. Agriculture as a science, art or business of cultivating soil, producing crops, and raising livestock has encountered various changes that are meant to strengthen the industry.

Agriculture is a dominant sector in the Zimbabwean economy and this is because more than 60 percent of Zimbabweans find their livelihood in agriculture and agricultural related activities (Chazovachii, 2012:223). In most countries agriculture is viewed as an entirely rural activity in which farmers entirely rely on traditional methods of farming that are reinforced by their beliefs and values. The study showed that the Irrigation Scheme needed some development which would require effective planning and mobilization of resources. Wettasinha, Wongtschowski, and Waters-Bayer (2006:21) are of the notion that the process of developing, having new ideas and technologies is referred to as innovation.

Egyir and Beinpuo (2009:35) inform that, in agriculture there are two main types of innovations that have been identified and these are, biological/chemical and mechanical. Biological/chemical innovations are the improved seed varieties, fertilizers, pesticides and the practise of organic farming while on the other hand mechanical innovations translate into modern machinery for land clearing, pesticides and fertilizer spraying, harvesting, shelling and packaging. These innovations have all been implemented so as to improve agricultural production. For instance, all crops are vulnerable to pest attack and in order to conserve and protect the crops for a successful yield there is need for effective pesticides.

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In the process of collecting data the key informant Mr. Chisango was asked about their knowledge in agricultural innovations and he revealed that:

"Some of us are not yet aware of some of the latest innovations and we rely on our traditional methods of farming, for example, in pest control, we have a cropping system to keep pest numbers at low level by planting two or more crops in the same

field at the same time. We believe that some pests will not mature where other pests are".

Crop rotation is a well known method of preventive plant protection in which a series of dissimilar types of crops are grown in the same area in sequential seasons (Zehrer, 2011:1). Crop rotation mitigates the build-up of pathogens and pests that often occurs when one species is continuously cropped. Crop rotation also improves soil structure and fertility because there is an alternation of deep rooted and shallow rooted plants.

In Murombedzi Irrigation Scheme mechanical innovations are a challenge because of funding constraints and the farmers have to decide on sacrificing what they have in order to purchase innovations that will cost them a lot of money or to pursue with their current methods that still work for them. In terms of pesticide and fertilizer spraying, the farmers have to rely on the method of dropping fertilizer to a plant. A hole is dug in the ground in which seeds are dropped in to it then fertilizer is applied.

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Figure 4.3: Farming methods being shown by informants at Murombedzi

Photos by the author

This method takes time because the right amount of fertilizer has to be carefully placed on the ground or hole of the plant. When asked if they had been made aware of some of the innovations that were introduced in the agricultural sector, the informants reported that they have not been formally introduced to these innovations but have however informally read about some of them and discussed them among themselves.

4.10 Infrastructural Activities in the Area

4.10.1 Roads and Transport

The Republic of Zimbabwe is a landlocked country; covering an area of 390,757 square kilometres, of which land occupies 386,670 square kilometres, and water occupies 3,910 square kilometres (World Bank, 2006:1). 65 % of the total population is estimated at 12, 6 million dwell in the r[illegible] meaning that majority of the poor live in rural areas. Conditions of some of the roads as reported by Pushak and Garmendia (2011:36) have deteriorated rapidly over the past two decades. As of 2008 Zimbabwe has one of the lowest percentages of roads in good condition.

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There is a primary road system in Murombedzi which is made up of the main tarred road network which links main urban centres. The rural areas are linked to main roads by gravel or earth roads. These roads are mostly community roads that are dusty, unpaved with foot bridges. Primary road system is made. Due to lack of funds roads are in a bad state as they are not serviced by local councils and the responsible authorities. Resettlement areas too are linked by poorly serviced roads characterized by pot holes.

Transport within the villages is mostly through, bicycles, animal transport, wheel barrows and sometimes a motor vehicle. Farmers walk to and from their fields on paths and they carry their resources such as, fertilizers, fire wood and harvested crops.

Transport for those moving in and out of the villages is mostly done by local buses that have a fixed day and time of travel. These buses are not convenient enough for the residents as the only drop them off at a destination that makes them complete the rest of their journey on foot.

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I noticed that during rainy seasons it was difficult for the villages to travel as the roads would be muddy and most rivers would be flooded, making it difficult for the informants to gain access to basic services such as, local markets, health clinics and schools. Besides road transport, the informants also have access to rail transport, but they usually have to walk or travel at least 20 km.

Figure 4.4: Roads and transport used by the informants at Murombedzi

Photo by the author

4.10.2 Irrigation Infrastructure

Murombedzi Irrigation Scheme suffers from infustructure deficiency in that most of their equipment is in bad condition. Due to lack of finance they are unable to repair most of the implements which include Irrigation pipes, Irrigation pump and ploughing equipment. The informants reported that some of the equipment they own have been there since the beginning of the Scheme and are in dire need of repairs. When they experience a break down they sometimes have to improvise by getting water with buckets from the dam.

4.10.3 Water Supply and Sanitation

The main water supply for the Irrigation Scheme is the river (Chitomborwizi) which is conveniently located near the Irrigation Scheme. The farmers are able to connect their Irrigation pipes to the dams to draw water and irrigate their crops. It is a challenge for the farmers in dry seasons when the dams dry up and they have to make alternate plans so as keep their crops irrigated. The villagers also rely on water from the dams, whilst service centres "growth points' water is often from ground water trough bore holes and wells.

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The boreholes are generally used for primary purposes with very limited use for livelihood activities of which the most common is livestock watering and in a few cases gardening and in isolated cases Irrigation of wheat. Boreholes are mainly encouraged within the villages because they are the best alternative for safe drinking water although the long term functioning of these water sources is questionable due to lack of good maintenance. Sanitation is basically facilitated by onsite systems such as pit

latrines or their improved versions termed the Blair toilets, named after the institute, which developed them, the Blair Research Institute in Zimbabwe.

Figure 4.5: Key informant irrigating crops at Murombedzi Irrigation Scheme

Photo by the author

4.10.4 Housing and Telecommunications

The informants live in a village in which villages are usually small with fewer inhabitants. Their homes are mainly of brick, mud or stick construction many with thatch roofs while a few have metal roofs. The homes that the researcher visited had no electricity as it was reported by the informants that electricity has not yet been introduced to the village.

The informants have to rely on firewood for cooking and liquid fuel, such as, paraffin that is used to light lamps in the evenings. For the Irrigation Scheme to access water from the dam the farmers rely on generators that are powered by petrol. Buildings for

curing and storage of agricultural produce are on the verge of collapsing on most farms. The general observation is that resettled farmers are not taking the initiative of maintaining the infrastructure they found in place on the farms.

Telecommunication within the village seems to be wide spread and wide-ranging and this is because as reported by Biriwasha (2010:1) the rapid adoption of technology is redefining the way people communicate. This is because there is a growth in mobile telephone use and the installation of a fibre-optic network. I discovered that at least one cell phone was found in 40% of the homes visited. These cell phones allowed them to communicate with their loved ones in the cities and other places as well as with their fellow colleagues from the Irrigation Scheme.

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4.11 Conclusion

This chapter has provided the origins of Murombedzi Irrigation Scheme. It revealed how land tenure has an impact on agricultural development in Murombedzi. The local farmers of Murombedzi are traditional in nature even in their farming practice and adopting changes for them means changing a lot in their culture. Cultural tradition is shown in marriage in which members are motivated to enter into the institution at a desirable age as it is a rite of passage and also kinship is valuable because it gives people a sense of belonging. However some of the households within Murombedzi are female headed households due to rural-urban migration. These women who have little knowledge of farming are left to work in the farms and are unable to keep up with the changes that might assist them in agriculture. Kinship is important within Murombedzi and this is shown by the extended families however this has an impact on food

security because these small-scale farmers have to feed a large family with little income and in other words they end up spending more than they earn.

Based on the interviews and observations this chapter concludes that the inhabitants of Murombedzi are cultural in nature and the majority of them being of a Shona ethnicity are characterized of beliefs and values that influence their day to day activities. Agriculture is the main activity in Murombedzi mainly because of the GMB situated in the area where farmers are able to sell their produce for profit. For those who practice agriculture, they are ensured of food security within the homes because they produce for subsistence purposes in which culturally they believe that one must be able to feed his/her family with produce that comes from the soil they farm for commercial purposes for profit that will help them acquire other goods and services for their homes. The members of the Irrigation Scheme have been working hard towards expanding their farming for commercial purposes and their efforts in commercial farming enabled them to transform their pieces of land in a project that will improve their financial challenges.

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The findings of the study suggest that the Irrigation Scheme in Murombedzi has faced a decline in agricultural productivity. This can be attributed to the lack of agricultural innovations that are essential for agricultural development. They have experienced challenges in acquiring power tools that will assist them in speeding their farming for instance, instead of hand picking the wheat from the field which would take weeks they would want a combine harvester that will do the job within days. They also fear for their crops because at times they do not have any pesticides for foreign pests and they also experience low harvests in drought seasons as they are unaware of the different types of drought resistant crops they can grow to the benefit.

5.2 Personal Characteristics of the Informants

5.2.1 Gender

Figure 5.2.1: Gender

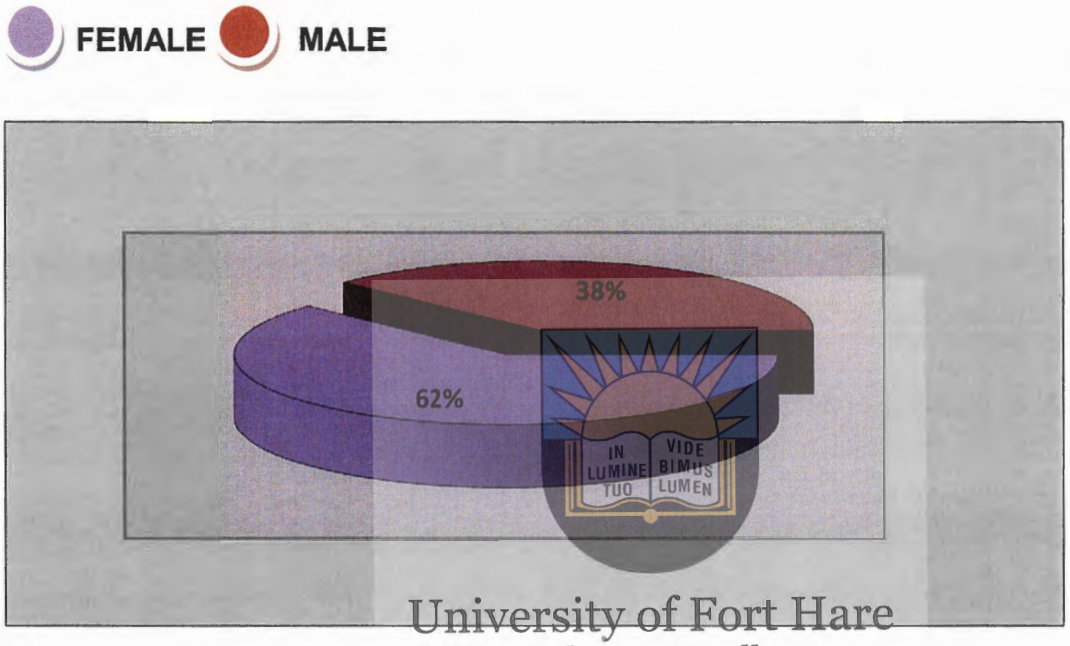

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Figure 5.2.1 above shows the gender distribution of the informants who participated in the study. The study mainly targeted all the 50 members of the Irrigation Scheme. The findings represent that the majority of the informants were females who occupy a share of 62% (31) while males are only 38% (19). This was as a result that more women were available and are mostly responsible for the day to day activities of the Irrigation Scheme.

5.2.2 Age

The study revealed that informants from the age of 17-30 and 31-40 are mostly women while those in the range of 41 years and above are men. Women are initiated into farming earlier and as reported by the informants, a girl child will stop going to school at a certain age in some cases at 15 years so as to take care of the household

chores. When she reaches the age of 16 or 17 she will be old enough to assist with the activities of the Irrigation Scheme. Boys can only work in the fields when they come back from school and also during the school holidays.

From the figure 5.2.2 below it shows that from about the ages of 25 to 35 there is a decline in the number of men who are members of the Scheme. This is as a result of migration into towns for work and education. Men that migrate in most cases leave their wives and children behind who then work in fields for sustenance. Migration has an impact within Murombedzi especially when it comes to agriculture because it has been established that agriculture is *the bedrock upon* which the development of any nation is built, and this involves the active participation of able bodied youth in society. The informants reported that the youth abandon fertile lands for agricultural activities in the rural areas to go and partake in less laborious economic activities in the cities such as, selling of cigarettes on the roadsides. With the elderly left to live and work in the rural areas these rural settlements then become deserted and would no longer boast of high agricultural productivity. Informants in the age range of 46 and above which in most cases is an older population characteristic of many rural areas were usually people retired from urban life.

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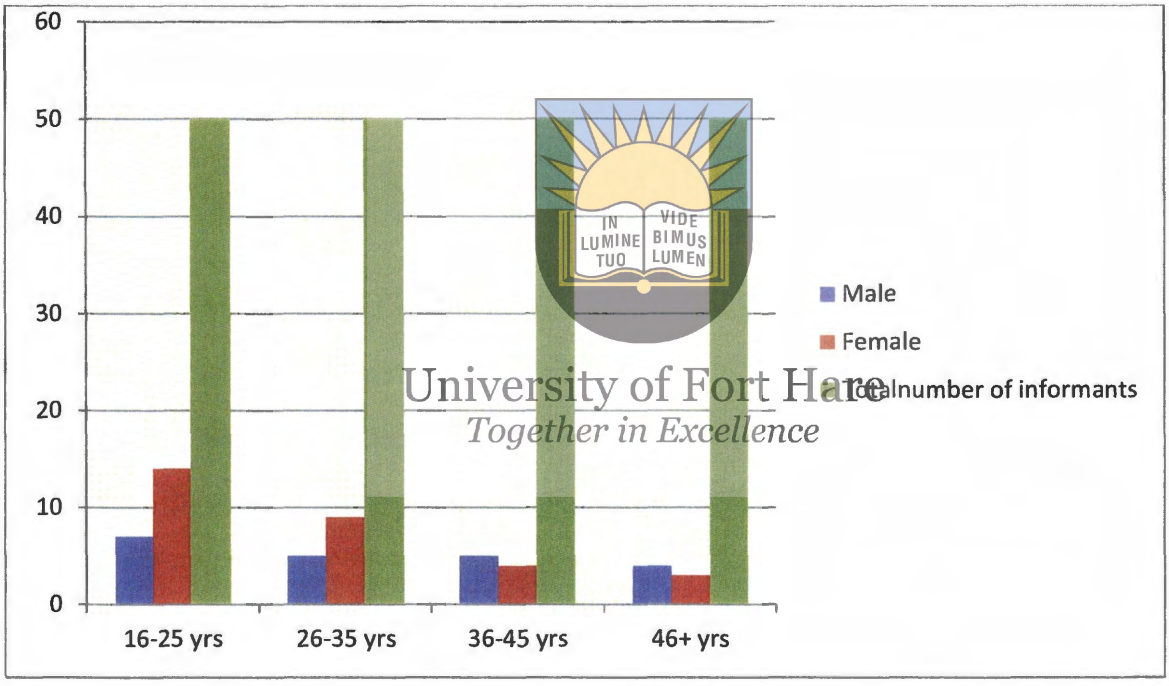
Inspite of heavy unemployment and under employment in urban areas a big migration is taking place from rural areas to urban areas. This sentiment is supported by Todaro theory (1969) which states that migration is assumed to be an economic phenomenon because the migrants migrate to the cities from rural areas on economic grounds, even if they know that heavy unemployment exists in cities. The theory elaborates that the migrants are well aware of the unemployment opportunities in urban labour markets but still choose to migrate to urban areas where they expect their gains could be maximized. The main reason for migration according to Todaro's theory is basically

economic attraction that is expected in the urban areas. This reason is applicable within the study area because the farming for the youth requires a lot of labour and in most cases the experiences low yields or little income. This motivates the youth to migrate into urban areas where they have the hope and expectations of earning more than they do in rural areas.

Figure 5.2.2: Age



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5.2.3 Marital Status and Household Size

In terms of marital status as shown in figure.5.2.3 below 55% of the informants are married, 25% single, 17 % widowed and three percent divorced. The study showed that the majority of the informants are married and there is a low percentage of divorce and like in most rural areas of Zimbabwe, in Murombedzi marriages are highly encouraged so as to maintain morality and tradition of reproduction so as to increase the household. It was reported that some of the men and women have been divorced

or widowed before but were still encouraged to marry again. eighteen percent of the informants that are single and still live with their parents most of them are still in school and other work in the Irrigation Scheme full time. Informants who are divorced and widowed added up to 17 % and this suggests that they are the heads of their households due to the absence of a male partner while on the other hand some of the married women were temporarily heads of their households (FHHs) due to rural-urban migration of most men in search for jobs.

The average household size in Murombedzi was six ranging from two house heads and four persons. There were other households that had extended families due to kinship and in a few cases household size increased due to polygamy. For families that had larger household sizes they reported that they were at an advantage in terms of farm labour because they would make it a point that each member had a role to play in the Irrigation Scheme. But in terms of food security sustaining a large family is a challenge for the informants because they at times produce less than they consume which leaves the family at a risk of ensuring food security.

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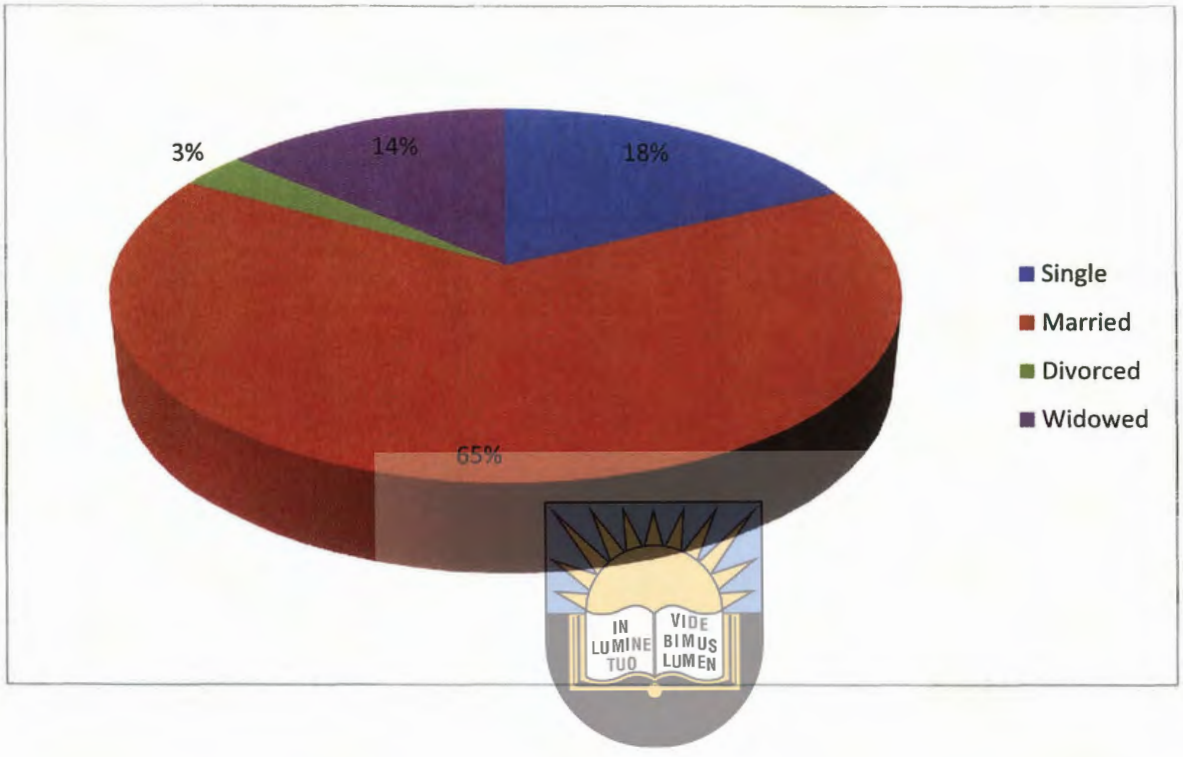
Figure 5.2.3: Distribution of Marital Status



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5.2.4 Level of Education of Informants

Philips (1994:149) defines education as a form of learning in which knowledge, skills, and habits of a group of people are transferred from one generation to the next. The informants were asked to indicate their level of education which was tabulated from no education to tertiary education. From the table below it shows that about 15 % of the informants in Murombedzi Irrigation Scheme had both primary and secondary education, 35 % had primary education, 18% had no formal education and these are mostly between the ages of 55 and above, and 32 % had other forms of education such as a certificate in first aid or a certificate for participation in local agricultural activities.

thirty five of the informants that had primary education reported that for some of them they only had the opportunity of primary education because it was the time that they

had to leave school and join the war while for others especially women had to end or drop out at primary level due to financial constraints or in order for the male children to receive advanced education so that they could take care of the family. On the other hand the 18% of the informants that had no formal education revealed that they were born in poor families that could not afford to send them to school for formal education but would receive informal education or home based education from their parents or grandparents. The education they received at home was mainly skills such as, sewing, raring of chickens and farming.

It was observed that all of the informants did not have any form of tertiary education because they did not qualify to be enrolled in universities or colleges due to lack of financial support and lack of qualifications to enrol in tertiary schools. The informants also reported that the local primary and secondary schools do not provide quality education due to lack of resources therefore their children are not able to receive education or results that qualify them to proceed to tertiary level. One of the informants narrated that:

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"The school that we attend is almost 10 kilometres away which mean that we have to wake up very early in the morning to walk as there is no transport available. The schools are not in good condition hence there is lack of resources such as, chairs, desks and reading and writing material. There is also a shortage of teachers because most of them have migrated to nearby towns to work in better schools. For some of us our parents are not in a position to pay the required school fees and we are forced to drop out and help in fields".

The study also discovered that men are more literate than women and this is supported by UNESCO (1995:1) which revealed that almost everywhere, girls' and

women's literacy rates and access to basic education are considerably lower than those of boys and men. This particularly is true in developing countries where women are a major part of the agricultural work force (United Nations, 2011:3).

Interviews revealed that most women left school early before their spouses because there was no money to further their education and culturally they had to sacrifice their education for the benefit of their male siblings. This is because men are regarded as the head of a household as well as bread winners and by educating them they will be able to take up their role effectively. Instead of the girls going to school or furthering their education they had to take care of the day-to-day activities of the household and join the Irrigation Scheme at the age of 16. Since these girls were not going to school they had to get married so as to start their own families.

Table 5.2.4: level of Education of Info

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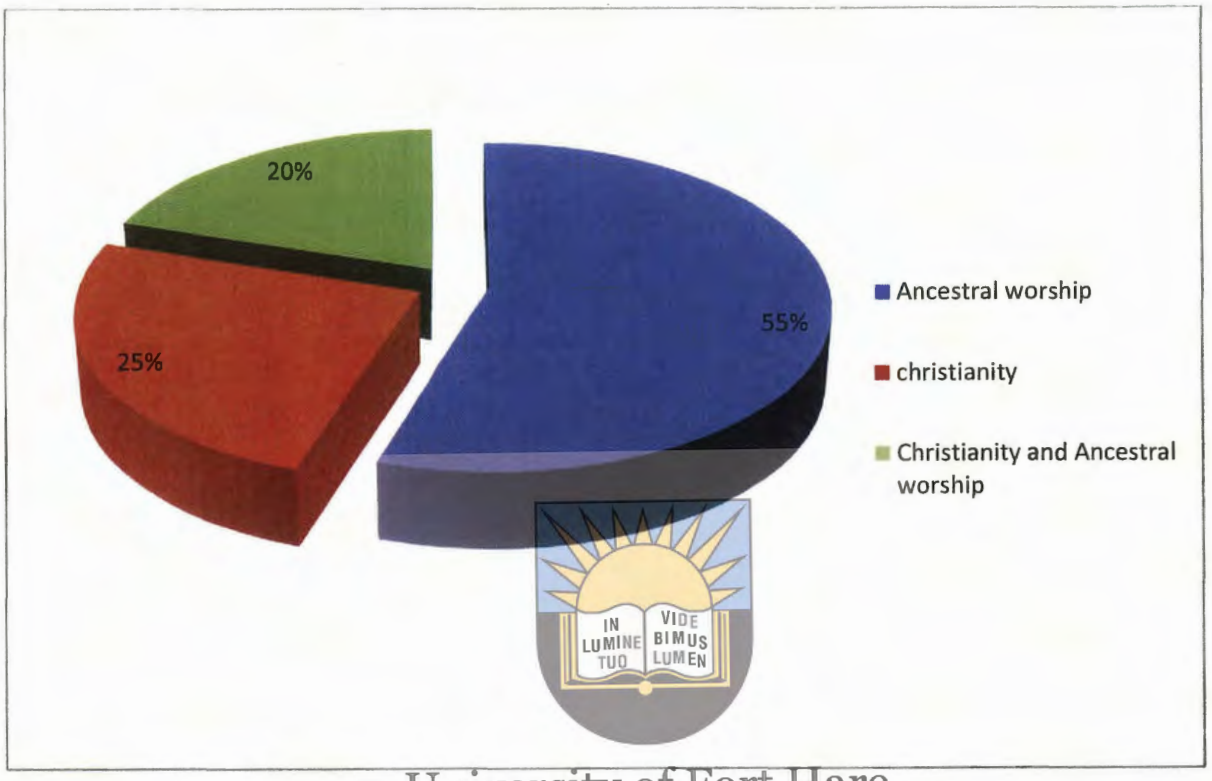
Level of education	Number of informants	Percentage
Primary	17	34%
Primary and secondary	8	16%
Tertiary	0	0%
Other	9	18%
No education	16	32%

5.2.5 Religion of the informants

Figure 5.2.5: Religions of Informants



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The informants were asked to state their religion because according to Mann (2006:12) religion is a collection of belief systems, cultural systems, and world views that relate humanity to spirituality and sometimes to moral values. Thomas (1998:12) argues that religion is the voluntary subjection of oneself to God or a supreme being. From the study conducted ancestral worship dominated with 55 % of the informants who revealed that they worship their ancestors who are their fore fathers that once walked on earth and through death became spirits that exist to protect and provide for the living.

Ancestral worship for the informants of Murombedzi encompasses cultural beliefs because it is a religion that has been passed on from generation to generation and in everything that one does ancestors have to be consulted so as to avoid any bad luck or misfortune. For the informants agriculture is a tradition that has been approved by

the ancestors because it encourages people to naturally grow their own food by labouring in order to value the results of their work. In terms of worship this is what an informant had to say:

"The ancestors guide us in our everyday lives and we have to honour them every morning before we go about with our daily duties. We have to let them know that we appreciate them and then we ask what we want from them. This we do through singing traditional songs or through chanting (kudetemba). We are then able to go about with our day because we know we are protected. Worship for us is a daily process and it should be done right".

Twenty five of the informants are believers in Christianity to which Morris (2012:24) defines Christianity as the religion based on the person and teachings of Jesus Christ, its beliefs and practices. It is believed that Christianity was introduced to Africa through missionaries in 1858 (Chisango, 2013:4). Christianity involves the belief of God who dwells in heaven and he created heaven and earth. For some of the informants they reported that they were not born in Christian homes but they were introduced to Christianity by people who would visit the Irrigation Scheme from the towns to inform them about the world of Christianity. Literature was given to them and these visitors would come mostly on Sundays to conduct a service. There is a culture associated with Christianity which is that there is a specific day of worship every week, were people take the whole day off from their daily activities and go to a place where they can conduct worship. The belief behind this day is that it is a day that was chosen by God for people to take time and worship the giver of life.

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A place of worship for Christians is called a church but for the informants of Murombedzi they have not been able to build themselves churches but they conduct

their services in classrooms of nearby schools and for others under trees. Their Christian beliefs encourage them to work hard for their families because they believe that God helps those that help themselves. In times of hardship and joy the informants gather at a specific time to offer prayer to God.

Findings revealed that 20% of the informants practiced both Christianity and Ancestral worship. This is as a result that they were born in traditional families were ancestors were recognized and worshiped, however others through marriage, travelling and witnessing form Christians they accepted Christianity. In their defence they believe that there is a God that dwells in the most high and the ancestors are secondary to God and their prayers are transmitted to God through the ancestors.

Believing in God as narrated by the informants *"does not mean we have to abandon the beliefs of our forefathers (Madzitat[illegible]) because there are cases when tradition is required such as, tombstone unveiling (Kurova guva). These ceremonies are necessary and have to be done the traditional way because Christianity is a white men's religion and does not accommodate all of our African cultural traits".*

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5.3 Conclusion

This chapter established the characteristics of the study population that were identified in the study that as exerting notable influence on agricultural practices. It culminated in presenting data as it was reported by the informants. The effects of these characteristics on agricultural production and change were also outlined in which personal experiences of the informants were also shared. The informants revealed their characteristics in which findings of the study showed personal characteristics

such as age, gender, education, marital status and religion have an influence on agricultural production in Murombedzi Irrigation Scheme. This is because informants are mostly governed by these characteristics in making decisions or performing specific tasks.

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Chapter Six: Conclusions and Recommendations

6.1 Introduction

This study sought to test the impact of beliefs and values on the adoption of agricultural change. This chapter presents the conclusions of the study in relation to the research question in order to put forward the outcomes of the study. It also provides recommendations that will intend to help in the adoption of agricultural innovations for an increased agricultural productivity. The section was guided by the following objectives:

- Determine the level of agricultural production in Murombedzi Irrigation Scheme.
- Identify and examine the beliefs and values held by farmers that influence agricultural productivity.
- Determine utilization of agricultural innovations by the small scale farmers of Murombedzi Irrigation Scheme.
- Ascertain the effects of beliefs and values on agricultural change

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6.2 Conclusions

6.2.1 Socio-economic Status of the Informants

The study revealed that the majority of the farmers in Murombedzi Irrigation Scheme are women although registered land owners are men. This is as a result of many factors that mainly include migration of men to urban areas to seek better employment leaving their wives to work in the Irrigation Scheme. Another reason is that girls drop out of school at an early age to work in the fields while boys continue with their education and can only work in the fields after school hours or during school holidays.

The findings of this study revealed that the majority of the households are female headed due to the absence of a male partner and it may therefore be concluded that the burden of food security almost lies on the shoulders of women. The average household size ranged between two and twelve heads and this underlines the necessity of the female farmer at Murombedzi Irrigation Scheme to be food secure because she is responsible for both household chores as well as the work in the Irrigation Scheme.

Education levels among the informants were low with 34% of the informants having only primary education and 32% with no education particularly among the ages of 40 and above. These informants at Murombedzi Irrigation Scheme have a great need for information especially when it comes to agriculture but due to their low literacy situation they are limited to knowledge that will lead them to access of agricultural training, credit, harvest management and other organizations that can assist them in the farming practice.

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The study also showed that the small-scale farmers of Murombedzi Irrigation Scheme like most small-scale farmers in Zimbabwe practice both commercial and subsistence farming. Maize is the main crop among others such as legumes, millet, sorghum, vegetables and fruits. Crop production was on the decrease as the farmers harvested just enough to last them until the next season and little to sell for profit. Low yields are attributable to lack of finances to purchase the required inputs necessary for a successful yield as well as lack of knowledge when it comes to improved technologies such as drought resistant seeds or improved fertilizers. The informants are however still indigenous in their methods of farming for instance, they still rely on manure for fertilizer produced by livestock, a method that has been used for generations.

One of the objectives of the study was to identify and examine the beliefs and values held by farmers that influence agricultural productivity. Majority of the beliefs and values held by the informants are cultural and religious in nature. Traditionally the informants believe in the sacredness of the land because land is a gift from god and it is the birthright of every African indigenous person. Due to this reason the informants reported that they were motivated to fight and take back the land of their forefathers from the white people. There are various uses for land within the Shona people of Murombedzi in that besides building a home to ensure a roof over their heads; land is also used for economic gain in which farming takes place in order for people to fend for themselves and their families. Land is also used for cultural rituals such as burying the foreskin of a boy or the umbilical cord of a new born baby a practice done to cement the spirit of the child to his/her place of origin. There are traditional farming rituals that are practiced by the informants of Murombedzi Irrigation Scheme that they believe have to be maintained in order to receive a successful yield. Some of these practices include a ceremony at the beginning of a new farming season to appease the gods and sacrifices have to be offered for the land to be fertile.

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For the informants the research established that there are quite a number of factors that affect the adoption of agricultural change particularly new innovations that have been introduced. Thirty five of the informants confirmed that they had little knowledge of some of the changes from reading and training attended while 65% had no knowledge although they might have heard about these changes from conversations that they have with other informants. However it was reported that education and training is sometimes offered in the Irrigation Scheme usually by agriculture extension officers or by the chairperson who would have received the training from the extension officers. However these agriculture extension officers do not always visit all the farms

within Murombedzi but they at times set a neutral venue in the growth point. Informants stated that they are unable to attend these trainings because of the distance and their domestic commitments.

For the illiterate farmers, training and literature on adopting agricultural changes is not effective on them because they are unable to read for themselves what has been provided let alone understand any technical terms during training. They have to rely on the youth and the literate to narrate to them what they would have read and learnt and this will not be effective if the person narrating has not grasped the concept. . Some of the information on changes to be implemented in the agriculture sector is broadcasted through media as means to get the information across to the farmers at a faster rate. For the informants this is not the case because 80% of the informants do not own televisions but at least own a radio. They have to wait for the programmes broadcasted on the radio to gain more information but usually the information they are eager to hear about, is on the prices for selling and not increasing their produce as well as if there are any programmes that have been set for farmers to receive free inputs for farming such as the WFP and other NGO's which mainly provides seeds for farming and also food stuffs in drought seasons.

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The informants exhibited a need for financial support within the Scheme in order to acquire chemicals, seeds, fertilizers and in certain instances Irrigation pipes and sprinklers. It is unfortunate that these farmers do not have finance to purchase agricultural implements because they are forced to do away with important inputs that will assist them in farming. The study showed that 60% of the informants had knowledge on how and where to acquire credit to support their project. The informants are aware that there sources of credit such as banks, farmers union cooperatives,

local business men and other cooperatives. The Irrigation Scheme made known that they did apply for long term credit at the bank to purchase more efficient technologies such as Irrigation pipes, combine harvesters and tractors. The terms of the credit for them were flexible because they could pay the money back over a long period of time. However they also fear that if they do not produce enough to pay back the loan they might lose the Irrigation Scheme and their equipment.

6.2.2 Psychological Factors

Findings revealed that in Murombedzi Irrigation Scheme decisions are mainly done by the elderly members of the Scheme who would then inform the other members of the Scheme. In the case that the other members do not agree with some of the decisions they may protest but it would seem disrespectful because by tradition the elders or men are the decision makers and their authority is not to be questioned. When it comes to purchasing of equipment or other inputs members may make a request with the chairperson of the Scheme who will discuss it with the other members so that they decide if their finances will allow a new purchase. The results of the research made known that it is through this process of decision making that determines new agricultural innovations from being acquired into the Scheme because some of the informants may want them but are not given the opportunity because the elders who are conservative would have made the decisions for them. At times the members are asked to contribute money from their own pockets to fund for new equipment or technologies. This is difficult for them to do because they reported that they already make little profit from the Scheme and having to contribute more would destroy their

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budgets. In the end the farmers end up deciding not to purchase these new technologies so as to protect their meagre income.

Some decisions within the Scheme as I noticed are done based on the knowledge and level of education in terms of farming of the farmers. They may decide not to purchase certain equipment, inputs or adopt farming methods and innovations if they do not know much about it and how it could assist them in production. They will then decide to purchase what they know has been working for them for years so as to avoid taking any risks. Age also has a matter on decision making in the Irrigation Scheme because the youth have little knowledge that they have acquired in schools and trainings but they fail to put it across to the elderly members of the Scheme who rely on tradition and regard age as wisdom.

Fieldwork evidence indicated that ge[illegible]d an influence in decision making because women were at times excluded from meetings. When asked the women only stated that it is the way of their culture for men to meet and discuss when there big decisions to be made. While the men are making decisions the women will be working in fields or performing household chores and the decisions made will be communicated to them when they have been finalized.

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When it comes to motivation, the research exposed that from the trainings that the informants receive periodically the informants feel motivated to learn more about these changes and they could assist them in their farming. The sad reality for the informants is that when they then meet as members of the Scheme the motivation seems to diminish due to factors such as finance and in most cases other members shut down ideas of others because they would not have attended the trainings or they might be feeling that their traditional methods are being eradicated.

Low yields at times for the members of the Irrigation Scheme seem to motivate them to accept change because they come to think that their traditional methods are the cause for their failure. Informants commented that they become desperate at times to implement other changes because they would not want to go through the painful experience of another failed harvest season. Motivation for the farmers is also derived from their neighbouring farmers who seem to thrive in their farming. When the farmers see other farmers getting a good harvest they are tempted to ask and enquire how they managed to have a big produce. For them it is easier to accept change when they have seen it working from people they are close to because they can be able to see and learn for themselves how the farmers implemented the changes.

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6.3 Recommendations

In view of the foregoing findings, the following recommendations are made:

- **As land ownership especially for women is a prominently a factor in low agricultural production this research recommends that the government should initiate and instate a legal framework that ensures access and ownership of land for women so that they do not face problems of eviction in the case of death of their husbands or male family members. NGOs and the private sector may also complement government efforts with finance and training for the effective use of the land.**
- **The government should ensure equal access to quality education to enable the underprivileged girl child to proceed with education. The government should also conduct adult education drives in order to develop and motivate the elderly to learn more about farming and how they can improve their**

farming. This would help the elderly farmers to accept change that they know and understand. Agriculture extension officers with the support of the Ministries of Lands and agriculture, Education and NGOs such as UNESCO, and the adult literacy Organization of Zimbabwe (ALOZ) must be able to visit small farms frequently providing education and training as well as disseminating agricultural pamphlets in schools, clinics and community halls.

- **There is need to provide more information to the members of Murombedzi Irrigation Scheme on the various sources of credit that can assist them in purchasing the new and improved farming innovations. Organizations that provide these new innovations should effectively advertise their merchandise especially to the rural framers so that these farmers can have access to new innovations as well as assistance on payment plans for the equipment.**

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- **It is therefore recommended that the government and other NGOs assist in the development of infustructure in rural areas. Roads need to be developed for the farmers to be able to transport their produce to the GMB and the local markets.**

6.4 Conclusion

In conclusion the study has attempted to determine the impact of beliefs and values on the adoption of agricultural change. As evidenced from the findings of the study it is clear that agriculture is the backbone of most rural communities in which beliefs and values have an impact on the acceptance of a new innovation for more production. Some of the challenges that are faced by the informants in accepting new agricultural

innovations are caused by their personal beliefs and values that they have incorporated into their farming for many years. Therefore, the above recommendations are to address the problems that have been illuminated by the research.

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Appendices

Appendix I

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Department of Anthropology and Sociology

Consent form for a Research Undertaking

I am Emery Nyika, Master of *Social Science* student from the Department of Anthropology and Sociology. I am conducting an academic study, which aims to investigate the effects of values and beliefs on agricultural change, a case study of Murombedzi Irrigation Scheme. I kindly request you to assist me by answering questions that I need to ask you. The research is totally for academic purposes not for any illegal purposes. Your participation and input will contribute greatly to the body of knowledge which may be used for any subsequent development initiatives aimed empowering and understanding rural women's need in development.

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Researcher's signature: .....

Date: .....

Informant's signature: .....

Date: .....

Appendix II

Interview Schedule

A. Personal Information

Age

☐ 16-25 ☐ 26-35 ☐ 36-45 ☐ 46+

Religion? State denomination if any

.....

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Marital Status

☐ Single ☐ Married ☐ Widowed ☐ Divorced

Education

☐ No Education ☐ Primary Education ☐ Secondary Education ☐ Tertiary Education

☐ Other

B. Socio-economic Factors

How many people live in your home?

.....

Do you consider your family is getting enough of the right foods?

.....

Do you produce sufficient food for the family?

.....

Do you find time to manage the home and children as well as grow groe food for the family and look after crops?

.....

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What is your role in the Irrigation Scheme?

.....

Who decides on which crops on which crops to grow and how to grow them as well as buying and selling of farm animals and equipment?

.....

Do other people help you with weeding of the lands?

.....

How often do you attend church or any other religious gathering?

.....

What are some of the beliefs of high value that you hold?

.....

.....

.....

.....

.....

Do you belong to any farming or other organizations?

.....

Is there any agricultural education/training you are receiving?

.....

.....

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have you learnt anything new from the extension officer in the last year?

.....

If so, what sort of things have you learnt?

.....

.....

Have you been given any written information by your extension officer on farming?

.....

What do you know about agricultural innovations?

.....

.....

Do you wish to accommodate new techniques and innovations in your farming?

.....

.....

If No why?

.....

.....

Do you listen to farming broadcasts on the radio/television?

.....

If so, how often did you listen in the past week?

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.....

Do your beliefs and values influence your agricultural practices?

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Are you aware of any changes that have been introduced in the agriculture sector?

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.....

Have you made use of any changes introduced in the agricultural sector?

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If no why? Explain

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.....

Have you received any motivation to accept agricultural change?

.....

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.....

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.....

.....

What is your perception towards agricu[illegible]nge?

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.....

.....

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.....

.....

.....Thank you for your cooperation.....

.....

.....

Have you received any motivation to accept agricultural change?

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What is your perception towards agricu[illegible]nge?

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.....Thank you for your cooperation.....