

**the EFFECT OF LITERACY ON ACCESS TO AND UTILIZATION OF
AGRICULTURAL INFORMATION FOR HOUSEHOLD FOOD SECURITY AT
CHIRAU COMMUNAL LANDS IN ZIMBABWE.**

BY

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DECLARATION

I hereby declare that the dissertation submitted for the degree of Masters of Library and Information Science (M.Bibl) is my own original work and has not previously been submitted in any other institution of higher education. I further declare that all sources cited or quoted are indicated and acknowledged.

Maira Gundu

DEDICATION

To my late mother and our son Nthato

“With literacy, people don’t earn more but everything they know is in their heads. They can go anywhere, do anything, ask for what they want, enter in. When people don’t know reading and writing they are afraid” *Christina Mavale*.

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ACCRONYMS AND ABBREVIATIONS

AIDS:	Acquired Immune Deficiency Syndrome
ALOZ:	Adult Literacy Organization of Zimbabwe
CGIAR:	Consultative Group on International Agricultural Research
CSO:	Central Statistics Office.
DFA:	Dakar Framework for Action
FAO:	Food and Agriculture Organization
FHHs:	Female Headed Households
GDP:	Gross Domestic Product
GMB:	Grain Marketing Board
GOZ:	Government of Zimbabwe
HDI:	Human Development Index
HHs:	Households
HIV:	Human Immune Deficiency Syndrome.
HSRC:	Human Sciences Research Council.
ICTs:	Information Communication Technologies.
IFAD:	International Fund for Agricultural Development
IFLA:	International Federation of Library Associations
ILI:	International Literacy Institute.
LDC:	Least Developed Country
LIS:	Library and information service/science.
M.BIBL:	Master of Library and Information Science
NGOs:	Non-Governmental Organizations.
OECD:	Organization for Economic Cooperation and Development
SADC:	Southern Africa Development Community
SAFAIDS:	South African Aids Council
SSA:	Sub-Saharan Africa
TV:	Television
UDHR:	Universal Declaration of Human Rights
UFH:	University of Fort Hare
UK:	United Kingdom
UN:	United Nations
UNDP:	United Nations Development Programme
UNESCO:	United Nations Educational, Scientific and Cultural Organization.
US:	United States.
VAC:	Vulnerability Assessment Committee
WB:	World Bank
WDEA:	World Declaration on Education for all (1990)
WFP:	World Food Programme
WFS:	World Food Summit
WTO:	World Trade Organization

ZimVAC: Zimbabwe Vulnerability Assessment
ZWRN: Zimbabwe Women Resources Network

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Gundu, M (2009)

ABSTRACT

The research sought to examine the effect of literacy on access to, and utilization of agricultural information for household food security at Chirau Communal lands in Zimbabwe. The study was influenced by the diffusion of innovations approach based on interviews, observation and document study. Selected female farmers from Chirau communal lands were respondents to the self administered interviews and focus group discussions. Representatives from, Agriculture Extension and the Ministry of Agriculture were key informants. Systematic Random sampling was used to select 100 female respondents from the age of 18 to above 80 from wards 1 to 10 of Chirau Rural District in Zimbabwe. Data was analyzed into themes and coded for statistical analysis using the SPSS.

The country is faced with food insecurity and the main findings of this study support the view that women play an active role in food production but their potential is limited by inadequate levels of literacy that affect the way they access and utilize resources for sustainable agriculture and household food security among other factors. This may be generalized to the situation of female

farmers in Zimbabwe. Improved literacy competencies among the female farmers in Zimbabwe lends itself as one of the interventions that may assist in improving access to information and its effective utilization.. This calls decision-makers to boost literacy for women, develop available agricultural information resources and harness effort towards making them accessible. While interventions may be multi-sectored, the role of government is stressed in this report.

Keywords: agricultural information, household food security, literacy, women.

CHAPTER ONE: Introduction and background of the study

Food as an imperative for survival is important in the lives of people. It is important to note that the right to food is a social and economic right enshrined in the constitution of many countries including Zimbabwe. Thus, the achievement of food security is an essential step to overcome poverty and ensure healthy lives in any given country.

Access to food, however may not be taken for granted especially in communities where there are marked deficits, a truth that has awoken governments to the responsibility of attaining and sustaining acceptable levels of household food security. The access and use of agricultural information lends itself as one of the crucial factors that has an important bearing on food production and food security. In rural communities a lot is entrusted to the less literate subsistence farmers to produce and provide food sustainably. Many of these communities have over the years depended on indigenous knowledge that has been passed orally from generation to generation. Indigenous knowledge is the local knowledge that is tacit, expressive and unique to a given culture or society and is the basis for local-level decision-making including but not limited, to agriculture, health care, food preparation, education, natural resource management, economics, governance, and security. And yet the changing world order has rendered much of this information largely irrelevant. Thus new knowledge and more importantly updated agricultural related information is needed if communities can hope to continue to meet their household and national food needs. Smith (1992) recognizes that agricultural farming is one of the most important occupations among rural populations in the world, but most developing countries are 'information-isolated' and only a few can afford to update their knowledge base. Since literacy has a vital role in access to and use of the new information, the central argument of this study is that household food security may possibly be influenced among other things, by the synergy between formal literacy, access to and utilization of agricultural information. The argument further espoused by this research is that the availability of information alone is inadequate without capacities such as literacy to access and subsequently utilize agricultural information to enhance household food security. Literacy affects, *inter-alia*, access to information and technology, application of knowledge, labor quality, training opportunities, management of income and the wider participation in society.

The study revealed that, a majority of the respondents married too early before attaining any meaningful literacy competencies. This arguably denies them a chance for significant participation in everyday life such as parenting, home economics and household food security. Literacy skills especially for women augmented by access to information may help create an informed and responsible citizenry who help to cut on the government's budget for social services. This is echoed by Gundu (2006) who carried out a study on the impact of the level of literacy on access to information by urban black women in Kariba, Zimbabwe. The study underscored the significance of literacy in information access as well as in the everyday life of women. It revealed that differences in levels of literacy matter both economically and socially. The urban black women who lacked literacy abilities were often members of the population suffering from poverty, crime and unemployment. Information is regarded as a power that increases knowledge, reduces uncertainties and adds value when rightly placed. Mujoo-Munishi (1998) identifies information as both a resource and an asset characterized by relevancy, quality and timeliness. Kamar (2006) adds that information is an essential part of a nation's resources and

therefore it is basic in any decision-making. This supports the growing consensus that knowledge has emerged as a primary resource that drives development in addition to the traditionally held land, labor and capital.

Leeuwis (2001) recognizes that globally, useful information and knowledge on agriculture is in most cases, held by communities such as, research stations, agri-business, agri-based literature, agricultural schools and colleges, etc. This collection of actors form what is popularly known as Agricultural Information and Knowledge Systems (AIKS). Success in accessing relevant information however depends largely on the presence or absence of literacy, time and financial resources among other things. The major flaw of AIKS is the assumption that the consumer has an ability to read. Effective use of AIKS requires technological literacy, economic adequacy and literacy skills. These skills lack among the farmers in most parts of the developing world including Zimbabwe. Vuuren (2007) opines that people have a right to the knowledge embodied in literacy. The information in such databases can only be properly exploited by farmers who possess certain levels of formal literacy. This clearly precludes most farmers in the developing world most of whom are rural based and less literate. In this sense being literate and having relevant knowledge is empowering. However there seem to be no deliberate efforts to boost literacy, in fact there is evidence that the number of illiterate people is growing in Africa. For example Cloete (2006) estimates that over 65% of South Africa's rural population are formal and functionally illiterate. This significant percentage of people may not therefore benefit from AIKS. As a consequence the knowledge and information held in AIKS may be crucial for household food security yet unfortunately the majority of people are without sufficient literacy competencies for access and use. This majority is likely to be unable to effectively use the available agricultural information and therefore easily exposed to food insecurity.

The bringing of women, information and food security into a common sphere may seem extreme, but in fact food security has been a basic societal function performed by women. The global concern with food security was however noticeable in the early 1970s when there were various international gatherings to address food security. According to the World Food Report (2005) the overall world food security situation has not changed much since the 1970s. Literature suggests that the focus of the late 1970s on national food stocks and food supply was shifted in the mid 1980s by a more concern over household access to food. This approach emphasized consistent availability, access and stability or sustenance of food collection within the household. Household food security (HFS) may further be defined as the ability by all individuals to access an adequate supply of food, on a stable basis, and in a sustainable way. Consistent with that, this study focuses on the ability to attain household food security (HFS) and identifies the household as the nucleus of food security.

Households as agricultural production units are systems of jointly cultivated and sometimes dispersed farm plots under the direction and ownership of a household head. McMillan (1995:422) defines the household as "a social grouping that lives and works together most of the time". Households produce, buy and sell food together. The household head in consultation with other members usually plans how food should be stored and distributed as a unit. This translates to the attainment of household food security. While there are different perceptions to the concept household-head, this study subscribes to the view that a household head is responsible for the day to day activities and ensures its food security. Boserup (1994) suggests that a third of rural households in Africa are solely headed by women. According to the Grain Marketing Board

(GMB: 2001) rural women are responsible for half of the nation's food production at household level. This is also echoed by Khayundi (2000) who argues that women play a pivotal role as building blocks for food production and household management. It is therefore on this basis that this research views the woman as the most likely pillar of household food security in Zimbabwe.

The Zimbabwe Women Resource Centre and Network (ZWRCN) (2004) reveal that, women play a key role in subsistence agriculture in Zimbabwe. Foremost they comprise the majority (52%) of the national population of Zimbabwe and 86% of this percentage lives in rural areas where they depend on subsistence farming for their livelihoods and that of their families. The narrow livelihood base in the rural areas has created a need to improve incomes resulting in male migration to urban areas. The consequence of this has been a marked increase of female-headed households to (60%) in the communal areas (ZWRCN: 2005) This clearly points out the fact that women remain the main providers of labor for farming and are the primary managers of homes.

The importance of literacy as a human right had been underscored by the UN where a resolution was passed setting out a Decade of Literacy from 2003 to 2012. Much as the women play an important part to achieve household food security both in the rural and urban areas it is becoming clear that they cannot meet the growing demand. As the population grows and the capacity of the land diminishes it exerts a need to shift towards intensive farming or the application of new methods of farming and technologies. The adaptation and use of new innovation assumes a higher level of literacy yet the majority of women are neither educated nor are there any deliberate efforts to the boost literacy status of the rural farmers. This creates anxieties as to what challenges this engenders for female household-heads found in most of the developing world? Their level of literacy may probably influence the way they access innovative research and information based on agriculture? What choice is available regarding the channel through which to receive agriculture based information? Is there adequate provision of information for the communal farmer? What effect does literacy and language have on female small-scale farmers' use of information to sustain household food security?

1. Statement of the problem

1.1.1 Background to the problem

In Africa, agriculture is recognized as a method of food production and communal agriculture is one of the acceptable methods crucial for sustained food production In Zimbabwe the challenges faced by the agricultural sector are different from those faced by first world countries. Whereas many of the first world countries have diverse economies Zimbabwe is an agro-based economy. Agriculture contributes over 60% to the national economy with 80% of the total output produced by smallholder subsistence farmers (FAO, 2006). Zimbabwe is currently faced with severe household food insecurity. It is currently estimated that about 60% of the households in the communal lands, experience food deficits. According to the FAO (2006) , **2.3 million households in Zimbabwe are unable to meet their daily food requirements.** Mushunje (2004) established that, 20 to 25% of Zimbabwean children suffer from malnutrition, which is especially extensive among children residing in communal areas. This is of concern because according to the Forum for Food Security in Southern Africa (2004), the country was once self-sufficient in food supply and even coped well with the droughts of 1982, 1987 and 1992.

The threat to household food security may be attributed to a number of factors. The Zimbabwe Agriculture Research Centre (2004) indicates that low food and cash crop output in Zimbabwe is a result of and by no means limited, to erratic weather patterns. There is probably a combination of separate yet related factors that influence agricultural performance. The success of food production in the developed countries resulted from their acquaintance with modern information technology and their ability to apply them to their agricultural need (Pinstrup- Anderson, Pandya-Lorch & Raosegrant, 1997). The development of mechanized farming in the developed world particularly Europe emphasized information and knowledge-intensity. The challenge for Africa is that there are high levels of illiteracy in the very communities that are supposed to be active in food production. There are more women living in rural areas and many of them are illiterate and elderly making adaptation to new intensive methods of farming a challenge. According to the ZWRCN (2004) rural women are among the most marginalized groups in Africa with little or no schooling, yet they play critical roles in food production.

1.1.2The problem

The assumption of this study is that the household is the first place to experience food insecurity as such should be the initial focus for government planning. Previous research bear evidence that despite international efforts towards food security, its attainment in Zimbabwe and Chirau in particular is becoming elusive especially at household level. The key issue is how can governments ensure household food security? This may probably be attributed to a number of imperatives According to the Grain Marketing Board (GMB: 2004), female communal farmers in the far flung areas of Chirau where the research was conducted are responsible for 55 per cent of Zimbabwe's maize, 90 per cent of its sunflowers and 30 to 40 per cent of its groundnuts. However the majority were found to have only basic levels of formal education. This study revealed that rural women in Zimbabwe and particularly at Chirau carry the burden of food production yet they face a lot of constraints in accessing and utilizing agricultural information relevant for sustainable household food security. The study therefore, sought to establish if this was influenced by the level of literacy among other factors. The study was guided by the following questions: What is the household food security situation at Chirau? What role do women play in household food security? What are the information needs of these women? What is their literacy level? What is its impact on access to and utilization of information? and how do these women manage in light of such obstacles? This study set out to answer these and other relevant questions pertinent to the impact of literacy on access to and utilization of agricultural information for household food security.

2. Significance of the research.

The household is recognized as the primary focus for any development strategies aimed at achieving food security with the woman viewed as the ambit for food production and household management. This influenced the need to accentuate the probable connection between, the level of literacy, access to, and use of agricultural information and household food security in this study. Therefore a critical factor in ensuring household food security is the development of human capital through knowledge building and information sharing which is however weakened by a lack of sufficient levels of literacy, particularly so for women. The 2015 goal of reducing hunger set by the WFS in 1996 and supported by MDG 1, cutting the proportions of hungry and poor run

the risk of being missed if governments ignore the role of literacy and information, particularly in Sub-Saharan Africa.

This research documents how improved access to literacy and agricultural information for at Chirau and the rest of Zimbabwe may improve household food security. This may be information that will probably be valuable in planning for household food security by government, NGOs, and the United Nations Development Programme (UNDP). Such documentation may be crucial to the planning for effective literacy programmes as well as the design and improvement of information systems of value to a rural user community with special focus on household food security. This will also be particularly useful in adult education by the government and other development partners such as libraries, researchers, women groups, the Adult literacy Organization in Zimbabwe (ALOZ). The results may also provide the basis for future research in the area of household food security.

3. Aim

This study sought to examine the significance of the impact of literacy on access to and utilization of agricultural information for household food security in Zimbabwe. Chirau communal lands were used as the study site.

4. Objectives of the research

The objectives of this study were to:

- a) Determine the literacy status of female farmers at Chirau.
- b) Determine the household food security situation at Chirau.
- c) Identify the agricultural information needs of female farmers at Chirau.
- d) Determine accessibility and utilization of agricultural information for household food security.
- e) Ascertain the effect literacy has on access to and utilization of agricultural information

5. Delimitation

The study was carried out at Chirau communal lands located 115 Km North East of Harare in the Mashonaland West Province of Zimbabwe. The female farmers at Chirau were the respondents.

Summary

This chapter introduced the study with focus on the statement of the problem, significance of the study, aim of the study, the objectives and the delimitation. Chapter 2 presents an in-depth review of past research and development work on literacy, access and utilization of information and the impact on household food security. Chapter 3 describes how the study was conducted at Chirau in terms of methodology, research design, data collection methods, sampling procedures and data analysis. Chapter 4 presents the data and discussion of the findings. Chapter 5 gives the conclusions and recommendations of the study.

CHAPTER TWO: Literature review

2.0 Introduction

There is a great deal of literature with respect to food security but this chapter concentrates on literature relating to literacy, access, and the utilization of agricultural information for food security at household level pertinent to the study. The importance of literature review in a study of this nature needs no emphasis as it plays a pivotal role in helping the researcher to better understand the research problem (Chikoko and Mloyi 1995). Literature is drawn from researches, books and online journals. Other sources of information include international organizations such as the Food and Agriculture Organization (FAO), United Nations (UN) etc, research institutions and various government departments.

2.1 Theoretical framework: Diffusion of innovations theory

The main assumptions of this research are that food as an imperative for survival is important in the lives of people and women play a pivotal role as building blocks for food production and household management (Khayundi: 2000). They are however limited by the level of literacy which interferes with the way they access and utilize agriculture information for household food security. This study therefore sought to test the veracity of the assumption that the level of literacy has an impact on an individual's capacity to access, interpret it and benefit from it. This study is influenced by the 'Diffusion of innovation (DOI) theory commonly referred to as Roger's theory (Leeuwis: 2006). There are not many theories which are specific to library and information science. Meadows (1990) highlight the lack of a native, unifying theoretical framework in the field of Information Science which results in the use of theory from other disciplines. While the DOI theory is mainly used in communication it may be widely applied to disciplines ranging from agriculture to marketing to increase the adoption of innovative products and ideas. Surry and Farquhar (1997) applied the theory to instructional technology, Clarke (1999) discusses the potential application of the theory in information technology, and its applicability in the diffusion of agricultural innovation is evidenced by works of Rogers and Scott (1995) Minishi – Majanja, Kiplang't and Ocholla (2005), Kiondo (1999) among others. Its flexibility lies in the fact that it is not an all-encompassing theory but it is rather a meta-theory that has several theoretical perspectives that relate to the overall concept of diffusion. Thus the theory's applicability in other disciplines such as agriculture and information technology renders it flexible and most relevant for this study. While majority of the studies seek to test the diffusion of specific innovations this study only uses the theory to understand the factors that impact on the diffusion process hence facilitating more comprehension of the study in terms of how literacy enhances or limits access to information, utilization and use (diffusion) for household food security.

According to Rogers (1995), the study of the diffusion of innovations (DOI) may be traced back to the investigations of French sociologist Gabriel Tarde who attempted to study the rationale behind the acceptance and refusal of innovations in society. The fundamental research paradigm for the diffusion of innovations lies in the 1943 study of Ryan and Gross who investigated the diffusion of hybrid seed corn among Iowa farmers. The major concern of the diffusion of innovations is how, why, and at what rate are new ideas and technology spread through cultures.

Rogers (1995) theorized that innovations spread through society based on access to knowledge. The DOI theory sees innovations as being communicated through certain channels over time and within a particular social system (Rogers: 1995). Individuals are seen as possessing different degrees of willingness to adopt innovations from earliest to latest adopters thus: innovators, early adopters, early majority, late majority, laggards.

2.1.1 Relevancy of the theory to the study

A wide variety of disciplines are concerned with the way innovations are created and adopted by society. A new research and development thrust that combine literacy, information and communication technologies and socio-economic aspects, is required to achieve this endeavor. 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 a new 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. To understand the relevancy of the theory to this study it is necessary to define and discuss the four main elements of the DOI theory in relation to the variables of the study. In the context of this study agricultural information and knowledge are conceptualized as an innovation necessary for the achievement and sustenance of household food security.

This study sought to establish if the level of literacy has an effect on access to and utilization of agricultural information and the implications for household food security. Recent developments illustrate an increasing awareness of the role of information in the economic sector particularly in agriculture in Africa in general and Zimbabwe specifically. It is progressively more becoming 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 the timely adoption and absorption of new technologies and innovations particularly in agriculture. The relevance of this is supported by Balit (2006) who points out that the least expensive input for rural development is knowledge. This awareness is echoed by Muvezwa (2006) who suggests that information is now a fifth factor of production in addition to land, capital, labor, and technology. Leeuwis (2001) recognizes that globally, useful information and knowledge on agriculture is in most cases, held by a collection of actors known as Agricultural Information and Knowledge Systems (AIKS). The agricultural information transfer system consists of four main interrelated components namely development, documentation, dissemination, and diffusion. Rogers and Scott (1997) define diffusion as a process of communication by which an innovation is spread via certain communication channels to members of a specific community over time. The four major factors of diffusion theory are innovation, communication channel, time and community to which the innovation is introduced.

According to Rogers & Scott (1997) innovation is an idea, practice, or object that is perceived as new by an individual or other unit of adoption. The innovation is often born out of a problem arising and the realization that an innovation might provide a solution (Rogers 1995) The 'problem' is a performance gap between the current and the expected performance of an organization, individual or community. In this study an innovation is not necessarily a novel idea

but may be also the continuation of an existing idea. The agenda setting on food security in Africa by international organizations such as Food and Agriculture Organization (FAO), United Nations (UN) and African governments among others was prompted by a precarious household food security situation of majority of Sub Saharan Africa (UN: 2000)

Given that agricultural information and knowledge systems are knowledge based innovations, it is useful to apply the tenets of diffusion theory to better understand the diffusion of agricultural based information and knowledge into the social system and its implications for household food security. There are five basic attributes of an innovation which affect its diffusion and adoption in society. These are real advantage, compatibility, complexity, triability and observability of the innovation.

Relative advantage is the degree to which an innovation is perceived as being better than the preceding idea measured in economic terms, social prestige, convenience, and satisfaction. The study established that although a number of modern agricultural information sources were acknowledged, the respondents exhibited a lack of knowledge of the best sources to meet their agricultural information need implying that there was not much benefit derived because of non utilization. Compatibility refers to the degree to which an innovation is perceived as being consistent with the existing values, past experiences, and needs of potential adopters. An idea that is incompatible with the culture of a social system will not be immediately adopted. It was necessary to establish if the available AIKS were relevant to the needs of the respondents against competition from indigenous practices and cultural beliefs.

Complexity implies the degree to which an innovation is perceived as difficult to understand and use. Simpler ideas are adopted more rapidly than innovations that require the adopter to develop new skills and understandings. The major flaw of AIKS is the assumption that the consumer has an ability to read. These skills lack among the farmers in most parts of the developing world including Zimbabwe. This makes access, application and adoption of AIKS a challenge. Triability is the degree to which an innovation may be experimented with. An innovation that is testable represents less uncertainty to the individual who is considering it for adoption. The results of the study showed that the majority of the respondents had insufficient levels of literacy to enable them to independently adopt an innovation, instead they preferred to learn through demonstration from extension workers. It is easier to learn by doing because it gives opportunity to test the new innovation which influences decisions for adoption.

Observability relates to the degree to which the potential adopter has had the opportunity to see the results of the implemented innovation. It was observed that respondents who received training in agriculture were often role models for those who did not were often consulted based on their observable successes. The easier it is for individuals to see the results of an innovation, the more likely they are to adopt it because such visibility stimulates peer discussion of the advantages and disadvantages hence informed decision making. The continuation of an innovation is dependent on commitment by various stakeholders to include government, the adopters, and other stakeholders such as extension. It could be established from the research that projects implemented without follow up often faced discontinuance or reversibility at a cost to the government and negative impact on household food security.

2.1.2 Communication channels

Rogers (1995) defined a communication channel as the means by which messages get from one

individual to another. The nature of the relationship between individuals determines how successful the innovation is transmitted and the effect of the transfer (Rogers, 1995). He observed that while mass media channels provide the most rapid and efficient means of communicating to a large number of potential adopters, interpersonal communication among individuals of the same socioeconomic status and educational level is more effective in persuading potential adopters to accept a new idea. This dependence on the experience of peers suggests that the diffusion process consists of modeling and imitation by potential adopters of their network partners who have adopted previously. This makes diffusion a very social process. The oral culture of most rural communities may find this favorable at the disadvantage of adoption of modern agricultural information and knowledge which is largely institutionalized.

2.1.3 Time

An important factor in the diffusion process which is often ignored in other behavioral research is time. The inclusion of time in diffusion research is one of its strengths, but the measurement of time (often through individual recall) has been criticized (Rogers, 1995). The rate of adoption of AIKs by female farmers may be conceptualized through Roger's Sigmoidal- curve where he identified as innovators, early adopters, early majority, late majority, laggards.

The innovators are venturesome, educated and have a variety of information sources. Second to accept innovations are the early adopters who are popular and educated social leaders. These are followed by the early majority who deliberate on the new idea and consult many authorities, innovators and informal social contacts. Due to an oral culture, these then spread the word and persuade others into seeking and using the same innovations. They are willing to accept change but would rather be followers. The studies on which the DOI is based found that people were more likely to adopt, or even consider adopting, if educated people they knew and respect have adopted. The late majority is sceptical, traditional, belongs to lower socio-economic status and is often uneducated. The slow acceptance of innovations is influenced by their low socioeconomic status, often a lack of education and skills are necessary to be able to interact with innovation. The laggards rely on neighbours and friends as the main information sources, and fear the unknown. These represent respondents who rely mainly on informal contacts and resist change due to a number of reasons to include lack of resources, illiteracy, and a general lack of knowledge.

2.1.4 The Social System

Rogers (2005) defines a social system as a set of interrelated units that are engaged in joint problem-solving to accomplish a common goal. There is a diverse membership who act and react differently within the social system. These may be individuals, informal groups, or organizations. Sociological research suggests that differences exist among farmers in the same region despite having similar farm layouts and sometimes size. According to Leeuwis (2003), these differences include household composition, age, and literacy levels. From these sets of different aspirations, distinct patterns of farming or farming styles emerge. Each style represents a different way of connecting and ordering to the agro ecological, technical and social world. Therefore, social structure is necessary within the system to provide regularity and stability and to be able to predict others behavior with some degree of accuracy.

2.1.5 Limitations of the DOI theory

Critics of this model have suggested that it is an overly simplified representation of a complex reality. A number of other phenomena can influence innovation adoption rates. DOI Theory is at

its best as a descriptive tool, less strong in its explanatory power, and less useful still in predicting outcomes, and providing guidance as to how to accelerate the rate of adoption. Many of its elements may be specific to the culture in which it was derived (viz. North America in the 1950s and 60s), and hence less relevant in, for example, East Asian and African countries. Nonetheless, it still provides one valuable hook on which research and practice maybe hung.

2.2 Literacy

Existing literature on food security rarely mentions any connection between literacy and food security. Literacy as a concept has evolved over time and has remained contextual to an extent that there is yet to be consensus on the absolute definition of literacy. It has been and still is influenced by different political, economic and socio-cultural contexts. McGarry (1991) gives a narrow definition of literacy as the ability to read and write. However in the 21st Century the term literacy has been broadened to become a metaphor for many kinds of skills. The shift is that more emphasis is placed not only on reading and writing, but also on skills and practices that are relevant to the changing dynamics of community life. At the launch of the World literacy programme in the UNESCO (1970) introduced the social dimension of literacy by recognizing that,

Literacy is at the heart of basic education for all and creating literate environments and societies is essential for achieving the goals of eradicating poverty, reducing child mortality, curbing population growth, achieving gender equality and ensuring sustainable development, peace and democracy

Some scholars suggest that the concept of ‘multiple literacies’ related to technological, information/knowledge, media, visual, scientific , numeric and other contexts, is better suited to life in the twenty-first century. The links between improved productivity and literacy are several and direct. McGarry (1991) says that literacy facilitates the economic value of the possessor and the society to which s/he belongs as such it is regarded as the economic take off for any country. It empowers individuals and groups to promote social change. Literacy is therefore viewed as a necessary precondition for development and worthy of attention.

The UNESCO (2002) World Literacy Report revealed that about 800 million adults were illiterate in 2002 and 70% of them live in nine countries belonging mostly to Africa and East and South Asia, notably India, China, Bangladesh and Pakistan. A relationship may be established between the food insecure countries and high levels of illiteracy in those countries. Cole (2005) says that some countries are underdeveloped because fewer than 10% of their populations have been trained and educated in such ways as to make proper use of their innate capacities. International organizations also emphasize its significance to the extent that the UN set aside the period 2003 – 2012 as a decade of literacy. Moreover the Millennium Development Goal (MDG) 2 which seeks to achieve universal primary education by ensuring that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary

schooling. Various researches including this study established that the household food insecurity was attributed and by no way limited to, lack of education and agricultural training, poor farming methods, poor post harvest management, *etc.* This subscribes to the view that household food security is possibly influenced by the provision of literacy and access to information *inter-alia*, on supply of inputs, improved seed, credit and land is made available.

2.2.1 The effect of literacy on food security

Food security is an increasingly critical global issue, affected by a complex and inter-related set of variables that influence the availability and access to food in each country. At one end food security implies the availability of adequate supplies at a global and national level while on the other; the concern is with adequate nutrition and well-being. Gassol de Horowitz (1993) identifies food security at three levels namely global, national household levels. The focus of this study is food security at the household level, however it may not be discussed in isolation of the rest of the world. World hunger and household food security have been high on the development agenda of many countries and international organizations such as the United Nations. In 2002, the world's heads of states committed their countries to eradicating hunger and reducing the number of undernourished people by 50% by the year 2015 (FAO 2008).

While it is recorded that global concern with food security became noticeable in the 1970s it does not make the issue novel. Lee-Smith and Memon (1994) argue that the concern for food security maybe associated with the origin and development of mankind. Even as the history of Africa South of the Sahara is characterized by various conjectures there seem to concur on the human society's preoccupation with food. According to Chigwedere (1989), archaeological excavations have unveiled earth and waterworks, within and on the edge of ancient settlements. Many of these facilities and infrastructure were used wholly or in part to produce food as well as the provision of fuel, building, to raise livestock for food, among a host of other uses. All human societies collected and still collect food using various methods. According to Mlozi (1992) food collection has in fact been a basic societal function performed by both men and women. The division of food production roles is noticeable where men hunted while women gathered roots, berries small creatures like lizards and frogs to supplement the diet. There is evidence that societies grew out of a change that began about 11,000 years ago (or about 9000 BC), when modern humans began to change their way of living. For over 2,000 years ago most of the world's people already relied on agriculture for their food. . The evolution of agriculture is viewed as a process in which the relationship between plants, animals, and humans was fundamentally altered by a combination of natural, technological and cultural processes (Pfukani: 1996). Mashingaidze (1987) is of the opinion that intensive agriculture may be traced back to about 10,000 years ago, when human groups in areas of the south west Asia (Lebanon, Israel, Turkey, Iraq, etc.) began to intensify the use of certain plants and animals by removing them from the natural to artificial settings. The domestication of plants and animals shifted humans to move from dependence on nature to the adaptation of nature to provide for their needs. This is evidence of an early concern with sustainable food security where society began to realise the need for a more stable way of food supply.

Currently, the food security challenge is more pronounced in the developing world where the highest number of countries is in Africa. The FAO (2000) report reveals that a number of

malnourished in Africa has increased by 15 per cent since the World Food Summit of 1996. This figure is argued to now total more than 800 million. This is reported to be more evident in the Sahel region, the Sudan, Chad, the horn of Africa notably Somalia, Ethiopia, Eritrea, and Southern African countries such as Angola, Malawi, Mozambique, Zambia and Zimbabwe. The FAO (2004) notes that insufficient information to forecast famine seen to be a central reason for the failure of national governments and the international donor community to prevent the famines in Africa in the mid 1980s. Many new famine Early Warning Systems (EWS) have been setup, but the goal of famine prevention remains elusive. This crucial information is in most cases available to governments, research institutions, etc but many of small scale farmers do not have the necessary literacy competencies to access this information. In addition most developing countries lack the required capacity and resources to exploit the information because in most cases information provision is often outweighed by other priorities such as health.

In most developing countries, agriculture continues to be the most important sector of the economy, yet ironically, majority of the small farmers engaged in agriculture are food insecure. The FAO (2003) notes that, most of the almost 842m undernourished people in the developing world today are from farming families. This situation arises when they have to sell their produce to meet other needs such as school fees and other food products they do not produce. This means that they are producers but not the consumers of food because of poverty. Their low levels of literacy deny them access to information and technologies to manage and preserve harvests. The other crippling factor is that developing countries produce raw materials which are later imported as expensive finished products that are beyond the reach of the poor farmers. In other words while they produce the food, it is not affordable in a consumable way which leaves them hungry either way.

Increasing attention is being given to the role of smallholder subsistence agriculture in ensuring the food security of the African continent, seeing that 73% of the rural population consists of smallholder farmers (IFAD, 1993). Small scale or subsistence farming in Africa may not be discussed in isolation of women who make the majority of rural populations (ZWRCN: 2004). While there are different perceptions to the concept household-head, this study subscribes to the view that a household head is responsible for the day to day activities and ensures its food. Boserup (1994) suggests that a third of rural households in Africa are solely headed by women. The percentage of women headed households range from 5% in Burkina Faso to 60% in the communal areas of Zimbabwe. This is confirmed by the CSO (2002) that more than 1 million families live in the communal sector of Zimbabwe whose mainstay is farming and about 60% of the households are headed by women.

The FAO (2006) estimates that women's contribution to the production of food crops ranges from 30% in the Sudan to 80% in the Democratic of Republic of Congo. In Zimbabwe, the communal land sector (in which smallholder farming is practiced) occupies 42 % of all land and accounts for 80% of the female population. This data probably supports a common trend throughout Africa that the smallholder subsistence farmers, especially women are responsible for household food security and contribute substantially to the national agricultural production.

Boserup's (1994) comparison between farming systems in Europe, Asia, Africa and Latin America confirms that while the male systems predominate in Europe and Latin America in

Africa and Asia female systems predominate. She adds that in most of Sub Saharan Africa, communal or small scale farming is culturally associated with a woman's role in society. Even in the households headed by men, women do most of the farm work. They cultivate crops, care for livestock, process and prepare food for the family. This may be attributed to the continental migration of men to other areas in search of employment due to decreasing returns from agriculture. In Zimbabwe, Kenya and Zambia the expansion of labor recruitment into rural areas led to migrations into mining areas and large scale commercial farms at the expense of rural households(Chigwedere:1989). While such migration can increase remittances to rural areas and strengthen market linkages between urban and rural areas, it leaves rural women increasingly responsible for farming and for meeting the households' immediate needs (Sibanda & Moyana, 1983) The implications are largely negative for the rural population left behind, and especially for the members of female-headed households, which are typically associated with increased simpler farming systems, inadequate services and meager incomes against a background of insufficient literacy levels.

The picture portrayed by this analysis is that food production in most rural areas in Africa is closely associated with the situation of women however they play these roles in the face of enormous social, cultural, and economic constraints. (FAO, 1999) The implications are largely negative on the members of female-headed households, which are typically, associated with increased simpler farming systems, inadequate services and meager incomes against a background of insufficient literacy levels. The *International Food Policy Research Institute* (IFPRI) (2004), a Food Policy Report brings together evidence on the key roles that women play in ensuring food security and examines ways to strengthen food production, economic access to available food, and nutritional security. The report reveals that availability and capability to access productive resources such as land, inputs, information and knowledge may enhance or limit women's capacities for household food security. According to Moser (2003), most women have no access to land, credit, extension service and relevant information and technology. In most of rural Africa access to information is limited, and especially so for the majority of rural women due to insufficient levels of literacy among other factors.

According to UNESCO (2002) although many countries around the world have made significant progress towards gender parity at primary and secondary levels over the past decade, large gaps remain, particularly in the Arab States, sub-Saharan Africa and South and West Asia. Girls accounted for 57% of the out-of-school children of primary school age worldwide in 2001 and for more than 60% in the Arab States and in South and West Asia. Girls' participation remains substantially lower than boys' (a gender parity index below 0.97) in seventy one out of 175 countries at primary level. Gender disparities become more extreme at secondary level and in higher education. Of eighty-three developing countries with data, half have achieved gender parity at primary level, less than one-fifth at secondary and only four at tertiary. Almost two-thirds of the world's adult illiterates (64%) are women. The research findings revealed that majority of the respondents in the 40-60 age group dropped out of school as a result of early marriage or economic hardships. For women in rural areas, social, religious and cultural norms also limit access to the limited information facilities available. In Somalia and Ethiopia for example, the enrolment ratios are 11 and 37 percent for boys and girls, respectively, and the literacy rates are only 24 and 33 percent. According to Agarwal (1994) the belief particularly in the Moslem world is that a woman's place is in the home therefore no effort is emphasized on going to school.

Female literacy is similarly poor at Chirau and in Zimbabwe in general. The literacy rate in Zimbabwe is high among men and lower among women. A 1997 Inter-census Demographic survey Report by the CSO in Zimbabwe, females in the age groups 15-59 record high rates of literacy. Literacy rates begin to decline among women who are 60 plus, from 46 % for women in the 60 – 64 age groups down to 25% for women 70 and above. Elderly women therefore are less likely to be able to access information. This has been characteristic for most of their adult life yet they make the bulk of the population in subsistence farming in the rural areas.

It is worthy noting that the high literacy rates recorded are general but if aggregated it emerges that the levels are higher in the urban areas than in rural areas. The high illiteracy among the adult population has been attributed to culture and tradition and the effect of colonization. Most of the women in rural areas are seriously inhibited by illiteracy. While addressing a food security workshop in Mozambique on the theme ‘the potential of ICTs in food security, Machel (1996) observed that,

Before we talk of communication, let’s ask, ‘Who is growing the food?’ It’s the women but, what kind of women? Not like me, in a suit! They are illiterate. They cannot count. But they are excellent managers. Despite this, they cannot grow enough for their families for the whole year.

The lack of access to the important resources such as literacy, credit, information and local solutions does not only hinder development in general, but aggravates the insecurity of nations in various spheres like food production. Women are responsible for the economic, social, physical and psychological support of their families yet most of them are illiterate. Illiteracy for a woman exacerbates the cycle of poverty. When parents are not educated no one supervises homework, such a scenario is dangerous for children as they won’t perform well enough to fully function in society hence a vicious circle of poverty and underdevelopment. Machel advocates for the improvement of infrastructure, building schools to improve female literacy, in particular and the improvement of communication channels that are accessible and affordable in local languages that women understand.

The UNESCO (1961) conference on the “Development of education in Africa” recognized that, for the increased use of educated women power in the working life of community there is need to develop a new conception of the role of women in life of the community, to improve their role in life as homemakers. The conference the importance of women being empowered for access relevant information sources in view of the roles that women play in society and the conditions that they face. The importance of literacy is further reflected in a cost-benefit analysis carried out by the World Bank (2006). It shows that investment in the education of females has the highest rate of return of any possible investment in development. Bartecchi (2003) brings evidence of a group of literate women from the South Coast of Kenya expressing joy over the advantages of their recently acquired skills in reading, writing, and calculation. They reckoned that they could now sign their names, they had more control over money transactions, and could read medical prescriptions and instructions. “Our eyes have been opened,” said one of them, expressing her new sense of pride and increased self-reliance. This is essential not only for preventing an adverse impact of the social conditions of women and children but also for enhancing women’s equitable access to the benefits of information and productive resources such as credit for the improvement of household food security. Literacy is also important for the health status of a nation in particular reference to women. According UN (2002), child mortality would be reduced more effectively by providing women with ten years of education. When women are literate they know their

reproductive rights and how to take care of families hence reducing maternity and infant mortality rates. They also understand birth control measures and so reducing population explosion which is one of the major contributing factors to diminishing capacity of the land and subsequently food insecurity. Given the relationship between female education and economic development especially at the first and second levels of literacy, the positive impact on health, well being and the process involved in the transforming societies makes education in any population an imperative.

2.3 Access to and utilization of agricultural information

The concept of information and its definition throughout the history of library science has been the centre of attention of the information community and the source of many opposing views. Belkin and Pao (1989) view Information as the result of processing, manipulating and organizing data in a way that adds to the knowledge of the person receiving it. Owing to the validity of the views of Belkin and Pao (1989) this study will not attempt to redefine such concepts but rather build on the concepts. There has been little basic or no research on various aspects of access to agricultural information by women in rural Africa. Most of the citations are on general studies in the development of communal farming. The influence of literacy on access and utilization of information and its implications for household food security seem less emphasized. Mchombu (1996) and Kaniki (1995) have however attempted to capture the information behaviors of small communities in Southern Africa but nothing has thus far been done to follow up on their studies.

2.3.1 The need for agricultural information

For any community to function effectively a basic stock of usable information is necessary. We are living in an information and knowledge age, where we have become more dependent on information and knowledge. Globalization among other forces has accelerated the need for knowledge intensive work performance in all the sectors of economy. Malhaam (2004) says that knowledge and information have become significant factors for production of goods and services. To this effect it is increasingly becoming a reality that the future of food security in the developing world, for instance in Africa and Asia, will be dependent less on resource-intensive agriculture, and more on knowledge-intensity. The success of the Green Revolution in Asia and the Near East indicates that giving rural communities access to knowledge, technology and services contributes to expanding and energizing agriculture. Recent studies, for instance by the FAO (2004), UN (2002), IFPRI (2004) concur that the future of food security in the developing world is increasingly becoming dependent more on information and knowledge than inputs. The female farmer at Chirau, for example experiences information needs in her environment to meet her responsibilities as mother, breadwinner and wife. For the female farmer in the Zimbabwean political, socio-cultural and economic environment needs information, largely to run the household, make agricultural based decisions and also information to support any of her income generating projects at home and at work. According to Bonjesi (2004) the sustainability of subsistence farming or food crop production is hampered in Zimbabwe due to various factors such as lack of inputs and chiefly, lack of access to information and knowledge resources by women who are apparently the major players Rural communities require information *inter alia* on supply of inputs, new technologies, early warning systems (drought, pests, and diseases), credit, market prices and their competitors. They need information on farming systems pest and diseases,

cropping, education credit management livestock management, marketing and pricing, harvest management, health and nutrition, farm security, finance and credit other information which included farming without chemical fertilizers; and drought resistant crops (Moser:2003). Agricultural information is therefore necessary to reach farmers and agriculturists in order to meet their needs. If farmers for example have access to relevant agricultural information, food shortages may be eradicated. Such information is crucial to their farming activities and impact on household food security.

The successful satisfaction of the information needs is influenced by the individuals disposition. The individual disposition refers to the background and characteristic of the individual as well as the individuals' situation, which includes factors such as age, education, motivation, tasks, roles and problems. The main challenge however is that most comes in print or in English yet the level of literacy of respondents incapacitate them from accessing such information. The small holder farmers lack both the literacy competencies and economic capability to access and use relevant information.

Library and Information Science literature is vague on the nature and definition of information seeking behavior. Information seeking may be understood as a rational problem solving process where a gap in knowledge triggers a conscious search for information. Psychology tries to explain information seeking as a behavior hence "information seeking behavior" It may be defined as physical and psychological characteristics that a person engages in when seeking for information. Information seeking behavior is shaped by a variety of factors such as education level, access, skills, age, and gender among many others.

When a person realizes an information need s/he engages in some information seeking behavior. That behavior may take various forms: for example, the information seeker may make demands upon formal systems that are customarily defined as information systems such as libraries, on-line services, information centers, or upon systems which may perform information functions in addition to a primary, non-information function such as government offices and clinics all of which are concerned with providing another. They however may be used to obtain information on current legislation or health matters. Upon succeeding this leads to information use, which might lead to satisfaction or non-satisfaction of the need. If the information seeker or user fails to get information then they make demands on other systems such as literature or other people. The process may be vice versa where the user approaches other informal sources first and then formal information systems later. Kuhlthau (1988) constructed a model of the Information Searching Process. This is a series of phases of construction and level of information needs. She combines different phases with physical, affective and cognitive modes that accompany these phases. In her theory she argues that information searching is a complex combination of thoughts, actions and feelings. **(FIGURE 1)**

Figure 1: Kuthlau's Information Seeking Model

Tasks : Initiation	Selection	Exploration	Fomulation	collection	presentation
Feelings: Uncertainty Satisfaction or		Optimism	Confusion	Formulation	Confidence

(Affective)

Thoughts: Vague
(Cognitive)

Focused, increased interest

Actions

Each of these phases is accompanied by certain feelings and certain thoughts. Such feelings are uncertainty, optimism, confusion or frustration or doubt, clarity, sense of direction and confidence and satisfaction or dissatisfaction. Westbrook (1990) synthesises the different phases as identified by other authors like Belkin & Taylor (1990) to a five-phase process namely, **needing, starting, working, deciding** and **closing**. Needing meaning that there is a hint that information might solve the problem at hand, for example, health problem. Starting implies working on the need. Working refers to the action the user takes, which might be confronting either a formal or informal information system. Deciding is the decision on the value to be derived from working on the need and Closing implies the effort to work on the need. actions namely actively seeking for information.

2.3.3 Access to agricultural information

Access to information is both physical and intellectual. Physical access is getting to the actual source while intellectual access implies other skills and processes such as literacy for the comprehension and sustainable use of information. According to Harris (1992), the capacity of local communities to cope with economic and social change depends heavily on access to information and if communities do not function, other policy measures will fail. Bessei (1988) reported inaccessibility of information on rural agricultural production as a major constraint to development. There has been more development research, focused on introducing new seed, new fertilizer and mechanization than understanding the potential the relationship literacy, has on the production capabilities of female farmers in particular and other farmers generally. The contention of this study is that literacy is a major ingredient in accessing and utilizing information relevant to agriculture. Achleitner (1995) adds that information transfer should involve creation, dissemination, organization, diffusion, and use of information. These components broadly correspond to generation, organization, communication, and utilization of information. AIKS assume a higher level of literacy among farmers yet majority of small scale farmers have rudimentary levels of literacy (grade one to three). The ANRAD workshop in Addis Ababa, Ethiopia recommended collation of the grey literature on cereal production and its publication in mainline scientific journals, publications and books (ANRAD, 1995). The ANRAD programme has however not been very useful to the ordinary small scale farmer whose access to information is limited in most cases by distance and level of literacy. Vuuren (2007) says that much of the knowledge generated by scientific research end up in offices and inaccessible to those who desperately need it.

Women's access to information is dependent not only on the availability and dissemination of information in the languages they understand but on literacy levels. Such information is however still relevant if repackaged and channeled to the ordinary people through government and relevant institutions. Without such information despite their numbers in the agriculture sector, women's contribution to households and subsequently national and regional development is handicapped.

An ability to read and participate in society boosts one's self esteem as Christina Mavale a Mozambican factory worker who learnt to write quoted in Marshall (1975) puts it, "With literacy, people don't earn more but everything they know is in their heads. They can go anywhere, do anything, ask for what they want, enter in. When people don't know reading and writing they are afraid". Mavale was commenting on the sudden confidence she had after acquiring literacy skills.

Most of the farmers in Zimbabwe are elderly and less literate making the current information formats unsuitable therefore inaccessible to them. The other assumption is that there is sufficient and relevant information for the farmer yet most of the channels are not known to the local farmer. A demographic survey by (CSO:1999) showed that 66% of rural women and 13 % of urban women have no access to any form of media of information source, while 49% of rural men and 5% of urban males had no access to any form of media. This is disheartening because much of the information on farming is available through the media via such programmes as Talking Farming and *Murimi wanhasi* (Today's farmer) on Zimbabwe Television and Radio. Lack of literacy skills has major implications for the individual as well as for social development. This apparent lack of access to information by the small scale farmer in most developing countries has perpetuated ignorance, poverty and hunger. Any agricultural Information System should be relevant to all stakeholders that is, the farmer, the service providers and government among others. Information service includes not only providing bibliographic information, but other services such as training. Who can do this? It has to be the specialists who reach out to the farmers. This is where the collaborative role between the information workers and extension service can have an impact. According to Reddy (2005) the participants in this matrix facilitate interaction, networking, feedback and collaboration by serving each other in a dynamic dual function as both a resource base and a customer base.

Another factor limiting access to agricultural knowledge by rural farmers is that most modern research findings are available online which excludes them due to an absence of an ICT culture and tools for access. There is so much literature on the potential of ICTs for the development of rural areas and improvement on productivity for example studies by Balaji (1998) on the success of using indigenous languages to reach poor resources farmers in India. There are however, contradicting views on the role and usefulness of ICTs in African development. ICTs have been blamed for worsening the plight of rural Africa because of the high costs and inaccessibility as Kenny (1995) argues that access to ICTs is dependent on education and income distribution. Chowdhury (2002:1) is of the opinion that the "the poor cannot eat high speed Internet" Arguments have also been raised on the potential for ICTs to improve a society's way of life. Moyo (1996) stresses ICTs can contribute to economic and human development and nations around the world are eager to take advantage of this potential. This however should be done with care and particular consideration for the intended beneficiaries who still have basic levels of need and inadequate skills to interact with text, let alone sophisticated technology.

2.3.4 Utilization of agricultural information

Smith (1996) indicates that a positive interaction with information results in , solution of a problem, taking a decision, some activity which is task related, feed back on personal attitude, feed back to need, the generation of new information or a combination of any of these outcomes. To ensure household food security, farmers can take measures to improve seed selection and their cultivation, irrigation, and fallowing techniques. They can use information on appropriate

technologies to harvest and conserve food crops AGRITEX (1998). The use of biotechnology has been identified as having the potential to meet the increased food demands and to contribute to alleviating food insecurity problems (McCalla and Brown 1999). This is however still controversial, especially with regards to the food value of genetically modified foods (GMOs). The ZARI (2004) argue that while most genetically modified foods are expected to alleviate food security for Africa the effect is opposite.

2.3.5 Factors that influence access and effective utilization of agricultural information

Harris *et al* (2001) argues that the main challenge with information is that people do not have equal access to it. Information carries the implication that access can be broadened or restricted meaning that, action either on the part of the person seeking access or on the part of a person empowered to allow access. For example, persons needing access to information may lack the skills like literacy to use it. It may be observed that when it comes to the modern information behavior, some obstacles exist as barriers for smooth and effective flow of information. The barriers to information cited by the respondents may be categorized into Dervin's (1977) five categories namely, societal, institutional, physical, psychological and intellectual.

Despite the significance of reading, most studies on literacy and information use have ignored the importance of the act and art of reading as well as reading culture. MacGarry (1991) defines reading as an art in which human beings decode, construe and negotiate meaning from text or printed material, therefore a good measure of how literacy levels determine one's access to information especially printed material. Reading like literacy has stages from an elementary level to an advanced level. A reading situation is when an author has something to say, writes the text, the text reaches the reader, the reader reads the text and becomes informed. The information creates an effect. This effect then influences and directs the behavior of the reader. Hatt (1976) identifies the reader as a person with four attributes, which are literacy, access to reading material, certain minimum environmental conditions and time to read. These four attributes distinguish them from non-readers. Literacy as a characteristic of a reader implies that a literate person has learned to perform certain mental tasks that enable him/her to decode the marks s/he finds on a page. Each level of reading is determined by one's level of literacy as identified by the OECD (1999). Those in level one have difficulties in reading and it improves until one gets to level five. According to Menzel (1976) reading is essential to full participation in modern society. It adds quality to life, providing access to culture and cultural heritage. Reading empowers and emancipates citizens, and it brings people together. Literacy without access to reading material is irrelevant, therefore the need for access to the reading materials. This encourages a reading habit, which is crucial for the maintenance of literacy skills. Of the population that learns or masters the skill of reading some use it frequently to access information while some not at all. Reading is an essential part of life. Throughout the world, many people are grappling to promote a culture of reading at a time when an increasing number of people are spending less time reading and when reading skills are declining. It seems our societies lack a reading culture and this has been a major cause for reversion to illiteracy because reading also helps reinforce skills gained. A reading culture is when people have an interest in reading beyond the classroom, which is reading for leisure and discovery.

Mann (1976) mentions inconvenient location of information institutions as a major barrier to access of reading material. Most Zimbabweans do not read for leisure because they are not familiar with the languages used. Zeleza (1990:12) notes that “Educationists generally agree that learning is associated with publication in first languages which effectively promotes and maintains literacy” Most published material in Zimbabwe, just like elsewhere in Africa is in the form of textbooks produced in English, French and Portuguese. People enjoy reading material produced in their own languages. Even where people are literate the nature of reading material sometimes excludes users from accessing information.

McGarry (1991) among other authors argue that low levels of literacy is an obvious challenge to access to reading and information for the rural woman but somehow she manages to meet her information needs for daily coping even though it might be to a lesser extent. This is possible because they have their own networks where information is passed orally. Research by Pao (1989) on user needs and information seeking behavior has shown that one’s level of education is an individual’s context that determines one’s information needs, how they confront an information system and subsequently use that information. In which case there is a positive relationship between access to information and the level of education. Access to information is also influenced by to the language and level of literacy. This might imply that rural communities are always closed out of much information that is in English. Spoken and written language both marginalize people in terms of access to information. Knowledge of the language helps articulate situations.

The relationship between information and power is inherent in information ability, which includes: information awareness; ability to exploit information (i.e. information handling skills); and opportunities to exploit the information (Harris 1992:55). Many people have difficulty recognizing that they have information needs. Information awareness is also the ability to recognize that problems may be solved and that development (personal, community, economic & social) may be achieved by accessing and using information (Harris 1992:56). Fairer-Wessels (1990) found that the urban black woman must be made aware of her needs and be assisted to articulate them and thus solve her problems. Lack of this ability may be highly restrictive. Dervin (1977) argues that the social status of a person considerably influences how well informed particular information users are. For example, where women have a certain degree of authority or influence in their community, their information networks are stronger. Information networks used by poor less literate women and better-off educated women are different. While relatively poor women receive their information from their community (neighbors, friends, local markets and the church. Relatively wealthy women have networks extending beyond their villages and trading centers to external, larger towns like Harare. Culture and tradition also play a major role in the socialization process where prevailing customs and social attitudes relegate the position of women to that of being subservient to men. Where a woman is subservient they can not make decisions even affecting their lives such as attaining literacy competencies. Time is a crucial factor in information access. Most rural women do not have time beyond household needs.

2.4 Definition of Concepts and Terms

Access to information: availability of information and the ability to interact with the information for use in everyday life (Katz: 2000).

Agriculture Information: information related to activities in the agricultural sector (Ocholla:

2002).

Communal Land: synonymously referred to as rural areas in Zimbabwe (Chigwedere: 1989).

Household Food security: refers to the availability of adequate food order to sustain life and good health of all the world population at all times across countries and regions, across all income groups and all members of all individual households (Reutlinger and the World Bank (1986)

Household Head: the person (male or female) who manage the affairs of the household (Boserup: 1970)

Information: The facts or concepts that communicate in order to increase knowledge.

Literacy: is an ability to read and write at a level adequate for written communication and generally a level that enables one to successfully function at certain levels of society (McGarry : 1991)

User studies: studies on the information user on how they interact with information systems Kuthlau: 1990).

Usufruct access: The right to use and enjoy the profits and advantages of something belonging to another as long as the property is not damaged or altered in any way.

Utilization of agricultural information: in the context of this study it is the application of information in agricultural practice for the sustenance of household food security.

Summary

This chapter gave a review of the literature pertinent to the study as well as the theoretical framework guiding the study. The next Chapter focuses on methodology.

Chapter 3 - Research Design and Methodology

3.0 Introduction

This chapter covers the description of the study site and the research design or framework of how the research was conducted. This includes the data collection methods, sampling techniques and procedures, data analysis and study limitations.

3.1 Background to the research site

The research was carried out at Chirau communal lands in the Mashonaland West Province of Zimbabwe.

3.1.1 Zimbabwe

Zimbabwe is a landlocked country bounded by Zambia to the north, and North West, South Africa to the south, Mozambique to the east and north east and by Botswana to the South west. The country which attained independence from British rule in 1980 has 8 provinces and 2 cities with provincial status that is, Bulawayo, Harare, Manicaland, Mashonaland Central, Mashonaland East, Mashonaland West, Masvingo, Matabeleland North, Matabeleland South, Midlands. Harare is the capital city of Zimbabwe. The UNDP (2005) estimated Zimbabwe's population at 12.9 million and a life expectancy of 37 years. Shona and Ndebele are the two major indigenous languages while English is the national and commercial language. Zimbabwe is classified as a low-income country with a diversified economy. The country's industry sectors include mining and agriculture where the majority of the women are active (ZWRCN: 2005)

Literacy is defined in terms of age and the ability to read and write in English. Based on that measure, 90.7% of the population aged 15 and over can read and write in English, 94.2% being males while females constitute 87.2%. According to Vuuren (2007), this however, is not a sufficient measure of literacy as the real situation on the ground shows that the levels are lower particularly among rural women. This research adopts the OECD scale earlier discussed in this paper. Library services are concentrated in major towns. Mobile libraries were common in rural areas and smaller towns. However they have since stopped because of the limited availability of fuel and spare parts due to shortages of foreign currency. In some areas school libraries are still functional, albeit with limited resources.

3.1.2 Mashonaland West Province

Mashonaland West is a province of Zimbabwe. It has an area of 57,441 km² and a population of approximately 1.2 million (CSO:2005). Mashonaland West is divided into 6 districts namely, Chegutu, Hurungwe, Kadoma Kariba, Makonde and Zvimba all under Governor Solomon Samkange. Chirau is in the Zvimba district of Mashonaland West whose provincial capital is Chinhoyi and a major convenient shopping centre second to Murombedzi where basic facilities are available.

3.1.3 The research site: Chirau

Chirau is located in the Zvimba district on the map above (Figure 1 below). It is located in the agricultural region 4 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.

FIGURE 2 MAP OF ZVIMBA 1(adapted from: Conyers 2002:183)

These villages consist of house holds sparsely located, as most rural areas in Zimbabwe are non planned structures. Chirau is reachable by road from all corners of the country. It is 60 km east of

the capital city, Harare. There is a well established administrative structure in the country, with the last link of the administrative hierarchy placed in the village but still accountable to the Minister of Local government, urban and rural development. Chirau is a chieftainship under Chief Chirau *alias* Chief Dzvaka the traditional leader, responsible for about 2000 households spread across 10 political wards under the direction of various councilors and headmen. At a national level, Chirau is represented by a member of parliament (MP) for Makonde constituency which Chirau falls under. At the provincial level there is a governor who is supported by a District Administrator and Chirau rural falls under Zvimba District in Murombedzi. The village head is supported by councilors at ward level. This structure also presents purveyors of government information as indicated by Councilor Chinake.

Allocation, occupation and use of communal land is done through the district council. It grants consent according to the customary law of the community which has traditionally and continually occupied and used the land. The Chief has the right to allocate usufructuary rights on pieces of land to married adult males meaning that women in Chirau can only access land by marriage or through male relatives. As a result of patriarchal values married women in most communal areas including Chirau live and work on the land that has been traditionally occupied by their husband's lineage for generations. Chidzonga (1993) says that unmarried daughters under this regime are allocated land on a temporary basis in the belief that one day they will get married, go, live and work on their husband's land. In such settings men's access to land is primary while for women it is dependent on males.

The main industry at Chirau is agriculture but low rainfall makes it difficult to sustain agricultural activities. As a consequence, local people supplement agricultural activities with informal businesses, working in neighboring farms and cross boarder trading. Various government ministries, satellite banks, shops, neighboring commercial farms and two local hotels are among the few employers at Chirau. 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). In many cases distance observed was considerably long to access the post office, police station, community centers, churches, hospitals, clinics, schools and shops. This situation also reduces the speedy access to information channels and to information sources available in these areas. As a result of the non-systematic settlement structure, rural dwellings possess no address such that mail and telephone messages are delivered through schools and the police or hospitals (Bonjesi: 2004).

Cell phone, radio and television reception is often a challenge but the people have their own means of accessing the network on their cell phones for instance by climbing an anthill. Television access is limited but the radio is a more common form of mass media available to people at Chirau. This is mostly used for news and other educative and entertaining programs. The challenge is the timing of some useful programs. In most instances these useful programmes are aired during the day which time the majority of people are busy with household and other economic activities. Less systematic distribution of electricity also complements this disadvantaged situation. There is no electricity except at the Murombedzi business centre commonly known as growth points in Zimbabwe.

Literacy levels at Chirau are generally low. There is one vocational training centre, six primary

schools and three secondary schools. One of the secondary schools was recently conferred with High School status, to offer Advanced level studies. School attendance is often very low during the summer seasons when children have to assist their parents in agricultural or other economic activities. Besides the inadequately resourced school libraries there is no other information institution that the local inhabitants may access information. This means that the area neither has academic libraries nor public libraries. Very few students pass the General Certificate Secondary Education (GCSE) or Ordinary level to qualify for the advanced level which is a prerequisite to enter the government universities. School drop-out rate is generally high at Chirau. It was observed that most of the drop-off category of the young population is engaged in agriculture or any other traditional activities already established by their parents but rarely engaged in any alternative economic activities.

Majority of the women at Chirau are illiterate or semi literate and rely on agriculture for survival while some also engage in cross border trading and other informal activities. The female farmer in this scenario has traditional origins but has to engage in a society that is increasingly becoming global and complex irrespective of her rural location. Her role is that of farmer, household-head, wife, mother and/or co-breadwinner in the family. Sibanda, Gumbo and Moyana (1982) explain that this position is derived from the colonial setting. Traditionally women were left at home while their husbands went to look for work in urban areas or surrounding countries. The physical absence of men over long periods of time or even by death left the responsibility of the entire production duties on women. HIV/AIDS mortality has also contributed to the statuesque. (ZWRCN: 2004). All households had a pit latrine toilet, some brick structures a pet and there was some evidence of land use. Few households were observed to have borehole water, solar electricity or a generator. Children's health, household pets and cleanliness were generally satisfactory. Christianity is the predominant religion among others such as Islam and traditional beliefs. The Roman Catholic church has a high following while the rest of the Christians are spread among other protestant churches such as Anglican, Baptist, Presbyterian, Methodist and a few Pentecostal churches. The *Johane Masowe* Apostolic sect commonly known as *mapositori* in the local language also commands a high following and has a significant influence on the life of it's following in Zimbabwe particularly in rural areas and small towns.

3.2 Research design

According to Burkingham & Saunders (2004), a research design is a plan or guide for data collection and interpretation, with sets of rules that enable the researcher to conceptualize and observe the problem under study. This definition supports the fact that a well-designed study enables the researcher to explore and find connections of a specific phenomenon. Burns and Grove (2003), add that the research design is the blueprint 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 is most likely to achieve the intended goal. They identify three research methods, namely quantitative, qualitative and elective. This research employed both the qualitative and quantitative methods.

There was not much literature on the subject as it pertains to Chirau as such the study relied much on primary or collected data. Data was collected through a variety of methods namely, an extensive literature review, and observations. Focus group discussions complemented information

gathered through the through individual interviews. The respondents were drawn using various sampling procedures. Systematic random sampling was used to select 100 female farmers while the key informants were selected using judgment sampling. Data was analyzed using the SPSS package.

3.2.1 Data collection methods

Burns and Grove (2003:48) define data collection as the “precise, systematic gathering of information relevant to the research purpose.” The researcher employed ethnographic data collection methods namely, interviews with respondents and key informants, focus group discussions, non-participant observation of behavior in natural settings and document study. Ethnographic method seeks descriptions and explanations of processes as defined by Spradely (1979:3),

...the work of describing culture. The essential core of this activity aims to understand another way of life from the native point of view ...Rather than studying people, ethnography means learning from people.

Babbie (2002) adds that the qualitative study subscribes to the insider perspective of social action where information is drawn from the natural environment. The study sought to examine the significance of the impact of literacy on access and utilization of agricultural information for household food security in Zimbabwe. Chirau communal lands were used as the study site. Due to the limited time available for the research it was more convenient to use non-participant observation which is non intrusive but still gives the insider perspective through observation and learning from the respondents.

The investigation in most wards began with discussions with the community leader to get an overview of the situation and socio-economic conditions at Chirau. Informal interviews were also carried out with three (3) extension-workers and two (2) non-governmental organizations (NGOs) working on rural development projects. Triangulation was also applied for the achievement of reliability and validity of the research findings. Data was collected with the help of nine research assistants, mostly University students on vacation and a few volunteers from a community youth group selected with the help of the Chief, the AREX officer and the ward councilor. These were trained by the researcher with regard to interpretation of the questionnaire, interviewing guidelines and research ethics’.

Document study where literature relevant to the study was consulted essentially to get a synopsis of the problem and to provide comparison with other similar studies to probably identify gaps that this research could fill or advance on. Findings from literature review were also useful in providing motivation for the field study. The researcher consulted literature from relevant government ministries, NGOs, various sources and institutions including the media and internet.

Observation is a data collection method whereby the researcher places him/herself at the area of research in order to observe action of interest to the researcher. This can be either participatory observation or non-participatory observation. Non-participatory observation may be used concurrently with interviews and was choice for this study. The non-participant method was also preferred because of the limited time available for the study. The respondents were studied in their natural environment as most interviews were carried out in their homes. As non-participant observer the researcher recorded notes of the daily happenings that were verified with key informants and focus groups at a later stage. This gave the researcher some understanding of the

literacy situation, information needs, access and utilization of agricultural information by the female farmers at Chirau. Direct observation in the homes of respondents' also provided an opportunity to verify responses to questionnaires and to collect other important information not covered by the questionnaire.

A self administered questionnaire was less preferred on the basis of investigations by other studies for instance the UNICEF (2000) *State of the World's Mothers Report*. They reported that the study area is predominantly rural where the majority of the respondents might not have appropriate levels of literacy to independently interrogate and respond to questionnaires. ZWRN (2004) also support this from their gender dimension of access and land use rights. This made it more appropriate to use oral interviews. The research however remained guided by the standard questionnaire to ensure uniformity in the collection. Though the study was largely qualitative, it was still necessary to ask closed ended questions because they provide greater uniformity of responses, which is important for reliability. The open-ended questions gave the respondents the chance to voice their opinion on the issue under study.

The focus group discussions are unstructured group interviews designed to explore in-depth feelings of people. (Goldman & Macdonald 1997:7) Two focus group discussions were convened with farmer's groups to further explore the perceptions, feelings and attitudes of respondents with regards to how their literacy levels influence the way they access and utilize agricultural information for household food security. The researcher took advantage of regular village group meetings that brought villagers together courtesy of the Councilor and AREX officer for Chirau ward. The researcher was introduced to the councilor who gave his permission for the focus groups to be conducted. Convening a focus group for the purposes of this research could have been a challenge without their assistance. To ensure the representativity of the FGs the researcher requested volunteers from different wards to form focus groups. Each focus group comprised of ten female volunteers and the focus group discussions were organized around major themes that the researcher derived from the analysis of individual responses. For each group a set of guidelines were drawn up to direct discussion along the themes (see Appendix V) The guidelines were not intended to be prescriptive but to guide the researcher against straying and to achieve a measure consistency across the focus groups in terms of the nature of prompts. Responses were recorded primarily in English and *ChiShona* language was used where English translations were not obvious.

Discussions were based on the themes, level of literacy, food security situation, access to agricultural information and utilization for the sustenance of household food security. The discussions were open-ended and the respondents seemed to be more relaxed as they talked more freely in both focus group discussions as compared to individual questionnaires. According to Young (1991:391), "In focus groups, people tend to be more disinhibited than individual interview" The researcher noted that responses from focus groups were less reserved when compared to individual responses. This may be attributed to crowd effect where naturally humans are more open and flexible when giving a group response than an individual response that may require commitment (Burns and Groove: 2003) The focus groups took a relatively short time to conduct yet they gave the researcher an opportunity to interact with more information in a relatively short time. Focus groups also provided an opportunity for the researcher to learn more about how the feelings of the respondents shaped their overt behavior. In other words they

provided new information not identified by the individual interviews.

3.2.2 Sampling Techniques and Procedures

Gall, Borg and Gall (1996) define a sample as a portion of a population chosen by some clearly defined sets of procedures. This therefore means that a sample has to be systematically chosen. Preliminary findings from the Extension officer responsible for Chirau revealed that the study area has 2000 households spread across 10 administrative wards of Chirau, namely *Chivhero, Horo, Mboma, Chikaka, Murombedzi, Tafira, Jari, Mareverwa, Masiyarwa, and Kutama*. The researcher employed Systematic Random Sampling (SRS) technique to select a sample of 100 female farmers' between the ages of 18 and beyond 80. The researcher thought it fit to cover Chirau as widely as possible so that the results could be generalized to Chirau and the rest of Zimbabwe therefore respondents were selected from each of the 10 wards. In some wards the entry point was the school or ward chairperson's homestead. Sample selection was based on the presence of a female involved in communal farming in the household. Every 10th household in each ward was selected and the next household was selected in the event of there being no female respondent at the 10th household. Powell (1999) says that SRS is a sampling procedure that provides equal opportunity for the selection of each element in a population which makes it possible to generalize findings. This is in tandem with naturalistic research that focuses on purpose whose aim is to understand and not generalize.

Judgment sampling was used to select the key informants who were identified as other organizations that interact with the women. In judgment sampling, the researcher uses his/her judgment in selecting the units from the population for study based on the population's parameters (Ryerson 2005). This determination is often made on the advice and with the assistance of the client who for this research were officers in the organizations the researcher hoped to interview. A representative each from the, Ministry of Agriculture, the Provincial Research Institute, Women and Land Action Group (WAG), the Chief and the Agricultural Extension and Research (AREX) were key informants in this study.

3.2.3 Data Analysis

Data from open ended questions in the self administered questionnaire were categorized into themes that met the objectives of the study and coded for ease of analysis using the Statistical Package for Social Sciences (SPSS). This involved identifying keywords or themes from open ended questions, coding and annotation of each interview transcript or questionnaire. This process of data reduction produced an organized assembly of information which was stored on an Excel spreadsheet. The coded data was then input into SPSS for processing which generated frequencies and percentages. Closed ended questions were coded at questionnaire design stage as such were input into SPSS without further coding. The analyzed data was then presented using tables and text while the bulk of the qualitative data is descriptions and explanations.

Limitations

Burns and Grove (2003:46) define study limitations as, "restrictions in a study that may decrease the generalizability of research findings" which may be theoretical or methodological. While the researcher did not anticipate difficulties in gaining entry into the research area because she is fluent in the languages of the land, there were other challenges. Other research findings for instance the UNICEF (2000) *State of the World's Mothers Report* showed that the majority of

rural populations in Zimbabwe, especially in this region are semi-literate or illiterate. They belong to literacy levels one and two, on the OECD scale. They have a literacy level not good enough to interact with written text let alone respond to text in English. This limited the methods of data collection to oral interviews, which were time consuming and costly as research assistants had to be contracted to assist. The current economic hardships in Zimbabwe mean that people in this region, like the rest of the country were too busy trying to make ends meet. This made it difficult for the researcher to steal off time from these people to participate in the research. The fact that the research target was a woman in a predominantly patriarchal society also presented problems in some households where it was preferred that the man be interviewed. This however did not interfere much with the investigation as the next household was selected where the man insisted on being the respondent.

Summary

In this section a framework of how the research was conducted has been spelt out. The instruments used were also identified and their justifications discussed. The population and sample involved in the study were clearly specified. The data collection and processing procedures have been described. Thus, the nature of the research has been established. The major focus of the next chapter is data presentation, interpretation and discussion.

Chapter 4 – Presentation of data, analysis and discussion

4.0 Introduction

This chapter covers the presentation, analysis and discussion of the data collected. Information gathered through focus group discussions, individual interviews with key informants and respondents' and observation is integrated to give an overall view of the situation under study. The results of the study are discussed, as they relate to the respondents', socio-economic profile, household food security status, factors affecting capacity for HFS, availability and access to

productive resources, and access to, and utilization of agricultural information.

4.1 Findings

4.1.1 Socio-economic profile of respondents

The respondents were asked to provide their socio-economic profile by indicating their age group, marital status, number. of children, size of household, level of education, religion and denomination. The respondents' household roles, economic activities and participation and membership in rural organizations were also relevant in determining their socio-economic status.

4.1.1.1 Age of the respondents

The findings as presented in Table 1 below show that, the modal age group was the 29 - 39 and the average age was 29 years. Out of the total of 100 respondents, the majority 64% were over 50 years old implying an older population characteristic of many rural areas where usually people retire from urban life.

Table 1 : Age of respondents

N = 100		
AGE	FREQUENCY	PERCENTAGE
18 - 28	8	8
29 - 39	28	28
40- 50	14	14
51 - 60	16	16
61 - 70	16	16
71 - 80	8	8
80+	10	10
TOTAL	100	100

4.1.1.2 Marital Status of respondents and household size

From the 100 respondents interviewed, 60% were married, 30% widowed, 30%, 4% single, 4% separated and 2% divorced as presented in Table 2 below. The low percentage of divorcees is probably a reflection of the custom and tradition in most of rural Zimbabwe where being single is not encouraged while marriages are accepted as satisfying the function of reproduction, maintenance and expansion of the kinship. Based on these findings, respondents who are widowed, single, divorced and separated add up to 40%. These maybe assumed to be sole household-heads owing to the absence of a male partner not including household heads by rural urban migration.

Table 2 ; Marital status of respondents

N = 100		
MARITAL STATUS	FREQUENCY	PERCENTAGE
Married	60	60
Widowed	30	30
Single	4	4
Separated	4	4
Divorced	2	2
TOTAL	100	100

The average size of household was 8 and household size ranged between 2 heads and 14 persons.

The respondents' had generally large families where 72% had more than 4 children excluding the extended family. Large household sizes are largely due to polygamous marriages, and the high death rates due to HIV/AIDS which leaves families in the care of relatives. Family structures in Zimbabwe comprise the nuclear, extended, polygamous, and single parent families. Extended families are where members of the kinship interact and maintain a strong link of commonality. Chief Dzvaka, in traditional societies, extended family ties are important as a source of social and economic security in times of need.

4.1.1.3 Level of education of respondents

Table 3 : Level of education of respondents

			N = 100
LEVEL OF EDUCATION	FREQUENCY	PERCENTAGE	
Polytechnic/Vocational	2	2	
A' Level (high School)	4	4	
O'Level (secondary)	12	12	
Primary	40	40	
None	32	32	
Other	10	10	
TOTAL	100	100	

The respondents were asked to indicate their level of education on a scale from none to university level as indicated in Table 3 above. About 40 % completed up to 5 years of primary school, 12 % had some secondary education, 10% were self trained and 32 % never went to school. These were mostly within the 40-80+ age group. The 2% that attempted tertiary education reached Diploma level and none went as far as University. From these results combining the no of respondents who never went to school, those who attained primary education and those who have attained some secondary education add to 84 percent. According to OECD (2000) literacy scale they belong to levels 1 to 3. These may be considered to be illiterate or insufficiently literate. The OECD scale dictates that those who have attained up to nine years of schooling are likely to relapse into illiteracy if they are not active readers.

According to the OECD (2000), the education gap between male and female gender is most prominent in the developing countries. This is supported by the CSO (2002) which reveals that men are more literate than women at a national level. Focus group discussions revealed that some of the respondents left school earlier than their spouses. Although more girls than boys enroll at primary school the dropout rate is higher among girls than boys by the time they get to high school. The trend gets worse at University level (CSO: 2002). Many factors affect women's participation in education and training programmes in Zimbabwe. These embrace economic hardships, socialization, early pregnancy, culture and religion. Social and cultural barriers lower women's educational levels relative to men where sometimes they dictate that a woman marries at an early age. For cultural reasons families tend to place greater value on the education and employment of male children as future bread winners and women are expected to marry early and depend on the house hold head, the husband. In most cases marriage tends to end a woman's academic career.

4.1.1.4 Household roles of the respondents

In order to determine the household head at Chirau and the roles that female farmers play in food security the respondents were asked who the household was?, their role in the household and their membership to any available social groups or organizations?

Table 4 : Household roles of respondents

			N =150
HOUSEHOLD ROLES	FREQUENCY	PERCENTAGE	
Co farmer	54	36	
Full time farmer	36	24	
Sole Bread winner	30	20	
Dependent	18	12	
Co Bread winner	12	8	
TOTAL	150	100	

It could be established from the findings that 54% of the respondents were female household heads while 46 % of the households were male headed. Available data shows that at least 60% of the households in rural areas are female headed (WAG: 1992) Female headed families are a common phenomenon in the rural areas which arose from labour migrancy of husbands during the colonial era. Divorce, widowhood or single parentage also caused *de jure* female headed household. With regards to household roles the respondents could make more than one choice which accounts for the total frequency of 150 exceeding the size of the sample. According to Table 4 above, over 30 % of the respondents double as both, farmer and bread winner. Fulltime farmers constituted 24% while 20% were sole bread winners and 12 % of the respondents indicated that they were dependants. Dependants were mostly elderly women now under the care of their children either absent or resident.

4.1.1.5 Economic activities of the respondents

The respondents were asked to specify whether they engaged in other economic activities outside farming. According to table 5 below, 42% of the sample indicated that they were involved in other activities outside farming to supplement incomes and food while 58% relied entirely on agriculture hence a narrow livelihood base. Out of the 42% that engaged in other activities outside farming, 26% were volunteers, 20% cross boarder traders, 20% engaged in other activities such as commodity broking, tailoring, knitting, selling vegetables, pottery, 17% were engaged in paid NGO work, 10% in paid work either in Chirau or urban areas and 7% were busy with political activities.

Table 5 : Economic activities of respondents

			N = 60
ECONOMIC ACTIVITY	FREQUENCY	PERCENTAGE	
Volunteer	16	26	
Cross boarder trader	12	20	
Other	12	20	
Paid NGO work	10	17	
Paid work	6	10	
Politics	4	7	
TOTAL	60	100	

In one way or the other they benefited from these activities since the returns derived from agricultural activities were inadequate. In most cases these activities provide the much needed

option to boost women's income and household food security. Often those who did not engage in other economic activities, low levels of literacy left them without much option but to work on neighboring farms or borrow from friends and relatives. The results are indicative of the fact that the rural woman at Chirau is preoccupied with food gathering which leaves her little or no time for leisure, education and other activities such as information seeking.

6. Women's Participation and membership in rural organizations

A discussion with the Chief showed that social groups or organizations were of economic relevance and probably significant in the whole matrix of literacy, access to and utilization of information for food security. This created the necessity to investigate the respondents' membership and the roles they play. The respondents could make more than one choice which accounts for the total frequency of 150 exceeding the size of the sample.

Table 6 : Women's participation and membership in rural organizations

N = 150

SOCIAL GROUP	FREQUENCY	PERCENTAGE
Burial Society	47	32
Church Group	26	17
Farmers group	21	14
Women's group	17	11
Traditional group	17	11
Communal saving	10	7
Farming cooperative	9	6
Other	3	2
TOTAL	150	100

The findings in Table 6 above suggest a high women membership in non agriculture related organizations where only 20% belong to either a farmer group or farming cooperative. Instead women aligned themselves to social groups such as burial society 32%, Church 17% traditional and women's groups' 11%. Traditional women's groups are culturally defined for example Midwives group. The high membership in burial society and the church may be attributed to the high mortality as a result of HIV/AIDS and the increasing cost of burial. Women's participation as office bearers in these organizations was also even more limited and it was necessary to follow up as to the reasons for the statuesque. Respondents were asked if they had to meet any conditions for membership and what these were. Findings in table 7 below showed that respondents' membership is generally limited by their lack of education (55%), formal land ownership (20%), Master Farmer Certification (5%), and subscription costs which were often used as criteria for membership. Focus group discussions revealed that the roles of the work of these institutions are important for rural development yet women's membership was often insignificant as a consequence mostly of insufficient levels of literacy. According to Mrs. Chuma the level of literacy also affected the land ownership status as the farmers did not have enough insight to challenge the current land distribution systems (personal communication).

Table 7 Criteria for membership

N = 100

Criteria	Frequency	Percentage	
Education	55	55	
Land ownership	20	20	
Master Farmer certification	5	5	
Cost	20	20	
TOTAL	100	100	

4.2 Household food security situation

Chirau like the rest of Zimbabwe is feeling the heat in terms of food security. To have a picture of the food security situation at Chirau the following were used as indicators for HFS; normal food consumption pattern, production assessment and average harvest and available stock levels.

4.2.1 Food consumption pattern

An average family had at least one meal a day which was mostly supper. This consisted of *Sadza* (thick porridge from maize) the staple food for Zimbabwe consumed by the majority (96%) of respondents only 4% ate other food like rice, mainly due to health reasons. The relish with the sadza or rice was alternated between different varieties of green vegetables, beans, cow peas, okra, dried vegetables, milk and occasionally beef or chicken when a beast had been slaughtered. Other types of livestock reared both for sale and consumption consists of cattle, rabbits, ducks, and peacocks. Besides maize food was supplemented by other crops like pumpkins, tomatoes, onions, beans, pumpkins, water melons, potatoes, sweet potato, nuts and fruits if they were in season. Popular fruits include guava, orange and pawpaw and mangoes. Many indigenous fruits such as *matohwe* (African chewing gums), *mazhanje*, *matamba*, *matufu*, *hwakwa* wild fruits) among many others were a source of food if in season. While sorghum was drought resistant it was less favorable due to the gritty taste unpopular with the locals.

Assessment of farming produce

Table 8 : Production assessment

			N = 100
ASSESSMENT	FREQUENCY	PERCENTAGE	
Poor	60	60	
Satisfactory	26	26	
Successful	14	14	
TOTAL	100	100	

Findings from the study revealed that agricultural production in the ten wards was mostly confined to food and scattered animal husbandry for family food and income. To measure the level success the respondents were asked to assess their own production over last two years. According to Table 8 above, about 60 % of the respondents rated poor, 26% rated satisfactory while only 14% rated successful. This suggests the respondents produce little or no surplus and barely enough for domestic needs. The obvious consequence is that households become dependent on other means such as food relief, a situation that reflects household food insecurity. Over 60% of the respondents attributed poor production to adverse weather patterns, lack of inputs, poor tillage methods and lack of adequate productive land. Those who were successful 14% attributed their success to the extension workers and support from their children, majority who are scattered in the diaspora.

4.2.2 Average harvest and available stock levels

The researcher observed that the main grain stocks comprised of maize, beans, cow peas and groundnuts. These were mainly stored at home made grain silos commonly known as *hozi*. When asked about their average harvest and stock levels most respondents had low maize stocks where 94% had between 0 and 50 bags, irrespective of household size. Only 6% had holdings exceeding 50 bags. In as far as average harvest was concerned, 44% recorded an average of between 0 and 50 bags, 34% between 51 and 100 bags and 22% between 101 and 150 bags. These low average harvests per household made it difficult to last until the next season with 48% of the respondents saying the harvest was inadequate while 42% said it was just enough. Only 26% of the respondents said that they sometimes got a surplus while 74% harvested just enough or even less to last till the next season. The foregoing shows that the average production at Chirau is 30kg which is below 180kg/capita recommended by the (FAO: 2002).

4.2.3 Post harvest management

According to the results, it was observed that poor post harvest management was one of the major factors affecting food security. This is supported by Mughogho (1989) who says that farmers in rural areas sometimes produce enough but are still vulnerable to household food insecurity because they hold little in reserve or fail to manage the harvest. Post Harvest management was identified as one of the aspects of household food security that are impacted by the level of literacy. Two main aspects namely storage management and surplus management were crucial for this. The respondents were asked to give insight into how they manage their harvest in terms of storage and disposal to get other income.

According to the respondents, maize is harvested shelled and allowed to dry in the open where it is sifted and either treated and packed into sacks or shelled and packed into the *hozi*. Maize cobs are usually piled on the floor of the *hozi* while pumpkins and water melons are stored on the roof. It was observed that maize seed was stored by hanging cobs from the roof over the cooking area (open wood fire) by some households where smoke fumigated the seed, preventing insect damage. Households that did not practice this method purchased treated seed or received some from government. Re-used maize meal sacks were also used to store maize on the cob by some households (23%). The respondents complained that maize stored in this manner absorbed moisture from the floor especially mud or cow dung floors resulting in the rotting of maize. The more enlightened of the respondents said that they stored their maize in bags in a clean room but unless treated with pesticide these rooms are still not safe either.

When asked about the preservation methods about 74% of the respondents confirmed that they used pesticides such as *Target and Shumba Chirindamatura* Dust while 26% used traditional methods such as the traditional silo, *dura*. Storage related losses are largely due to disease, pests, moisture and oxidative damage (Salunke & Desai, 1986). This information was confirmed by AREX officer Chuma who added that although storage periods are expected to last 3 to 24 months, the average period was observed to range from 6 to 9 months, indicating that grain is consumed between seasons hence harvests do not last until the next season. Respondents reported purchasing additional maize or getting into food for work programmes to carry them over to the next crop harvest, highlighting the inadequacy of production and/or storage systems. Crop storage plays an integral part in ensuring domestic food supply. Despite significant advances in food

storage methods, many African communities still rely on traditional storage methods for food, fodder and seed. The *dura* or *hozi* is a pole and dagga structure that is not airtight often exposes the stored maize to harsh environmental conditions such as the sun and rain. Holes in the structure are often large enough for rats, and other pests to access the stored maize. This increases maize losses and compromises the quality and safety of the stored grain.

Most households at Chirau rely almost entirely on growing a small range of crops and keeping a few herd of livestock. Confirming this 70% of the farmers had no other source of income besides crop sales while 30% had either paid casual jobs, relatives, credit and other means like informal activities. In other words, they are dependent on a narrow livelihood base that renders them vulnerable to poor post harvest management. In such instances household food security is often threatened by other economic needs such as farm inputs, school fees and clothes. The respondents were asked if they got a surplus and if they sometimes sold their produce. About 26% of the respondents said they sometimes got a surplus. Of the 26% respondents who get a surplus, 92% sold the surplus, 2% give away to other workers, farmers and relatives while 2% percent kept it as reserve stock. The portion of the harvest sold ranged from 1% to 75%, where 46% of the respondents sold between 51% and 75%, 30% sold up to 50%, 22% sold up to 22% and 2% cleared their harvest leaving then at the mercy of neighbors and relatives. Focus group discussions revealed that some respondents exchanged grain with other needed goods like clothes. In response to the enquiry on their preferred markets the majority of the respondents sold to the GMB because of its reliability and possibilities of access to credit when required. The respondents also sold to private millers and individuals who paid better than the GMB.

4.3 Factors impacting on household food security

The AGRITEX (2004) reports that crop yields in Zimbabwe's communal sector are generally low and the results above confirmed that the HFS situation at Chirau is fairly precarious. To investigate some of the probable causes the respondents were asked to select the factors that they felt were impacting on the potential for household food security. The respondents could make more than one choice which accounts for the total frequency of 300 exceeding the size of the sample.

Table 9 : Factors affecting household food security

N = 300		
FACTOR	FREQUENCY	PERCENTAGE
Education&Agriultural	81	27
Training		
Inputs(Fertilizer, Seeds)	48	16
Weather patterns	42	14
Land	39	13
Agricultural Information	30	10
Credit	24	8
Labour	15	5
Farming methods	15	5
Other (culture and tradition)	6	2
TOTAL	300	100

The results in Table 9 above show that, access to education and agricultural training (27%) was

regarded as most crucial to household food security followed by access to inputs such as fertilizer, seed, (15%), weather patterns (14%), land (13%), access to information (10%), access to credit (8%), labour (5%) and improved farming methods (4%) while other factors like culture and tradition were suggested by (2%) of the respondents. Focus groups revealed that other constraints of importance were crop pests and diseases, lack of capital to purchase proper farm implements, lack of improved crop varieties and inadequate extension services e.g. one AGRITEX officer could hardly suffice for the whole ward. Another challenge was unpredictable or unreliable weather conditions characterized by too much or less rainfall and some times drought. It was also observed that adverse weather was often a challenge because the respondents lacked information that could enhance their disaster preparedness. The factors identified to be affecting crop and livestock production at Chirau could be linked to lack of knowledge and sufficient skills like literacy that help access and adapt to improved farming methods. These factors were very important such that it was necessary to follow up on a number of them.

4.3.1 Access to education and agricultural training

The respondents were asked to indicate whether they had received any agriculture related training, only 36% of the sample indicated had access to agricultural training while a significant 74% reported having been taught to farm by their elders, and approached other farmers and neighbors for advice on specific farming problems. Of the 36% that had training in agriculture, Table 10 below indicates that 33% attended short courses run by NGOs or government, 33% had some exposure at school, 22% had Master Farmer Certification initiated by the government in 1980 and a mere 6% had attended specialized agricultural training. The result evidences training for 36% of the respondents implying that 74% did not have any formal agricultural training. Lack of training was attributed to low levels of literacy, lack of finance. According to table 1, education levels among sample respondents were low, most (60%) had primary school education. Lack of interest was also observed among the elderly women who thought their experience was adequate.

Table 10 Agricultural training

			N = 36	
AGRIC/TRAINING	FREQUENCY	PERCENTAGE		
Short course	14	39		
School	12	33		
Master farmer certification	8	22		
Agriculture College	2	6		
TOTAL	36	100		

Some respondents said they were unaware of availability of such opportunities and some said they did not get a chance due to household commitments which limited available time for other activities. Lack of awareness of such programmes portrays a picture of poor information networks at Chirau.

As the impact of literacy on access to and utilization of agricultural information is central to this research it was crucial to follow this issue in focus groups. Focus groups revealed that another discouraging factor was that training is often distance away from the women which made it too long for women to leave household chores such as cooking for children. It was observed that in light of these challenges women are often confined to indigenous methods in a rapidly changing

environment that requires more sophistication in terms of farming methods. This seriously restrains their ability to provide for their families. According to focus group discussions they end up self training in rudimentary methods such as, seed selection, storage, and intercropping techniques as well as the use of different types of soil for grains, root crops and vegetables, the value of ant hills and natural pest control methods such as open pollinated maize. This information is then passed from generation to generation within the household hence preferable.

Focus group discussions revealed that some of the agricultural training did not benefit the majority of small scale communal farmers because it was not relevant and assumed some level of literacy. Most had been exposed to training in horticulture and commercial farming procedures which were irrelevant to them. It was however observed that crop output was higher in households where the female farmer had at least some training. The respondents applauded the introduction of hybrid seed, monoculture, chemical fertilizers, and mechanization as techniques that support better farming systems but complained that knowledge and skills transfer system was skewed in favor of the literate, mostly men. This closes women farmers who in most cases had insufficient literacy skills to access available information let alone enroll for agricultural training when they are required to write.

4.3.2 Farming methods

The respondents were asked to indicate the type of farming system they were practicing. The results show that 80% of the respondents practiced mixed subsistence farming while 20% were involved in crop farming inputs. AREX officer, Chuma a key informant revealed that the farmers are practicing this farming method in an unsuitable climatic zone because Chirau is in region 4 whose climate is more suited to livestock farming (personal communication). However the plots are too small and the farmers do not have the resources and expertise to undertake intensive livestock farming. The tilling methods are equally bad for instance the ox drawn plough is the most common method of tilling that is slow and damages the soil. According to personal communication with Cde Rugare Gumbo the Minister of Agriculture, few farmers still rely on the hoe which often results in low yields More recently however, there has been introduction of tractors as a result of the current farm mechanization programme by the government.

4.3.3 Culture and religion

Culture and religion were seen to play an active role in food security and the everyday life of the people at Chirau. There are many Christian denominations and religious sects in Zimbabwe. Out of the 100 respondents, 90% were Christians, 8% followed the traditional religion while 2% said they were Islam. Land is allocated by the District Administrator according to the culture and tradition of the local people which is patrilineal in most cases. The Chief gave insight into the two cultural and religious variables that played a role in the planning of farm activities. Thursday is a sacred day, culturally set aside day for rest. The belief is that people who engage in any activities on Thursday do it to their detriment as they are sure to encounter some bad omen. The apostolic faith sect which 36% of the respondents subscribe to sets aside Friday and Saturday as days of rest.

4.4 Availability and access to means of production

4.4.1 Land

Table 11 : Land ownership status

			N = 100
Ownership status	FREQUENCY	PERCENTAGE	
Government leased	50	50	
Headman's allocation	28	28	
Inherited	14	14	
Renting	6	6	
Owner (title deeds)	2	2	
TOTAL	100	100	

Access to productive resources is one of the major factors that may enhance or limit household food security. It was the concern of this research to find out how available and accessible were these to the respondents and the likely impact on household food security.

The respondents were asked to select their land ownership status and the size of their plots from a prescribed list and 50% of the respondents leased from the government, 28% had headman's allocation, 14% inherited, 6% renting and 2% said they owned the land prior to the Communal Land Act (Table 11 above). The results indicate that only 20% percent of a sample of 100 households was reportedly owned by females with no husbands. Only 2% of the respondents had title deeds to their land because according to the Communal Land Act of 1982 no one owns land but it belongs to the state and is vested in the President. While more than 50% of the respondents were household heads, only 20% had the land registered in their names while 80% of the land was registered in the name of the husband or male relative. Chidzonga 1993 says that there is no enabling legal framework to ensure land ownership for women. Even when civil law gives women the right to inherit land, local custom and religion may forbid female landownership. Colonial land tenure arrangements that discriminated against women are perpetuated by the traditional Leaders Act of 2000. Under these laws women in communal areas are still expected to depend on men for land denying them tenure rights. The Chief believed that the household food security has been threatened by the current land distribution system that saw women at par with men. In traditional societies the household food needs were met from the *Tseu* on which women were able to grow a whole range of crops for the subsistence needs of the family. Men had no say over the proceeds from *Tseu* as the woman was the sole decision maker. Privatization robbed so many women of their *Tseu* and the ability to sufficiently provide for household needs. Few women 16 to 23 percent are allocated *Tseu* by their husbands and even when they are, the pieces are getting smaller due to population pressure as a result of growing families (ZWRCN 2004). The chief's position shows that women are endangered by the very systems that are supposed to protect them. This flies in the face of the assertion that the woman is the mainstay of food production and should be empowered to enhance her capacity for household food security..

4.4.2 Credit

The respondents were asked if they ever need credit to enhance their farming activities. In response about 72 % of the respondents showed the need for either long or short term credit. Short term credit was needed to buy in most cases, seed, fertilizer, insecticides and herbicides, and to hire farm laborers to work the fields and help with post-harvest operations. long-term credit to invest in more efficient technologies such as irrigation, labour-saving tools such as tractors, grinding mills, harvesters and transport and to set up new enterprises such as village shops if conditions are favorable. The majority (64%) of those who needed credit said that they never got

the credit while the 26% who accessed credit got it from a variety of sources such as government, farmers' unions, the bank, friends and relatives, cooperatives and the church. Many reasons that ranged from lack of education, collateral, good harvest, nepotism and an unduly long process were given as hindrances to the women's access to credit. Many respondents were unable to access loans due to high interest rates charged by banks and lack of collateral. This was exacerbated by the fact that much of credit was set aside for cash and export crops which in most cases were not within the scope of the respondents.

The FAO (2002) observes that generally women are afraid to borrow because of the tedious paperwork which requires some proficiency in reading and writing. It was also revealed in focus group discussions that women were afraid of the adverse consequences of borrowing such as the banks impounding and auctioning their assets when they default. In Zimbabwe the source of farm credit for the peasant or communal sector is the Agribank. Individual or group lending schemes are seemingly dominated by men. Out of the 827 loans granted by the Agribank between 2000 and 2004, only 32.7 % went to female beneficiaries (AGRITEX:2004). Some of these women did not borrow but in households where men defaulted on the previous borrowing got around the problem by borrowing in the wives' names. This limited and often complete lack of access to rural financial services hampers women's efforts to improve or expand their farm activities so as to earn cash income to achieve and maintain household food security.

4.4.3 Household assets and implements.

Household assets were variable across Chirau. Respondents were asked to indicate the household assets that they owned. They had the liberty to select more than one choice resulting in a total of 420. According to table 12 below the most common assets owned by households include, chicken (17%), cattle, (14%) goats (11%), plough (11%), radio (11.6%) and bicycle (8.5%). Some of the assets such as fridge, television, Cell phone, tractors, and cars owned by 1% of the sample were still beyond the reach of many households. This was mainly because these assets required income for maintenance such as airtime, petrol and paraffin.

The value of household assets was assumed to be a household food security indicator and to a large extent the likely level of education. The results however showed otherwise. Households with older household heads had more assets acquired over time and may have embraced the wisdom of diversified farming over time. The availability of clean water, toilets and energy was noticeable. Every household had at least one brick structure mostly the bedroom for poor households and more than one bedroom for richer households. The Red Cross built pit latrines at every household and boreholes were within reach, at least every 2km. While the main source of fuel is firewood and few households have solar energy.

Table 12 : Household assets and implements owned

			N = 420
HOUSEHOLD ASSETS	FREQUENCY	PERCENTAGE	
Chickens	72	17	
Cattle	60	14	
Fruit trees	52	12.4	
Plough	48	11	
Goats	48	11	
Radio	49	11.6	

Bicycle	36	8.5	
Scotch cart	20	4.5	
Television	18	4	
Other	12	3	
Tractor	4	2	
Car	2	1	
TOTAL	420	100	

In most of rural Zimbabwe livestock is indicative of wealth. However, livestock ownership on its own did not necessarily reflect the wealth status of households accurately as some households may have invested in other capital items such as tractors, vehicles and/or other farm equipment. Despite there being no relationship between household assets and level of literacy, a relationship could be noted between access to and utilization of information with crop output which manifest in the procurement of assets. For the farming community ownership and control of implements may be a critical factor for successful farming e.g. those without ploughs and drought animals may not plant with the first rains. One may only borrow implements when it is convenient for the owner. Every household had at least some chicken which doubled as wealth and a source of relish. Focus group discussions revealed that chicken was one of the household assets aligned with women. Rural women's control of assets is confined to household utensils, a few farming implements and a few culturally defined to be women's property.e.g cows paid in marriage for daughters, goats, chicken and income from *mawoko* e.g. brewing beer.

4.4.4 Inputs

Table 13 : acquisition of inputs

N = 100			
Acquisition	Frequency	Percentage	
Buy	65	65	
Government Input Scheme	21	21	
Donation	7	7	
Borrow	3	3	
Cooperative purchase	2	2	
Other (Hire)	2	2	
TOTAL	100	100	

Access to inputs such as chemical fertilizer, treated seed, ploughs, and tractors was significantly related to the crop output. Out of 100 respondents who were asked how they acquire inputs, 65% bought their inputs, 21% relied on the government input scheme, 7% looked up to donors , 3% borrowed while 2% accessed inputs from cooperatives and another 2% belonged to the other category which is mostly renting(Table 13 above).The 65% of respondents who bought their assets could use them at will whereas the 35% who rely on other acquisition methods are in capricious position as sometimes lack of access inhibits their productive capacities. A similar trend emerges with respect to access to fertilizer and seed which in most cases is time specific.

4.4.5 Labor

The study enquired on the source of labour and from the results it emerged that the majority of labour in at Chirau was not skilled. About 51% of the labour was mainly provided by children and family, and is not skilled as indicated in Table 14 below

Table 14: Source of labour

N = 140			
Source	Frequency	Percentage	
Children and family	72	51	

Casual labour	20	14	
Cooperatives	12	9	
Permanent Hired labour	12	9	
Other farmers	10	7	
Government support	8	6	
Other	6	4	
TOTAL	140	100	

About, 21% rely on casual labour, 9% on cooperatives, 9% on permanent labour, 7 % get assistance from other farmers while government support provides 8% and other sources 4%. Respondents with regular employed labour hired casual and permanent labor for tasks such as ploughing and cattle herding. Particular agricultural tasks were dominated by women, for example weeding, harvesting, transportation, processing and storage. Within livestock production women and children were generally responsible for small animals such as chicken and goats, while men were responsible for large animals such as oxen. Children were seen to take an active role in fetching water and herding cattle during the schools holidays and weekends. At the home the respondents indicated that they were almost exclusively responsible for domestic tasks, including, cooking, cleaning, child care, water and wood collection. Some women confirmed in addition to their plots they also work on neighboring plots to earn extra income or food. This is supported by Whitehead: (1994) who says that women often retain a much responsibility for domestic tasks and are increasingly to be found working for their neighbors in return for food rather than wages.

It is apparent that most of the labour (51 %) is provided by unskilled family members mostly children. It might be probable that these families do not have money to hire labour and the need to catch seasons may be disruptive to literacy acquisition by children who are in most cases required to help during the school term. Personal communication with councilor Chinake revealed that school attendance is often very low during the planting and harvesting seasons when children have to assist their parents in agricultural or economic activities. This fact increases the school drop out rate particularly so for the girl child who helps with care work in view of high mortality rates due to HIV/AIDS.

4.5 Availability, access to and utilization of agricultural information

Information is one of the most valuable resources in rural development(Carter 1999; Meyer 2003; Morrow *et al.* 2002),and can assist small-scale farmers make informed decisions about food security as such is a major factor for the sustenance of household food security. In any society, whether traditional or modern, an information flow exists and has a shape and behavior according to the embedded values in that particular society. It was the objective of this research to establish the agricultural information flow at Chirau, its accessibility and force on household food security. Research was not carried out on farmers' access to and use of computers, the Internet and the World Wide Web, due to limited infrastructure in the areas where the study took place.

Cliffe (2000) argues that sustainable agricultural development is now based less on material inputs (e.g., seeds and fertilizer) but on access to information and knowledge. **In today's world, much of the information people need for buying products and services, understanding community and society comes from the media which is often printed. In other words the society we live in is textually mediated and requires one to be able to read and write. This creates a society where literacy is not an option.** To this end, literacy is an essential skill to

access information and knowledge needed to put agricultural science and production inputs to effective use. This section therefore, presents an impression of the impact literacy has on access to agricultural information and the implications for household food security at Chirau.

4.5.1 The need for agricultural information at Chirau

An information need is the existence of a problem which can be solved by information. The research sought to find out the type of agricultural information that the respondents needed. The respondents could select more than one option hence a total of 240, larger than the study sample of 100.

According to table 15 below, respondents commented that they specifically wanted information on farming systems (20%), pest and diseases (15%), cropping (15%), education (10%), credit management (8.75%), livestock management (7.5%), marketing and pricing (2.5%), harvest management (5%), health and nutrition (6.25%), farm security (6.25%), finance and credit (3.75%) other information which included farming without chemical fertilizers; and drought resistant crops (2%). The study revealed that 10 % of the respondents were interested in obtaining education and health-related information (6%), particularly concerning disorders in the reproductive tract, and in child health. Education information was important for them to determine which schools to send their children which indirectly had a bearing on crop output. The respondents would be motivated to produce more in order to raise income for school fees. It emerged that provision of information on prices and availability of inputs for cultivation, seeds, fertilizer or pesticides was important to all respondents

Table 15 : Type of agricultural information sought

			N = 240
Type of information	FREQUENCY	PERCENTAGE	
Farming systems	48	20	
Pest & disease management	36	15	
Cropping	32	15	
Education	24	10	
Credit management	21	8.75	
Livestock management	18	7.5	
Marketing & pricing	16	2.5	
Harvest management	12	5	
Health and nutrition	10	6.25	
Security	10	6.25	
Finance & credit	9	3.75	
Other	2	2	
TOTAL	240	100	

Knowledge of grain prices in various markets in and around Mashonaland west province is critical to farmers during the harvest season. The agricultural laborers, especially women, whose wages are partly in grains, were also anxious to know the sale prices. Such information is crucial to their farming activities and impact on household food security. Also emphasized was the need for information on opportunities to augment income, such as training in new skills in manufacturing for example welding, grinding mills. There is near consensus that the extension workers should provide all information on input schemes for rural farmers and drought power. The above

concerns suggest a critical need for an accurate, up-to-date and accessible agricultural information system.

4.5.2 Information seeking pattern (ISP)

Information seeking pattern refers to the strategies and actions engaged in finding information to solve the problem at hand. The person with an information need has a variety of ways of fulfilling the need. These strategies are in the form of processes that one engages in to satisfy an information need. It was the concern of this research to find out what the respondent does upon realizing their agriculture information need. To give their responses the respondents were given the liberty to select more than one option hence a large total of 250.

Table 16 : Information seeking patterns

N = 250		
Behavior	FREQUENCY	PERCENTAGE
Consult extension workers	64	25.6
Ask fellow farmers	52	20.8
Discuss with family	40	16
Read books	30	12
Consult the chief/institution	24	9.6
Consult the Media	20	8
Nothing	20	8
TOTAL	250	100

The respondents demonstrated a general lack of knowledge of the best sources to meet their agricultural information needs. About 8% of the respondents particularly in the 50–80 age groups said that they never communicate their information need to any formal channel not even family. These relied on habitual practices that were orally passed from generation to generation and places doubts on accuracy. The majority of the respondents (25.6%) approached extension workers when they had problems. Extension workers include AREX officers and veterinary services which are in most cases available at all village centers in Zimbabwe. About 16% of the respondents have communicated at family level to members of own household or close relatives.

About 20.8 % contacted the neighbor, not sure about whom to be approach to obtain information. About 8 % depend on radio or TV, again no comprehensive coverage on all sorts of needs was fulfilled. Most Radio programmes are aired during the day which time the women are busy with other chores which writes off time to sit down and listen to a radio programme. Some (9.6%) approached institutions mainly the chief who also experiences the same information needs they have and for this reason not the best to address them. Occasionally would one approach governments departments, churches or NGOs. The education level of the household head was significantly related their ISP. Almost half of respondents using informal channels had either no education or had only attended primary school. More educated respondents or those who had been trained in some way or the other had the confidence to approach institutions or formal information channels.

4.5.3 Availability of Agricultural and Information Knowledge Systems (AIKS)

To measure the availability of AIKS at Chirau the respondents were asked to indicate the type of

agricultural information available in their community. They had the liberty to select more than one, which resulted in frequencies higher than the sample of 100. According to Table 17 below, agriculture extension was widely acknowledged by 17.6% of the respondents followed by, Grain Marketing Board (14.4%), other farmers (12.8%) Local schools, (9.6%) NGOs (8.8%), Agriculture schools (8%), Research station, (7.2%) Agriculture magazines, (7.2%), Chiefs/Community leaders (8.8%) Libraries (4.8%) and University Department were recognized by 4.8% and (1.6%) respectively. These statistics indicate mere awareness of the existence not use of the facility. Despite their absence from Chirau, less importance was placed on the role of and the need of libraries implying that they were hardly if ever used. Focus group discussions revealed that the library was construed as collection of books rather than as a source of information. It is probable that these are viewed as elitist institution for the educated and therefore beyond the reach of the majority of the respondents.

Table 17 : Available agricultural information and knowledge systems

			N = 250
AVAILABLE (AIKS)	FREQUENCY	PERCENTAGE	
Agriculture extension	44	17.6	
Grain Marketing Board	36	14.4	
Other farmers	32	12.8	
Local schools	24	9.6	
NGOs	22	8.8	
Chiefs/ Community leaders	22	8.8	
Agriculture schools	20	8	
Research station	18	7.2	
Agriculture magazines	18	7.2	
Libraries	12	4.8	
University Department	4	1.6	
TOTAL	250	100	

4.5.4 Access to agricultural information

Access to agricultural information was measured in terms of physical distance, cost and the actual interaction with an agricultural information source. In relation to physical distance 54% of the respondents said that information sources used were within a radius of 10km, 26% between 10 and 20 km while 20% indicated that the source was more than 20km away. The modes of transport used to access these sources ranged from foot, bicycle, bus or car. While 10KM seems a distance too long to walk, majority of the respondents walked such distances. The respondents were asked whether they used the acknowledged AIKS and about 46% responded in the affirmative, 30% sometimes used the facilities while 2% never used them. Of the 46% that used the facilities, 44% always used the facility, 40 % sometimes used the facilities while 16% occasionally used them.

The respondents were asked if they accessed information directly or via a medium which could be human or a system. 80 % of the respondents said that they were secondary recipients of information while the remaining 20 % had direct access to information. Only 44% of the sample attended meetings and conferences while husbands or a male relative constituted 56% of attendees. Most respondents were secondary recipients as they said in most cases they were not aware of meetings and sometimes they were required to belong to certain social groups such as

Zimbabwe Farmers Union which they did not have money and sometimes adequate levels of literacy for membership. This might also probably be attributed to differences in education and economic levels. It appears that the more educated had direct access to formal information while the less educated had to go through other people. At times they would not even initiate information seeking until the information reached them as rumors or hearsay. This was also mainly attributed to the subordinate position of women where they are supposed to stay home while husbands explore. A heavy workload that rests on the shoulders of women also reduced their access to information among other roles such as caring for the sick and children.

An enquiry into the information sources used by the respondents categorized information sources into a tri-part taxonomy namely the media (TV, radio, newspapers books and Cell phones), personal sources (friends, relatives and social networks) and Institutions (community leaders, institutions and associations) as depicted in table 18 below. The respondents were required to indicate the information sources they usually use when confronted with agricultural information needs. The respondents could elect more than one option hence a large total of 150. They first mentioned oral channels of information access and then acknowledged other channels, such as printed and electronic media. Personal sources were used by 20 %, institutions, 57% and the media by 23 %. Extension officers were categorized as an institution in this study which explains why it seems a majority (47 %) of the respondents preferred information gathered from institutions.

Table 18: Information sources

N = 150			
Source	FREQUENCY	PERCENTAGE	CUMULATIVE
INSTITUTIONS			
Library	6	4	4
Extension workers	42	28	32
Chief/Comm. leaders	18	12	44
NGOs	20	13	57
MEDIA			
Radio	18	12	12
Television	6	4	16
Newspapers	3	2	18
Books	7	5	23
Informal Contacts			
Social networks	9	6	6
Friends & relatives	21	14	20
TOTAL	150	100	100

In real terms informal contacts (14%) such as friends, colleagues and other people were preferred regardless of one's level of literacy. Personal sources were preferred because there are no costs involved and word of mouth spreads very fast. Information from these sources is within reach and may always be verified due to immediacy of feedback of personal contacts. The researcher observed that information about meetings, inputs, political rallies was exchanged informally, in day today chats, at village shop, church gathering, or water points. Education and training, government information, credit and agricultural information were rarely exchanged at village level, but during formally organized gatherings by NGOs, an AREX officers or counselors in most cases. Findings also reveal that even printed sources were shared among friends and neighbors. The police also played a very important role as purveyors of government information.

Usually they would deliver urgent government notices as well as death messages. In other words the mode of information transfer at Chirau was more verbal than print.

It emerged that between a choice of political parties and other social groups the church (16%) was the most approached social network especially for information on household management, marital counseling and income generating projects. Community leaders such as MPs, chiefs, and counselors were trusted with the delivery of government information and seed distribution. The media was consulted by 23% of the respondents, with the radio (12%) being the most used and easily accessible form of media. Radio and Television availability was observed to the extent that when the network allows, the Radio seems to be the most used media with 12 % of the respondents affirming that it is their only source of information. Listening to radio or TV normally gives the public basic understanding of the knowledge and information needed for day to day living and some edutainment however some obstacles for the usage were observed. There is no electricity at most of the households in the areas surveyed. Those with TVs and radios use battery and solar power for the purpose. The TV is not so popular, used by only 4% probably because of the cost and unavailability of electricity. The radio is more preferable because it consumes less battery power as compared to the TV. Books, magazines and newspapers were popular with those who could read and afford to buy them. Those intermediaries such as NGOs and church-based development facilitators, university researchers, private companies such as Cairns foods and the extension officers, were the main channels of access for innovative, research-based agricultural information for the respondents. Intermediaries shared information with farmers mainly through interpersonal channels including workshops, training programmes and demonstrations. Libraries were mentioned as sources by a just 4% of the respondents who got an opportunity to access them from outside Chirau. Less importance was placed on libraries owing to their absence at Chirau. To them the library was a mere collection of books and not a source of information as a result the library was not of so much interest to the respondents as a source of information and the literacy demands. Over 50% of the respondents were not aware of the availability or non availability of libraries in their community implying that they had never used a library.

The respondents were also asked to evaluate the information sources they used in terms of relevancy and use. About 82% of the 44% that had access to information said that they got relevant information while 30% sometimes got relevant information and 28% did not get relevant information. The degree of satisfaction with an information source was directly related to educational level, which also mostly determines the level of income and occupation. Much of the information was from social networks which make its reliability doubtful. It is often distorted by the time it gets to the third person. It is only when one is literate that s/he has capacity to build on new information or evaluate reliability. Having identified the availability of the information sources and which ones were used, it was necessary to follow up on the frequency of use which would point to the preferred sources and why? Table 19 below presents the most frequently used and preferred avenues for accessing agricultural information by the respondents. They were allowed to select more than one option hence a large total of 150. The respondents were also asked to indicate the source they used frequently. Extension workers attracted 29% of the respondents, 19% relied on friends and relatives, 16% the media most probably due to the fact that almost anyone can listen to the radio which also has programmes in the vernacular languages. The Chiefs were accessed by 12% while NGOs were used by 15 % of the respondents and 25% used other sources such as confectionery companies.

Table 19 : Frequently used sources

N= 150

SOURCE	FREQUENCY	PERCENTAGE
Extension workers	44	29
Friends & relatives	28	19
Media	24	16
NGOs	20	13
Chiefs/Community leaders	18	12
Library	10	7
Others	6	4
TOTAL	150	100

Councilor Chinake one of the key informants revealed that these played a role in combining local knowledge and expertise with innovative, research-based information through on-farm experiments and project activities, such as cross visits (visits by farmers to other farming communities and training) Such collaboration was also confirmed by the chief who paid tribute to these companies. A relationship could be established between the actual use of a channel and the convenience with which it can be used credibly. The women used channels which they trusted and this extended to the information. As knowledge of certain channels and their abilities increased, so did its use.

4.5.4.1 Channels of presentation of agricultural information

The study enquired on the presentation of the accessible and available sources of agriculture information. The respondents could elect more than one option hence a large total of 150. The study showed that agricultural information may be delivered in a variety of formats which may include pictorial, printed literature and electronic communication technologies (Meyer 2002; Morrow 2002). Each format has its own advantages and limitations.

Table 20 : Presentation of agricultural information

N = 100

Presentation	FREQUENCY	PERCENTAGE
Word of mouth	81	54
Radio	36	24
Books and pamphlets	30	20
Newsletters & newspapers	3	2
TOTAL	150	100

Table 18 earlier in this chapter, show that agricultural information was presented orally to 54 % of the respondents. This was mostly at meetings, through extension workers, community leaders, friends and relatives. Challenges inherent in use of verbal communication are that people may not recall exactly what was said in a given situation, and the content of such verbal exchanges is restricted to those present (Meyer 2002b, 221), there are high possibilities of distortion once the information becomes second hand. The only electronic mode of oral information was the radio as acknowledged by 24% of the sample. Radio, tape recorders and videos are examples of electronic media used successfully in rural areas but still have their weaknesses of reliance on some power source and lack of feedback if farmers have questions.

Printed materials irregularly acquired from intermediaries were used by 20% of the sample. This comprised newspapers, newsletters, books, pamphlets occasionally accessed independent agricultural publications from seedling suppliers, and seed and chemical companies in nearby towns such as Chinhoyi, Chegutu and Harare. Rural people regard printed materials as authoritative sources of information (Leach 2001b, 55), despite low levels of literacy. A general lack of availability of such materials in rural areas (Kaniki 1989; Waters-Bayer 2002), and a dearth of technical and research information repackaged appropriately for rural audiences may affect agricultural production with consequences on food security.

4.5.4.2 Factors influencing the choice of channel of presentation

Selection of an information source depends in part on the ease with which it can be accessed (Poole 1985, 87; Hewins 1990). Table 21 below shows the factors that the respondents considered when searching for information. The respondents were allowed to select more than one option hence a large total of 200. These ranged from ability to understand to the presentation format. The majority of the sample, 25%, based their choice on ability to understand, 22% percent were guided by the ability to read, while 14% considered the presentation format.

Table 21 : Factors that influence choice of information channel

N =200			
FACTOR	FREQUENCY	PERCENTAGE	
Ability to understand	50	25	
Ability to read	44	22	
Accessibility (distance)	38	19	
Cost(whether you pay/not)	36	18	
Information format	28	14	
Other	4	2	
TOTAL	200	100	

Accessibility in terms of distance and cost also made a significant contribution to a farmer's choice of information source. It appears that the majority of respondents' access to printed information was not only limited by low levels of literacy but also a general unavailability of such material. The reasons for such inaccessibility seem to be a lack of finance to purchase materials, and failure on the part of intermediaries to pass on relevant printed materials, especially material translated into local languages.

4.5.4.3 Barriers to information access

Barriers to information access are factors that impede contact and use of information by commission or omission. These maybe attributed to the information seeker and the information system. The challenges that the respondents faced in their attempt to access agriculture related information were wide and far reaching. This study was informed by Dervin's (1977) categories namely, intellectual, socio-economic, socio- cultural

Table 22 : Barriers to information access

N = 300			
BARRIER	FREQUENCY	PERCENTAGE	CUMULATIVE
INTELLECTUAL			
Illiteracy	60	20	20

Language	30	10	30
Info - Literacy	10	3	33
IT Literacy	15	5	38
Training	50	17	55
SOCIOECONOMIC			
Cost	20	6	6
OwnershipofLand	10	3	9
Group membership	12	4	11
SOCIOCULTURAL			
Culture & tradition	24	8	8
Religion	12	4	12
GEO-PHYSICAL			
Info/infrastructure	15	5	5
Transport Network	15	5	10
Distance	30	10	15
Other	21	7	22
TOTAL	300	100	100

The respondents were asked to select and suggest the challenges they face in their attempt to access agricultural information. The respondents could select more than one option hence a large total of 300. The results in table 21 below show that intellectual barriers (65%) are the major barriers with illiteracy contributing 20%. Geophysical challenges contribute 22%, socio- cultural 12% and socio-economic factors contributing 11%, training (17%), language and distance both (10%), culture and tradition (8%) and cost (6%) were the highly ranked individual factors impacting on access to information by female farmers at Chirau. The major barrier that emerged through the study was low or insufficient levels of literacy. Low levels of literacy limited the respondents' confidence to approach institutions confining them to inadequate informal sources.

Over 50% of the respondents investigated were illiterate and very much dependent on husband, relatives and their children for agricultural information solutions. This group of the respondents showed that they were ill equipped to effectively function in today's information age despite having more than nine years of schooling. Mansell (1998:35) agrees that, "Illiteracy is a fundamental barrier to participation in knowledge societies". Focus groups and individual interviews revealed that the level of literacy affected the respondents' interaction with both visual and printed literature. When asked how they cope with printed material many less literate respondents said that they asked relatives and other farmers to assist with reading. One farmer described how she called farmers together to share information from an agricultural newsletter, confirming that literate farmers pass on information, accessed through printed materials, to other farmers. Lack of suitable and relevant reading material was noted as a possible cause for "reverse literacy", where literacy skills diminish with time.

Low levels of literacy were also a hindrance to service provision by intermediaries such as AREX officers, the meteorology department and various NGOs among others whose concerns were that low levels of literacy mean that the information they disseminate is often misconstrued with catastrophic consequences such as deaths due to wrong pesticide administration. AREX officer Chuma said that low levels of literacy made it difficult to implement new ideas as the farmers were not keen on new knowledge but rather preferred their old methods. This is supported by Roger's (1962) diffusion and adaptation of innovations theory which supports the observation that more literate members of society embrace new innovations faster than the less literate members.

About 55% of the respondents cited language as a barrier to access to information. The argument was that much of the available printed material is in English, a language they are not at home with. They are more conversant with the mother tongue. A noticeable 28% of the respondents raised issue with the local languages used. Chirau is predominantly Shona hence the assumption that everyone speaks *Shona*. This was however disproved by the results that showed that about 22% of the sample spoke *Ndebele*, another vernacular language. They had to rely on translations from friends and relatives who could speak both *Ndebele* and *Shona*. About 72% of respondents indicated that they were able to speak, read and write in their first languages, *Shona* and *Ndebele*, while 22% said they could read and write English and almost 28% could converse in English. It is therefore understandable that they would prefer to read articles in the vernacular. These statements reinforce findings by Carter (1999) that rural people in Africa prefer printed materials written in local languages. Based on these facts and the finding that over 70% of the respondent's may be considered illiterate or insufficiently so, it is clear that level of schooling and has a significant bearing on their access to information and use of language

Physical distance or cost and inadequacy of a source negatively impacted on information access for 35 % of the respondents. 25% of the respondents cited distance while 10% cited cost. This indicates that 25% of the respondents were excluded from information by physical barriers. Another barrier that affected access to agricultural information was the poor telecommunication network typical of most rural areas in Zimbabwe and Chirau is no exception. There is no electricity, poor TV, radio and Cell phone reception. Lack of electricity limited information dissemination through mass media such as radios and television. Villagers depended on battery or solar source of energy, to listen or watch news and other programs of their interest. There is a generally poor transport network due to bad roads which discourage transport operators. People have to walk for distances up to 20km and use bicycles and scotch carts for distances beyond to reach extension workers. Due to many geographical, infrastructural and economic barriers access to newspapers counts very low at Chirau yet they present another opportunity for the citizens' access to relevant information.

It is observed that female farmers at Chirau like any rural area in Zimbabwe are generally poor as they have a very narrow livelihood base. In such a scenario time for information seeking is difficult to them as information provision facilities are minimal. Respondents said that they spend a typical day on farming activities and household chores at night leaving very little time and energy to spend on information seeking. Against this backdrop it seems there is close a relationship between income and information seeking ad use. Most households could not spare the meager financial resources on information seeking activities such as transport unless it was crucial. It was observed that there was no proactive information behavior but reactive as information was only sought when it was needed in response to a problem like a cow giving birth. The situation was however different in better income households who showed a relatively high interest in information search even if it meant paying. Therefore people with low income are hesitant to go seeking for unknown territories as they view it as losing money while better income households see it as a value adding activity.

Sociological and cultural barriers discussed relate to the situations observed as well as findings from individual and focus group interviews. This includes challenges emanating from religious, cultural and traditional beliefs and socialization embedded in sex and family status. Socialization is a process by which children learn about their identity, roles and their place in society.

Socialization occurs primarily at household level and is reinforced by the extended family, school, media, and church and community. Focus group discussions revealed that women's view of themselves was seen to be the biggest challenge when it comes to meeting their needs in the public sphere. When asked whether they got a chance to actively seek information, 36% of the sample said they always got a chance, 40% said they sometimes got a chance while 24% never got a chance to actively seek for information. Those who got a chance said it was normally once a season when preparing for the new season. The information patterns of men need to be investigated to have a comparison and come up with something conclusive. This research did not cover that.

The system of patriarchy in place impacted heavily on women's access to information. While women have been able to register land in their name since independence in 1980, the requirement to attend meetings and trainings is farm ownership. Many women are unable to attend because of domestic commitments as well as cultural roles which render women immobile. Most women were involved in farming activities such as planting, weeding, herding cattle during the school term, cooking, fetching water, firewood and still meet community obligations such as attending funerals and weddings leaving them with no time for agricultural information seeking. This was mostly attributed to the patriarchy where women are not supposed to take an active role in the home when the man is present. This seemed to be the same idea subscribed to by the members of the apostolic sect. The caring roles of women meant that some of them could not leave the home because they had to constantly take care of sick relatives at home. HIV/ AIDS affects school enrollment for girls as they drop out to take care of the sick and younger siblings or because they are unable to pay school fees due to parental death or poverty. The burden of caring for HIV/AIDS patients is disproportionately borne by orphans, women and girls with limited external support. This impacts negatively, on the ability of girls and women to engage in education, productive or income generating activities.

The influence of culture also posed challenges for the service providers' particularly extension workers. It is often difficult for male extension workers to talk to female farmers, "It is very difficult for me to talk to women farmers, because the husbands would say "look, he's trying to steal my wife", said one agricultural Demonstrator Sithole. "Now since the Government says we are all equal, the situation is improving". The same suspicions existed among women against female extension workers talking to their husbands though they could not express it as explicitly as the men. There seem to be a gradual change however with new generation families with younger women testifying that they actively seek for information and their husbands have no problems. This shows some of dynamism regarding cultural and ethical issues. The respondents complained during focus group discussions that extension programmes, rarely identified women as an integral part of the target audience. For too long, policies have been based on the assumption - proved wrong by studies - that information conveyed to the male head of a household would be passed on to its female members. According to Chidzonga (1993) men do not necessarily discuss production decisions with their wives or transfer extension knowledge to them. Furthermore, policy-makers fail to recognize that men and women are often responsible for different crops, livestock, tasks and income-generating activities and that their extension needs consequently differ. These flawed assumptions almost guarantee disappointing results. In one case at Chirau, extension agents provided male farmers with special measuring beakers to ensure the controlled use of fertilizer, despite the fact that women were responsible for actually applying the fertilizer.

As a result, the women continued to apply the fertilizer without using the beakers and the problem of inaccurate measurements persisted. Focus group discussions also revealed that Extension services usually focus on commercial production rather than on subsistence crops, which are the primary concern of women farmers and also the key to food security in developing countries. Agents will often choose to work with a few farmers judged to be literate and having a progressive attitude, while neglecting the resource-poor, landless and illiterate women. To compound the problem, extension meetings were often scheduled at time, usually in the morning, when women farmers are unable to attend because of their other household responsibilities such as seeing to it that children have gone to school.

4.5.4.4 Adaptation and utilization of agricultural information

Information use is the process of interpreting it to converge with the need, assimilating and applying it to solve the problem. It was the desire of this study to ascertain whether the respondents utilized the agriculture information they access. Information use was based on need in order to reduce uncertainty on the respondents.

Table 23: Utilization of information

N = 100		
INFORMATION USE	FREQUENCY	PERCENTAGE
YES	74	74
NOT SURE	26	26
TOTAL	100	100

An interrogation into the use of acquired information revealed that the majority of the respondents (74%) used information while 26% were not sure if information made a difference in their lives (Table 23). The research followed up on the 74 % who used information in their lives to find out the extent of the impact of access to and information use.

Table 24 : Impact of agricultural information use

N = 74		
INFORMATION USE	FREQUENCY	PERCENTAGE
Positive Impact on individual household	28	38
Impact on the extended family and community	46	62
Total	74	100

According to table 24 above, about 38% of this group saw a positive contribution to household output. Any information that the respondents accessed had either a direct or indirect impact on their sphere of influence for instance the extended family as acknowledged by 62% acknowledged that the information benefits also rippled to the extended family and sometimes community. A group of women took pride in a vegetable garden project which was reaping enormous profits, thanks to the availability of the extension workers as a source of information and knowledge.

While the majority over 50% of the respondents acknowledged application of acquired information and knowledge it was however notable that some still respondents relied on indigenous methods of farming and preservation of crops. These were cheap alternatives to the modern methods of farming, preservation, cooking fertilizer and seed preparation. For example a

conversation between the researcher and AREX officer Chuma revealed that respondents relied on crop rotation to rejuvenate the soil. They were also observed to use rudimentary post harvest handling techniques, for example, vegetables were harvested, boiled and dried to preserve them for the dry season. Particular maize cobs were selected for preservation as seed. Meat was smoked over the kitchen fire and preserved for future use. According to officer Chuma, this knowledge was passed through generations from mother to daughter or mother in law to daughter in law. As such indigenous knowledge comprises a very significant part of the respondent's lives and could work better if integrated with modern farming techniques and knowledge.

Summary

This chapter focused on the presentation, analysis and discussion of findings as they relate to literacy, socio-economic characteristics, household food security situation, and access to productive resources, agricultural information needs of female farmers at Chirau. The availability, access and utilization of agricultural information at Chirau were also discussed. Conclusion and recommendations from the findings follow this section.

CHAPTER 5: Conclusions and recommendations

5.0 Introduction

This study sought to test the impact of literacy and access to and utilization of agricultural information for food security. This Chapter deals with conclusions and recommendations based on the findings.

5.1 Conclusions

5.1.1 Socio-economic status of the respondents

The average age of the female farmer at Chirau is 29 years, with more than 50% of the respondents aged 50. This implies an old population despite life expectancy being estimated at 36 years (CSO: 2003). The findings of this study reveal that the majority of communal farmers at

Chirau are women although registered plot holders are men. About 60% of the respondents were married while 40% were widowed, single (4%), divorced (4%) or separated. (2%) The findings of this study reveal that the majority, 54% of the households are female headed. About 40% of the 54% household heads may be assumed to be sole household heads owing to the absence of a male partner excluding household heads by rural-urban migration. It may therefore be concluded that there are more female household heads than male household heads at Chirau. This has implications that the burden of food security almost lies on the shoulders of women.

The average household size was 8 while household size ranged between 2 and 14 heads. This underlines the necessity to be food secure for the female farmer at Chirau because she is responsible for a family in one way or another. This picture may be a broad view of most Communal areas of Zimbabwe.

Education levels among sample respondents were low with most (72%) respondents having only primary school education, particularly among the 40-80+ age group. The female farmer at Chirau experiences information needs but she is limited by her literacy capacity. The literacy situation of the respondents was observed to seriously inhibit the respondents' ability to access and use agricultural information to achieve and sustain household security. The literacy situation also limited their capacities to access, agricultural training, credit, participation in economic activities and other relevant organizations, post harvest and surplus management. This also affected the reception services such as extension as generally adaptation and diffusion of innovations is often slow among the less literate populations in society.

2. Household food security

The communal farming systems in Zimbabwe are mainly based on the mixed-subsistence farming practiced by most villages and households. Agricultural production in Chirau was mostly confined to subsistence food production and scattered animal husbandry. Maize was the main crop among others such as beans, millet, sorghum, various nut varieties, vegetables and fruits. Production assessment rated low at Chirau where most (60%) households harvested just enough or even less to last until the next season. As a result of low crop production, the mean cereal production per household member is 30kg, way below the FAO (2006) standard of 180kg per capita. Household food insecurity was attributed and by no way limited to, lack of education and agricultural training, poor farming methods, poor post harvest management and lack of access to productive resources such as information, credit, inputs, land, assets, and skilled labour.

3. Access to and utilization of agricultural information

5.1.3.1 Information needs

Majority of respondents exhibited a need for information on farming systems, pest and diseases, cropping, education, management, livestock management, marketing and pricing, harvest management, health and nutrition, farm security, finance and credit. Also emphasized was the need for information on opportunities to augment income, such as training in new skills in manufacturing for example welding, grinding mills. The above concerns suggest a critical need for an accurate, up-to-date and accessible information system.

The respondents exhibited a lack of knowledge of the best sources to meet their information need. Respondents in the 50–80 age groups were reluctant to communicate their information needs to any formal channel not even family with preference given to knowledge acquired from habitual practice. The majority of the respondents approached extension workers when they had problems. Extension workers include AREX officers and veterinary services which are available at all village centers in Zimbabwe. The rest of the respondents communicated at family level to members of their own household or close relatives and neighbors, not sure about whom to contact to obtain information. Some respondent depended on on radio or TV, again no comprehensive coverage on all sorts of needs was fulfilled. Some approached institutions mainly the chief who also experience the same information needs they have and for this reason not the best to address them. The education level of the household head was significantly related their ISP. Almost half of respondents using informal channels had either no education or attended primary school. More educated respondents or those who had been trained in some way or the other had the confidence to approach institutions or formal information channels.

5.1.3. 2 Access and utilization of agricultural information

The following information sources were acknowledged at Chirau, agriculture extension Grain Marketing Board, other farmer, Local schools, NGOs Agriculture schools, Research station, Agriculture magazines, Chiefs/ Community leaders, Libraries, University Department were recognized by and respectively. These statistics indicate mere awareness of the existence not use of the facility. Informal contacts such as friends, colleagues and other people were preferred regardless of one's level of literacy because there are no costs involved and word of mouth spreads very fast. The researcher observed that information about meetings, inputs, political rallies was exchanged informally, in day today chats. Education and training, government information, credit and agricultural information were rarely transferred at village level, but during formally organized gatherings by NGOs, an AREX officers or counselors in most cases.

Findings also reveal that even printed sources were shared among friends and neighbors. The police also played a very important role as purveyors of government information. Usually they would deliver urgent government and death notices. In other words the mode of information transfer at Chirau was more verbal than print. Radio Books, magazines and newspapers were popular with those who could read and afford to buy them. These intermediaries such as NGOs and church-based development facilitators, university researchers, private companies such as Cairns foods and the extension officers, were the main channels of access for innovative, research-based agricultural information for the respondents. Intermediaries shared information with farmers mainly through interpersonal channels including workshops and training programmes. Despite their absence from Chirau, less importance was placed on the role of libraries by the respondents. To them the library was a collection of books and not a source of information. Over 50% of the respondents were not aware of the availability or non availability of libraries in their community implying that they had never used a library. The degree of satisfaction with an information source was directly related to educational level, which also determines the level of income and occupation. Much of the information was from social networks which made its reliability doubtful. It is often distorted by the time it gets to the third person. It is only when one is literate that s/he has capacity to build on new information or evaluate reliability. The common picture

portrayed by the findings is that female farmers at Chirau and in general are equally active information users as men and sometimes more in instances where they are household heads. They however, rarely go out of their community to look for information, particularly so for married women, regardless of age. The women seek information in response to problems implying that they are not pro-active seekers of information; they live in the short term.

The conclusions may be summarized thus, that the female farmer at Chirau grapples to access and use of agricultural information sources to address food security concerns due to a number of factors. According to Dervin (1997) these include, inadequate literacy, access to productive resources, good weather patterns, and financial resources.

1. Recommendations

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

1. The importance of literacy, especially of women is reflected in a cost-benefit analysis carried out by the World Bank (2006). It shows that investment in the education of females has the highest rate of return of any possible investment in development. As an intervention the government can improve access to education especially support for adult education. The government of Zimbabwe used to run adult literacy classes commonly known as 'night schools' in both urban and rural schools. This needs to be revived to cater for illiterate adults and the youths who may have dropped out of the formal school system before attaining basic literacy competencies. The Ministries of Lands and Agriculture, Education and NGOs such as UNESCO, and the Adult Literary Organization Zimbabwe (ALoz) may find it cost-effective to collaborate in the designing of adult literacy programmes. The programmes may be made attractive to the adult learners by synchronizing them with agricultural and income generating projects. For example combining literacy training with income generating projects such as piggery and poultry may have a double benefit of enhancing literacy skills and increasing incomes available for food security. Such may be designed based on the *Kuguta Kushanda* farming communes established soon after independence in 1980. (Chigwedere: 1989).
2. Recent developments illustrate an increasing awareness of the role of information in the economic sector particularly in agriculture (FAO: 2003). Harris (1992) points out that without access to adequate information, other policy measures fail. However, according to Kaniki (1996) in most of rural Africa access to information is limited, and especially so for the majority of rural women due to insufficient levels of literacy, culture and tradition. These social and gender barriers to information access were not insignificant at Chirau, and efforts are needed to lower them even by a small measure. Efforts must therefore be directed at enhancing the available agricultural information channels for accessibility by female farmers at Chirau. According to Vuuren (2007), much of the knowledge generated by scientific research end up in offices and, inaccessible to those who desperately need it. Although illiteracy has been cited as a major barrier to the use of printed information records, they have been found to be useful tools in promoting sustainable agriculture and facilitating networking. They have been used to support messages delivered orally or by other channels (Carter 1999;

Mbozi 2002), (Saracevic & Wood 1981). Printed information may be collected, repackaged and made available through the channels that the respondents preferred. According to the results extension workers were the most preferred information channels at Chirau as indicated by 57% of the respondents. The government through extension services may therefore collaborate with information workers and design an information system that is accessible to the communal farmer at Chirau. The media may also be a useful tool for information dissemination. It can play dual roles as a channel of communication and empowerment. Carefully selected information from government and AIKS may be disseminated through the media such as *Kwayedza* a local vernacular weekly, and the radio 4 which is an educational channel and available on short wave and accessible in the rural areas.

3. Libraries were non-existent at Chirau however, basing on the results of the research a public library may be discouraged as a starting point. It risks the danger of being branded an elitist institution associated with education by the less literate users. However the role of the school library in education and literacy is widely documented as much as the close relationship between schools and rural communities. According to Katz (2000) there is a close nexus between availability of appropriate reading material and literacy, it flourishes where relevant support material is available for its maintenance. It was observed that there was no fully fledged school library at Chirau. This calls for the establishment of school libraries that will support the educational needs of the pupils and by extension adult education and training. The school library may be established with the assistance of a trained school librarian or information worker. The schools at Chirau were observed to play a dual role of a centre of education and a venue for community meetings and events. Stocking the local school libraries with information that may be helpful to the farmers and basic reading material could be a maiden step. This however, should not derail the planning for a more comprehensive community based information centre. In the short term consideration may also be given for community information centers. Stilwell (1991) suggests community centers as alternative information services to libraries. The Murombedzi community hall at Chirau could be used for such a service. This is a central point that has the necessary infrastructure such as water electricity and furniture. The community information centre should be planned within the context of the rural woman. It should provide information support in a format that is user friendly effectively and efficiently. The strength of community information centers, especially ones targeted at rural communities is that they may be particularly well suited to address linguistic and literacy challenges of information access. They can provide materials in the local *lingua franca* so that people who speak it can learn its written form. As for mother-tongue literacy, they cannot only collect and provide access to written material is available but also organize educative bilingual activities and encourage more mother-tongue writing. In these ways community information centers can complement the formal education systems and enable their members to move beyond the restrictions imposed by schools to become independent multilingual readers. The kind of community centre suggested could be designed as a one-stop shop by the government, NGOs, information professionals, extension workers, farmers and agri – business among other stakeholders.
4. As land ownership featured prominently as a factor that impact on access to information by female farmers this research recommends that the government should initiate and play a facilitatory role in putting in place a legal framework that ensures access and land ownership for women. The NGOS and private sector may complement government efforts with finance and training for the effective use of the land.

Summary

Optimizing the female farmer's potential to meet agricultural information needs will improve access to services and agricultural information resources, and strengthen their roles as providers of food. It is the hope of this research to see a hassle free process for accessing agricultural information at Chirau and nationally. The government should initiate and play a facilitatory role by creating an enabling environment for private sector participation.

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APPENDIX 1, QUESTIONNARE FOR INDIVIDUAL INTERVIEWS

HOUSEHOLD SURVEY

RESPONDENT_____

Greetings! My name is **Moirra Gundu**, a Masters student in Library & Information Science at the University of Fort Hare, South Africa. I am carrying out a study that seeks to find out how literacy, access and utilization of Agricultural Information impacts on household food security at Chirau. Your participation and input will contribute greatly to the body of knowledge which may be used for any subsequent development initiatives aimed at alleviating household food security at Chirau in particular and Zimbabwe in general. Be guaranteed that the information collected from this interview will remain confidential and will be used solely for the purpose of this research. The researcher therefore requests your faithful participation. Thank you!

Instructions: Mark with an X where appropriate and elaborate where required.

A. SOCIO-ECONOMIC PROFILE OF FEMALE SMALL HOLDER FARMERS AT CHIRAU.

1. Mark with an X where applicable.

(a) Age	1) 18 - 28	2) 29-39	3) 40 - 50	4) 51 - 60
	5) 60 - 70	6) 71 - 80	7) 80+	
(b) M/Status	1) Single	2) Married	3) Divorced	4) Widow
	5) Separated	6) Other (Specify)		
(c) Children	1) 1	2) 2	3) 3	4) 4+
(d) H/Size	1)	2)	3)	4)
(e) Education	1) Primary	2) O'Level	3) A' Level	4) Polytechnic
	5) University	6) Other (Specify)		
(f) Religion	1) African Trad.	2) Christian	4) Islam	5) Other
(g) Denomination	1) Pentecostal	2) Apostolic	3) Catholic	4) Other

2. Who is the head of this household?

1) Husband		
2) Wife		
3) Other (specify)		

3. If the household head is female, what does your spouse do?

1) Co-farmer	3) Works on other farms
2) Works outside Chirau	4) Other (specify)

4. Your role in the home may best be described as, (you may select more than one)

1) F/T Farmer	3) Co-bread winner	4) Sole breadwinner
2) Co-farmer	4) Sole breadwinner	5) Dependent
6) Other (Specify)		

5. Do you have other economic activities outside farming? 1) YES 2) NO. If YES which of the following would describe these activities?

1) Cross boarder trader	3) Paid NGO work	5) Politics
2) Paid employment	4) Volunteer	6) Other specify

6. Which of the following social groups do you belong to?(you may select more than one)

1) Farmers group	5) Farming cooperative
2) Burial society	6) Traditional group
3) Women's group	7) Church (Specify)
4) Communal saving	8) Other (specify)

7. Do you have to meet any conditions to be members? YES/NO

8. If yes what are the conditions _____

B. HOUSEHOLD FOOD SECURITY SITUATION

1. What makes a normal everyday family meal for your household? _____

(b) What did you eat yesterday? 1) Breakfast____2) Lunch____3) Supper____

2. What is your current grain stock (bags)(1) Maize____(2) Sorghum____

(3) Beans____(4) Other(Specify)_____

- (b) How is this grain preserved or stored? _____
3. Does your harvest always last until the next season? 1) **YES** 2) **NO**
 (b) If **NO**, please explain? _____
4. What is your average harvest in a normal farming season? _____
5. How do you rate your production in the past two years? 1) **SUCCESSFUL** 2) **SATISFACTORY**
 3) **POOR**
6. What have been the contributing factors to this situation? _____
7. What was your harvest in bags last season? _____
8. Would you like to improve your food security situation? 1) **YES** 2) **NO**
9. What do you think can help improve the situation? _____
10. Do you sometimes get a surplus from your harvest? 1) **YES** 2) **NO**
 (a) If **YES** When was the last time you got a surplus? _____
 (e) What do you do with the surplus? _____
11. Do you sometimes sell any of your produce? 1) **YES** 2) **NO**
 (b) Please give reasons for your answer _____
 (c) If **YES** how much of the harvest do you sell? _____
 (d) Which of the following provides a market for your produce? (U may have more than one choice)
- | | | | |
|-----------------------|-----------------|---------------|------------------|
| GMB | Private Millers | Other Farmers | Others (specify) |
| Individuals (specify) | | | |
|) | | | |
- (f) What is the reason for your choice? _____
- (g) On average what income do you get from the sales? _____
12. What needs do you meet from this income?
- | | | |
|----------------|--------------|-----------------|
| 1) School fees | 3) Groceries | |
| 2) Inputs | 4) Debts | Other (specify) |
13. Do you have any other source of income besides crop sales? 1) **YES** 2) **NO**
 (b) If **YES** which of the following best describes these source(s)?
- | | |
|------------------|----------------------------|
| Paid Work | Relatives |
| Credit (specify) | Other activities (specify) |
- (c) If **NO**, is the income adequate for your needs? 1) **YES** 2) **NO**
 (d) If **NO** how do you manage? _____

C. ACCESS TO MEANS OF PRODUCTION?

1. Which of the following categories describes your land ownership status?

1) Owner (title deeds)	3) Freehold	5) Headmen's allocation	7) Other/Specify
2) Leasehold	4) Inherited	6) Renting/	

2. In whose name is it registered? _____

3. What is the size of your plot? _____

4. For how long have you been farming on this plot? _____

5. Which of the following best describes your method of farming?

1) Subsistence	3) Mixed subsistence	5) Commercial farming
2) Livestock	4) Semi - commercial	6) Other (specify)

6. Which of the following would you consider as factors that affect your farming? (You may cross more than one)?

1) Access to education and training	3) Access to inputs	6) Land	Access to information
2) Access to credit	4) Availability of more labor	9) Weather patterns	10) Other (Specify)

7. What sort of farming implements do you use? _____

(a) Are they adequate? **YES/NO** _____

(c) If **NO**, please explain? _____

8. Do you have any specialized training in agriculture? 1) **YES** 2) **NO**

(b) If **YES** at which of the following level(s)? (**You may select more than one**)

1) University	3) Master Farmer Certificate	5) Short Course
2) Agriculture College	4) School	6) Other (specify)

(c) If **NO**, please give reasons why? _____

9. Do you sometimes need credit to support your farming activities? 1) **YES** 2) **NO**

10. Do you have access to credit? 1) **YES** 2) **NO**

11. If **NO** what is the reason? _____

12. What are the sources of credit? 1) Govt _____ 2) Unions _____ 3) Bank _____ 4) Friends & relatives _____ 5) Cooperative _____ 6) Church _____

13. What requirements do you have to meet to qualify for credit from institutions? _____

14. What expenses do you meet from the credit? _____

15. Household assets tick where applicable (You may select more than one)

1) Cattle	4) Chickens	7) Plough	10) Television	13) Car
2) Goats	5) Television	8) Scotch cart	11) Wheel barrow	14) Radio
3) Sheep	6) Fruit trees	9) Bicycle	12) Tractor	15) Other (specify)

16. Which of the following describes your source of labour?

1) Government support	3) Cooperatives	5) Permanent Hired labor	7) Other (specify)
2) Other farmers	4) Children and family	6) Casual labor	

17. Do you sometimes work in the surrounding small holder plots or farms? 1) **YES** 2) **NO**

b) If **YES**, why is this so? _____

c) If **NO** do you have people coming to work for you? _____

18. Which of the following best describes how you acquire farming inputs?

1) Buy	3) Cooperative purchase	5) Donation/specify	
2) Government Input Scheme	4) Borrow	6) Other (Specify)	

D. THE NEED FOR AGRICULTURAL INFORMATION BY RESPONDENTS

1. What type of farming do you practice on this plot? _____
2. Do you sometimes need agricultural information to cope with your farming activities?

1) YES 2) NO

3. If YES, what kind of information? (Select one or more from the list below)

1) Farming systems	4) Livestock management	7) Health & nutrition	10) Security	
2) Harvest management	5) Pest & disease management	8) Education	11) Finance & credit	
3) Cropping	6) Credit management	9) Marketing and pricing	12) Others specify	

4. If NO how do you cope without information? _____

5. From the following list, what best describes what you do when you realize that you need some agricultural information?

1) Read books	5) Consult Institutions (specify)	3) Ask fellow farmers	7) Consult the media (Specify)	
2) Consult the chief	4) Discuss with family	6) Consult extension officers	8) Other (specify)	

6. Do you sometimes have meetings or conferences related to farming and food security? 1) YES 2) NO _____

7. Who attends these meetings? _____

b) If respondent attends, why do you attend? _____

c) If other, please explain why? _____

E. AVAILABILITY, ACCESS AND UTILIZATION OF AGRICULTURAL INFORMATION

1. Information based on agriculture is often available from different institutions. These are called Agriculture Information support systems.(AISS) Do you have such institutions in you area?

1) YES	
2) NO	
3) Don't know	

2. If YES which of the following are you familiar with?(you may choose more than one)

1) Agriculture extension	4) Agriculture /Magazine/specify	7) Agriculture schools	10) Other farmers	13) Libraries	
2) University Department	5) Media(Radio &TV)	8) Agriculture training institutions/Specify	11) NGOs	14) Others (Specify)	

3) Research station/Specify	6) Grain Marketing Board	9) Local schools	12) Chief/Community leaders	
-----------------------------	--------------------------	------------------	-----------------------------	--

3. How far are they located from your home (KM)_____

4. How do you get there?_____

5. If using public transport, what is the cost Z\$_____

6. Do you use these facilities?

- | | |
|--------------|--|
| 1) YES | |
| 2) NO | |
| 3) SOMETIMES | |

7. If NO please give reasons _____

8. If YES how often do you use the facility? _____

- | | |
|--------------|--|
| 1) Always | |
| 2) Sometimes | |
| 3) Never | |

9. Are there specific conditions that you have to meet to be able to use these facilities?

10. What are these conditions? _____

11. Do you always get relevant information?

- | | |
|--------------|--|
| 1) Always | |
| 2) Sometimes | |
| 3) Never | |

(b) Why is this so?_____

12. Which of the following sources provides agricultural information that you use?

- | | | | | |
|--------------------------|--|----------------------------|--|--|
| 1) Library | | 4) Chief/Community leaders | | |
| 2) Extension workers | | 5) Media/ Specify | | |
| 3) Friends and relatives | | 6) NGOs | | |
| 7) Other (specify) | | | | |

13. . How often do you use the information that you access?

- | | | |
|--------------|--|--|
| 1) Always | | |
| 2) Sometimes | | |
| 3) Never | | |

14. Do your family members also benefit from this information? 1.YES 2.NO

15. If YES in what ways?_____

16. If NO, please explain?_____

17. Would you have preferred a different arrangement? Elaborate _____

F. BARRIERS TO ACCESS TO AGRICULTURAL INFORMATION.

1. Do you sometimes get a chance to actively seek for agricultural information 1)YES
2)SOMETIMES 3)NO

(b) If YES how often?

- (c) If **NO** what hinders you from searching agricultural information? _____
2. Which sources of information do you use frequently? _____
3. Do you have to meet any conditions to use some of the available information sources?
4. What are these conditions? _____
5. Do you meet these conditions? 1)**YES** 2)**NO**
- (b) If **NO** please explain? _____
6. On which of the following criteria do you choose the source of information? (You may select more than one)

1)Ability to read	4)Information format
2)Ability to understand	5)Cost (whether you pay or not)
3)Accessibility (distance)	6)Other (specify)

7. How is agricultural information presented to you?

1)Books and Pamphlets	4)Radio
2)Newsletters & newspapers	5)Word of mouth
3)Audio tapes	6)Other (Specify)

8. Are you comfortable with these methods? 1)**YES** 2)**NO**

b) If **NO**, please explain? _____

9. What other methods do you think may be used to get information to you? _____

10. Why would you prefer these methods? _____

11. In what language is the information presented to you? _____

12. Are you comfortable with the language of presentation? 1)**YES** 2)**NO**

(b) If **NO**, please explain? _____

(c) What language (s) are you comfortable with? _____

13. What are the problems that you face in an attempt to get agricultural information?

14. What do you think can be done to solve the problems that you face? _____

15. In general what other challenges do you face in everyday life? _____

16. How do you cope in light of these challenges? _____

17. Are there any other comments that you would like to make which have not been covered by this questionnaire? _____

Thank you for responding!

DIRECT OBSERVATIONS (To be completed by researcher)

1. Buildings (No___)

2. Types of structures

- Rondavel_____
- Brick and structures_____ (1)grass, (2) iron, (3)asbestos, (4)tile roof
- 1)Toilet (Pit Latrine)____ 2) None_____

3. Household facilities

- 1) Borehole____2) Rainwater tank____3) Tap ____4) Mains Electricity 5)
SolarElectricity____6) Generator 7) Fuel/Paraffin/firewood/Dung/Coal____
- 4. Children's health**_____ 1)Good_____2)Satisfactory_____3)Bad
- 5. Cleanliness**_____1)Good____2)Satisfactory____3)Bad
- 6. Household pets** (Dogs and cats)_____1)Good_____2)Satisfactory_____3)Bad
7. Rubbish pit(any sign of leftovers)_____1)YES_____2)NO
8. Evidence of land use _____1)YES_____2)NO
9. Assets____1)Radio__2)TV__3)Cellphone____4)Landline____5)Scotch cart_____

APPENDIX II. Interview guide for the Provincial representative of the Ministry of Lands Agriculture and Water Development/ NGOs/ Research Institutions/e.t.c

1. Background information on Chirau Communal lands
 - Land allocation system, plot sizes

- the ACT that governs small holder agriculture sector
 - Farming systems
 - Planned settlements, replication
 - Demarcation
 - Administration(Chief, Village headman)
 - Infrastructure(schools, churches,
2. What is the government's position on Household food security?
 3. Is there available blue print for reference?
 4. As government what factors do you think challenge food security at household level?
 5. If so how does government meet these challenges?
 6. How does government hope to achieve enhanced food security against a background of growing population?
 7. Do you think information and abilities to access agricultural information also have a role in agriculture and food security?
 8. How do you ensure that there is adequate access to agricultural information particularly for female farmers against a huge backdrop of low literacy levels?

APPENDIX, III. Interview guide for the agriculture extension worker responsible for Chirau

1. For how long have you operated in Chirau?
2. As an extension worker what activities are you involved in?
3. What have been the significant achievements during your tenure?
4. Would you like to comment on the household food security situation at Chirau?
5. What are the contributing factors to such a situation?
6. How do you meet your role as an agriculture information support system?

7. May you please comment on participation in extension programmes by small holder farmers particularly women?
8. What's the gender and age distribution of extension officers in Chirau?
9. How are female and young extension officers received?
10. Do you think information and abilities to access that information also have a role in agriculture and Household food security?
11. How do you ensure that there is access to agricultural information particularly for women?
12. Are there mechanisms to evaluate information use or application?
13. How accessible are extension officers?
14. What have been the challenges that you faced in trying to enhance food security?

APPENDIX V. Themes for focus groups

1. Farming activities of female small holder farmers.
 - Farming systems
 - Post harvest management
 - Factors contributing to household food insecurity?
2. **Access to productive resources (Inputs)?**
 - Credit
 - Inputs
 - Land ownership and fragmentation
 - Impact of soil types
 - Household assets
3. **Access to agricultural information**
 - Information needs of small holder farmers
 - Availability of agricultural information
 - Access and utilization of Agricultural information
4. **Barriers to access to Agricultural Information**
 - Problems encountered in accessing information
 - The influence of literacy on access to Agricultural information
5. **Suggestions**
 - What do you think can be done to make agricultural information access better?

- What other methods do you think may be used to get information to you?

APPENDIX, VI Correspondence to institutions and key informants

Date.....

.....

To whom it may concern,

Ms Moira **GUNDU** (200254340) is a bona fide Masters student in the Library and Information Science Department at the University of Fort Hare, Alice South Africa. She is carrying out a study on the theme “*the impact of literacy, access and utilization of agricultural information on household food security at Chirau Communal lands in Zimbabwe*” The study has special focus on how literacy affects access and utilization of Agricultural Information by female farmers at Chirau and its implications for household food security.

Studies such as this one should provide useful data for improving access to agricultural information, so critical to household food security. Your organization is viewed as one of the institutions that may provide the informational support that Ms Gundu needs. The Library and Information Science department will be most grateful if you may take a moment and render Ms Gundu the assistance she needs. Your honest responses will assist in the compilation of an objective report which will contribute significantly to the body of knowledge that may be used for any subsequent development initiatives aimed at alleviating household food security at Chirau in particular and Zimbabwe in general.

Please be assured that all information will be treated with the strictest confidence and will be used

solely for the purpose of this research.

Looking forward to your valuable contribution,

Sincerely,

F. Khayundi (**H.O.D**)
Department of Library and information Science
University of Fort Hare
P.Bag X1314
Alice
5700

APPENDIX, VII Training Manual for Research Assistants

1. Translation of the questionnaire.
2. Interviewing techniques
 - Probing
 - Consistency
 - Tempo
3. Completing the questionnaire
 - Precision
 - Clear writing
4. Note taking
5. Observations
6. Ethics
 - No secret or clandestine research
 - The respondents have:
 - i. The right to privacy or to refuse participation.
 - ii. The right to anonymity and confidentiality
7. Tell it as it is said to you, do not record your own data or opinions!
- 8. Maintain integrity in all you do!**

APPENDIX VII. MEMORANDUM OF AGREEMENT

Parties

Moirra GUNDU hereafter referred to as the Contractor

and

_____ (Hereafter referred as the research assistant)

The contractor enlists the services of the abovementioned to assist with a field survey for academic purposes.

The above parties hereby agree that the contractor shall provide training and the Research Assistant shall supply the services specified below, and meet the requirements of the contractor.

Pursuant to this agreement, the Contractor shall employ the research assistant for a period of two (2) weeks, effective from 18th of June 2007 to 29th June unless otherwise agreed between the two parties.

Duties

This will involve

- Participation in data collection as instructed by the contractor which will include some of the following activities:
 - o Training
 - o In depth interviews
 - o Conduct focus group groups discussions(F.G.Ds)
 - o Write summaries of focus group discussions.

Supervisor

The research assistant will report to the Contractor.

Food and accommodation

The research is entitled per diems of Z\$_____ ()per day for 10 days to cover lunch. A total of Z\$_____ will therefore be paid to upon completion of the assignment.

Fees

You will be entitled to a total of Z\$_____ () for the assignment upon successful completion and confirmation by the contractor.

The Research Assistant's Responsibility.

The Research Assistant shall bear the sole responsibility for all aspect related to all taxes and any other payments through legal obligations. The contractor is not responsible for any medical expenses incurred during this period.

The research assistant hereby acknowledges understanding that the client will, if and to the extent required by the law, report any payments made to her at all relevant times during which s/he provided services to the client.

This agreement is made in Zimbabwe and its construction, validity and performance shall be governed in all aspects by the laws of Zimbabwe. Each party consents and submits to the exclusive jurisdiction of the courts of Zimbabwe in any matters arising from this Contract.

This agreement constitutes the entire agreement between the research assistant and the contractor, No variation or addition to this agreement will be valid unless in writing and signed by both parties.

Thus done and signed at Chirau, Zimbabwe this____ day of_____ 2007.

Research assistant_____

Full name_____

I.D Number_____

Address _____

Moiru Gundu (Contractor)