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FACTORS AFFECTING SMALLHOLDERS ACCESS TO AGRICULTURAL CREDIT IN NKONKOBE LOCAL MUNCIPALITY COMMUNITY IN THE EASTERN CAPE, SOUTH AFRICA.

BY

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DECLARATION

I hereby certify that this dissertation is my own original work and has not previously been submitted to another university for the purpose of a degree. Where use has been made of the work of others, such work has been duly acknowledged in this text.

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DEDICATION

This work is dedicated to GOD ALMIGHTY (my source of inspiration);

and to my future wife, children and offspring – 'only for whom I have gone this far.'

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ABSTRACT

South Africa has a large proportion of its population residing in rural areas and are, in one way or the other, involved in some agriculture-related activity. However, majority of the disadvantaged farmers are not part of the mainstream agriculture and practice subsistence agriculture in overcrowded, semi-arid areas in the former homelands. Farmers' limited access to agricultural credit facilities is one of the major factors responsible for the declining agricultural productivity for smallholder farming. The study therefore, aims to identify determinants of access to agricultural credit among smallholder farmers in the Nkonkobe Local Municipality of the Eastern Cape Province of South Africa. Data were obtained from 214 farmers using administered structured questionnaire in the 2015 production season. Regarding selection of respondents, a simple random sampling technique was employed. Descriptive statistics, correlation analysis, as well as binary logistic regression model were analytical techniques used in analyzing the data. Results from the analysis showed that credit use is very minimal. Furthermore, the study observed that, household size, age of household head and the farm income were significant factors affecting farmers' accessibility to agricultural credit in the study area. More so, the results show that other variables such as household head, level of education and farming experience were negative variables, an indication that an increase in any of these variables would be associated with a decrease in the level of participation in the credit market. Therefore, government policy involving the [illegible] of farmers' accessibility to agricultural credit facilities should create enabling environment to ease their access to education and credit facilities.

Keywords: Agricultural credit, smallholders, farmers, accessibility, logistic regression, South Africa

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

ACRONYMS

SSA	Sub Saharan Africa
IFAD	International Fund for Agricultural Development
GDP	Gross Domestic Product
DBSA	Development Bank of Southern Africa
MRFSP	Mozambique Rural Finance Support Programme
DAFF	Department of Agriculture, Forestry and Fisheries
FAO	Food and Agricultural Organization
ADB	Agricultural Development Bank
LC/PIH	Life-Cycle/Permanent Income Hypothesis
SMME	Small, Medium and Micro Enterprises
MFI	Micro-Finance Institutions
SAMAF	South African Microfinance Apex Fund
MAFISA	Micro-Agricultural Finance Institutions of South Africa
MFW4A	Making Finance Work for Africa
ADM	Amathole District Municipality
NEDA	Nkonkobe Economic Development Agency
CASP	Comprehensive Agricultural Support Programme
KSDT	King Sandile Development Trust
ESCECC	Eastern Cape Socio Economic Consultative Counsel

CHAPTER 1

INTRODUCTION

1.1 Background

Despite rapid urbanization in recent decades, sub-Saharan Africa's (SSA) population and economy are still predominantly rural and poverty is still primarily a rural phenomenon (De Klerk *et al.*, 2013). The United Nations' International Fund for Agricultural Development (IFAD, 2011) reports that more than 70% of the continent's poor live in rural areas and depend mainly on agriculture for their livelihoods. In SSA agriculture provides about 70% of employment and about 30% of the combined Gross Domestic Product (GDP) (De Klerk *et al.*, 2013). The South Africa's racial past in the view of Sebopetji (2008) continues to be reflected in its present agrarian structure. This is mostly because, during the apartheid era white farmers enjoyed preferential access to agricultural cre[illegible]lerk *et al.*, 2013). This can be attributed to the fact that white farmers were major beneficiaries of state irrigation schemes, and also benefited from price controls, protectionism, and subsidization.

Regarding this context, Spio (2006) reported that the past policies of apartheid created structural imbalances in the whole socio-economic fabric of the society, causing different racial groups to have different social contexts and access to wealth. The policies resulted in the disempowerment of rural communities, where about 40% of the population lives – blacks constitute about 91 % of the rural communities (Spio, 2006). These policies, according to Spio (2006) resulted in intermediaries directing their attention to commercial farmers at the expense and neglect of the small and emerging farmers and microenterprises. Apart from these policies, other scholars (notably, Kuhn *et al.*, 2000; Yegoh and Kimeli, 2013; Spio, 2006; Manganhele, 2010) noted that the financial intermediaries have not been able to serve rural clientele easily because it is a costly, risky and difficult task. Kuhn *et al.* (2000) further stated that local lenders are faced with covariant risks and high transaction costs and therefore are reluctant to lend to the poor. In the opinion of Spio (2006), lack of information prevented large formal lenders who had the capacity to serve the small farmers and poor from doing so. Additionally, lack of information made formal lenders prone to problems of adverse selection, moral hazard, and high enforcement costs (Spio, 2006). Sebopetji (2008) reported that small-scale farmers in communal areas of South

Africa have limited access to factors of production including credit and information. This is mainly because markets are often constrained by inadequate property rights and high transaction costs. Despite these problems, some small-scale farmers have managed to produce food for own consumption and for the market (Ortmann and King, 2006). Credit is an important instrument for improving the welfare of the poor. Sebopetji (2008) suggested that this can be achieved directly through consumption smoothening that reduces their vulnerability to short-term income. It also enhances productive capacity of the poor through financing investment in their human and physical capital (Okurut *et al.,* 2004).

In an earlier study, Spio (1995) noted that rural clientele are heterogeneous, geographically dispersed; deal in small transactions and their activities are highly dependent on exogenous forces. Hence the methods and practices of most banks do not meet the needs and characteristics of their clients (Spio, 2006). Apart from the efforts of government to ensure that smallholder farmers have access to financial services, the provision of financial services to the small-scale farming sector has generally been static and has even declined in some parts of the developing countries because of the risks involved in dealing with farmers and the incompetence of some service providers in dealing with smallholder farmers (Kuhn *et al.*, 2000). As the drive to boost agricultural production becomes desperate in the face of rising population, the small-scale farming sector continues to live in a dilemma of financial problems it continues to be excluded from enjoying the benefits of using financial services (Spio, 2006). These problems contribute to low per capita food supplies, low production, poor access to better markets (Kuhn *et al.,* 2000), hence most of the small-scale farmers survive on family remittance or move out of agriculture.

However, the poor but efficient hypothesis of Schultz should convince policy makers of the need to design and implement policies and programmes directly aimed at improving access to financial services (Spio, 2006). According to Batterham and Majid (1987) the provision of financial services helps farmers and microenterprises to avoid being caught in a traditional Schultzian low return to investment trap. Manhanhele (2010) advises that the provision of financial services helps smallholder farmers to offset the risk associated with adopting new technology and to enable them buy improved inputs, thereby increasing their productivity and generating their own capital for investment. Spio (2006) suggested other advantages of providing efficient services to smallholder farmers, namely:

- It increases the flow of savings and investment, thus contributing to faster economic growth.
- It increases the productivity of available resources, that is, it improves efficiency in resource allocation.
- It favours stability, through greater market integration and opportunities for risk management.
- It improves income distribution by making available to those with few resources of their own, purchasing power with which to take advantage of their productive opportunities, which otherwise would have to be forgone.

The demand for credit for productive investments usually comes from the poor who are less risk-averse and enables them to overcome liquidity constraints, making it possible to undertake investment that can boost production, employment and income (Sebopetji, 2008). Spio (2006) argues that the supply of and the demand for financial services to farmers hold the potential of substantially increasing the overall pace of investment and development. It is undisputable that small-scale farmers have always had a problem of access to credit (Sebopetji, 2008). To improve accessibility to financial services, it is necessary to enhance the efficiency with which the provision of financial services is made. Kgowedi *et al.* (2002) pointed out that in order to improve delivery of financial services lenders need to consider the preferences and socio-economic circumstances of clients. This contributes to both regulatory process as well as product development.

South Africa clearly differs fundamentally from most other countries in the region, because of the extent of its large scale commercial agriculture, which is responsible for about 95% of its farm output (De Klerk *et al.,* 2013), and because of the highly developed services that cater for the financial needs of this sector (Kgowedi *et al.,* 2002). De Klerk *et al.* (2013) state that in South Africa, large scale commercial agriculture is dominated by white-owned enterprises, which have not only been well-supported by private financial and other services, but which received multiple forms of state support prior to democracy in 1994. Since 1994, it has been a state priority to develop smaller and larger black-owned agricultural enterprises, in part through increasing such farms' access to financial services and through articulating these services to their needs and resources (Manganhele, 2010). De Klerk *et al.* (2013) noted that only limited success

has been achieved, either in respect of establishing viable black-owned commercial or commercially-orientated farming enterprises, or in respect of providing effective financial services support for such enterprises. Thus, an understanding of characteristics influencing farmers' decision to use agricultural credit could assist policy formulation that could enhance welfare of the poor or those excluded from access to credit.

1.2 Problem Statement

South Africa has a large proportion of its population residing in rural areas and are, one way or the other, involved in some agriculture-related activity. Majority of the disadvantaged farmers are not part of the mainstream agriculture and practice subsistence agriculture in overcrowded, semi-arid areas in the former homelands (Sebopetji, 2008). This kind of subsistence farming is characterized by low production, poor access to land, poor access to inputs etc. The former homelands of Transkei and Ciskei make up a large part of the Eastern Cape, and the high levels of poverty and unemployment found in the province can be traced back to the economic marginalization of these areas during the apartheid era (D'Haese and Van Huylenbroeck, 2005). It is one of the few provinces where the rural population exceeds the urban population and one of the poorest. Due to the lack of agricultural extension services, low employment and inadequate education which is considered to be an important input in agricultural development, there are few employment opportunities. Therefore, the agricultural sector needs to dramatically improve productivity levels and market access to reduce poverty to small-scale farmers in the Eastern Cape Province through government support. This requires farmer support schemes and strong extension systems which is essential in achieving agricultural productivity.

To support farmers government has made some advances in broadening access to credit. At the beginning 2005, the South African government started to promote cooperatives, among other initiatives, which could access government finance, usually provided through parastatal agencies, e.g., Ithala Bank. The government set up Micro-Agricultural Financial Institutions of South Africa (MAFISA) to target the micro and small agricultural and related business and to provide capital to increase agricultural and other related activities. However, recent literature suggest that not much has changed as most farmers still do not have access to affordable credit for investment in the technology imperative for expanding and intensifying agricultural production into high value crops Vink, (2003). Therefore, understanding technical efficiency and having information

on issues that relate to agricultural credit would help in finding appropriate and effective ways to reduce the prevalence of poverty and low production amongst other things.

In order for smallholder farmers to develop, there is a need for relevant farming information to be available to farmers. Even with the availability of extension officers, whose responsibilities include information dissemination, majority of smallholder farmers are still characterized by low production. Some of the main reasons for the declining performance in production are associated with the following challenges: inadequate use of recommended technologies, high costs of inputs, lack of agricultural extension services, limitations in the development of infrastructure, a general decline in performance of the economy and most importantly lack of access to credit.

Manganhele (2010) states that, access to affordable credit is one of the most important factors affecting production and therefore income of the poor. The poor access to agrarian and support services are attributed to socio-economic background and circumstances of the farmers as well as constraints encountered by these farmers in [illegible] (Sebopetji, 2008). Access to financial services, is critical to provide funds for farm investments in productivity, improve post-harvest practices, smooth household cash flow, enable better access to markets and promote better management of risks. Access to a comprehensive range of financial services is a significant challenge for smallholders, who constitute the vast majority of farmers in the Eastern Cape. Smallholder farmers are quite a heterogeneous group, differing in their resource base and choice of crops and livestock, links to markets, the relative importance of agricultural income, and other dimensions. As such, solutions regarding access to finance need to better understand the various profiles of smallholder families and the conditions and market context where they operate.

The majority of studies so far have focused on commercial smallholder farmers in value chains served primarily by banks (e.g. Land Bank) or through value chain firms. Also, research to date has said little about how smallholder farmers outside value chains and less commercially-oriented farmers access financial services, or the kinds of products and services they demand. This study, therefore, attempts to try helping understand and provide better information on the factors that affect/limit access to agricultural credit amongst small holder farmers in the communities of the Nkonkobe local Municipality.

1.3. Objectives of the study

The main objective of this study is to determine the factors that affect access to agricultural credit amongst small holder farmers.

Specifically the study will:

I. Analyze the socio-economic characteristics of the farming households.
II. To assess the association between households characteristics and credit use.
III. Determine factors that affect farmers' decision in deciding whether or not to take credit.

1.4 Research questions

The following are the research question used in this study:

I. What are the socio-economic characteristics of the rural farmers in the study area?
II. What is the association between households' demographic characteristics and credit use?
III. What are the major factors that the [illegible]k at in deciding whether or not to take credit?

1.5 Hypothesis

The hypotheses used in this study are as follows:

I. Farmers' socio-economic characteristics, human capital, and institutional variables do not influence access of households to agricultural credit.

1.6 Significance of the study

The lack of capital and the absence of attractive investment opportunities are considered by many scholars (Mudhara, 2010; Olalede and Olagunju, 2013) to be important reasons behind inadequate economic development in many developing countries. This is why an attempt is made in most developing countries to encourage, through development policy measures, capital formation as well as the supply of financial means in the form of credit through official financial institutions (Manig, 1996). Because of the lack of access to credit in the formal sector, productive assets of the poor are depleted; assets used as collateral are transferred from the poor to wealthier informal lenders, and households may become impoverished. Most research studies on agricultural credit in South Africa are related to: accessibility to and impact of agricultural credit; credit saving patterns of resource-poor farmers and functioning of the rural financial

markets (Sebobetji, 2008). There are actually few studies in literature on the subject of small-scale farm credit and how their socioeconomic characteristics influence their decision about whether or not to take credit especially in the Eastern Cape Province. Therefore, this study aims to add to the available literature by providing better insight by drawing out and analyzing smallholder farmers' socio-economic characteristics that affect their decision about credit. Thus, the outcome of the study would be useful to identify options and institutional arrangements that would serve as an input for policy makers in formulating rural credit policy.

1.7 Limitations

This study limits itself only to small holder crop farmers in the farming communities of the Nkonkobe local municipality.

1.8 Definition of terms

Access to credit can be defined in many ways. Perderson and Khitarishvili (1997) states that, access to credit occurs when there is no non-price or credit rationing. Manganhele (2010) defines credit rationing as a restriction of credit availability: the restriction or refusal of the availability of credit even when the applicant is willing to pay more than existing comparable borrowers, or when he/she cannot obtain the credit required. Kimemia (2004) argues that it provides the basis for increased production efficiency through a specialization function. Agricultural credit has been defined by Kuwomu *et al.,* (2013) as the present and protem transfers of purchasing power from a person who owns it to a person who wants it, allowing the latter the opportunity to command another person's capital for agricultural purposes but with confidence in his willingness and ability to repay at a specified future date. Out of many definitions of agricultural credit, this study adopts the definition of agricultural credit as defined by Ozowa (2007) who states that:

"agricultural credit encompasses all loans and advances granted to borrowers to finance and service production activities relating to agriculture, fisheries and forestry and also for processing, marketing, storage and distribution of products resulting from these activities".

Definitions of smallholders differ across authors. Some have tended to emphasize their lack of land tenure, others have pointed to land size, others have pointed to the productivity levels, yet others have pointed out to the limited resource levels of the sector. This study adopts the definition of a small-scale farmer as defined by Kirsten and Van Zyl (1998): "a small-scale farmer is one whose scale of operation is too small to attract the provision of the services he/she needs to be able to significantly increase his/her productivity".

1.9 Outline of the study

The study is divided into seven chapters. The first chapter gave a background to the arising problem. The second chapter reviews literature. Chapter three discusses credit and rural financial systems. The fourth chapter discusses the study area. The fifth chapter discusses the methodology, including methods of data collection and analytical techniques used to analyze the data. Chapters six offers empirical analysis. Chapter seven presents summary, conclusion and recommendations of the study.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter presents literature review on issues concerning agricultural credit. Areas covered in this chapter include role of agriculture and credit in development, the demand for agricultural credit and rural financial service. This chapter also presents a conceptual framework of interaction between factors influencing farm household's decision. Determinants of access to credit, credit rationing, rationing constraints measuring access to credit and credit constraints discussed in this chapter.

2.2 Role of agriculture and credit in development

Since agriculture constitutes a large share of national output and employs a majority of the labor force in most developing countries, the sector has been integral to any thinking about development. However, Diao *et al.* (2007) reported that the perceived role of agriculture in growth and development has changed substantially over the past half-century. Early classical theory viewed economic development as a growth process requiring the systematic reallocation of factors of production from a primary sector characterized by low productivity, traditional technology, and decreasing returns to a modern industrial sector with higher productivity and increasing returns (Adelman, 2001). Agriculture was seen as a low-productivity, traditional sector that only passively contributed to development by providing food and employment. Furthermore, the importance of agriculture was expected to decline as development advanced. Nevertheless, agricultural growth was still considered necessary for development and for a country's transformation from a traditional to a modern economy. Diao *et al.* (2007) noted that two key characteristics of agriculture during the early stages of development justified its place in early development thinking. First, agriculture produces goods that directly satisfy basic human needs. Second, agricultural production combines human effort with natural resources, such as land and agro ecological assets.

Early development theorists believed that, since natural resources were assumed to be freely available, agriculture could grow independently of other economic activities. However, in

reality, the dependence of agriculture on a fixed supply of land meant that its expansion was constrained, implying that agricultural output cannot proportionally increase with increased labor supply under a given technology (Diao *et al.,* 2007). On the demand side, the need to satisfy basic needs implied that, at the very least, agricultural growth must match population growth to avoid the "Malthusian trap" and stagnant development.

On the other side, classical theorists observed that most developing countries comprise "dual' economies. In this view, labor productivity is lower in agriculture than in industry, and hence development requires the movement of agricultural labour into non-agricultural sectors. Beyond the role of agriculture in providing a "reserve army" of labor and capital to industries, classical economists also emphasized the importance of food supplies in sustaining economic growth. Although early development economists saw agricultural growth as an essential component and even a precondition for growth in the rest of economy, the process by which this growth was generated remained beyond the concern of most development economists (Ruttan, 2002). For this reason, Lewis's theory was employed to support the industrialization strategies adopted by many developing countries between the 1950's and 1970s

According to Diao *et al.* (2007), the view that agriculture plays only a passive role in development was swept aside by the dynamism of the green revolution in Asia during the late 1960's and early 1970's. The transformation of traditional agriculture into a modern sector revealed the potential of agriculture as a growth sector. Simultaneously, it highlighted that science based technology adapted to a country's ecological conditions is fundamental for agricultural growth. Indeed, advances in mechanical and biological technology helped overcome endowment constraints, particularly in regard to land and labor. Based on this idea, Hayami and Ruttan (1985) adopted an "induced innovation model" that not only emphasized the importance of technical change for agricultural growth but also stressed that technical change is often endogenous to a country's economic system.

The role of agriculture in rural, as opposed to national, development was the focus for many agricultural economists during the 1990s (Hazell and Haggblade, 1991; Haggblade, Hammer, and Hazell, 1991). This shift in emphasis according to Diao *et al.* (2007) was motivated by imperfect or missing commodity and factor markets; rigidities in rural–urban factor mobility;

high transport costs; the existence of rural non tradable sectors; and rural unemployment and underemployment.

Agricultural production generates forward production linkages when agricultural outputs are supplied as inputs to non-agricultural production. Agricultural growth can therefore contribute to expanding agro processing and processed food marketing, which provide new engines of growth and opportunities to substitute for imports (Diao *et al.,* 2007). Agriculture also creates backward production linkages through its demand for intermediate inputs such as fertilizers and marketing services. Credit is one of factors of production. When farmers have access to financial services, it may offer low returns to investment for households that own tiny plots of un-irrigated land of low productivity (Manganhele, 2010).

According to De Klerk *et al.* (2013), the constraints on agricultural productivity are multiple and well recognized. Many are exogenous, brought about by policies and practices entirely beyond the control of farmers, including low public expenditure on agriculture and inadequate infrastructure, producer incentives, marketing structures, extension services, water management, research and development support, and financial services (De klerk *et al.,* 2013). However, some other constraints are endogenous. Various scholars (notably, Spio, 2002; De Klerk *et al.,* 2013; Manganhele, 1999) are of the view that, while most households that engage in small-scale farming are adequately supplied with labour, many will lack the technical or managerial skills to undertake anything but subsistence farming. Furthermore, few households will have the internal capital resources to produce more than occasional surpluses for the market. Access to financial services is an important contributor to enterprise productivity in most developing countries.

Literature suggests that agriculture plays a major part in many countries' total gross domestic product. Manganhele (2010) states that there is no general consensus on the extent to which financial service provision, especially credit, can help to reduce poverty in the developing world. This may be because of lack of measured data on the impact of credit on poverty reduction. It is generally accepted that rural financial services may benefit poorer people either directly or indirectly and it is one of the most successful ways to reduce poverty in developing countries (Manganhele, 2010). Access to credit has the potential to help smallholder farmers to tap financial resources beyond their own, as well as enabling farmers in general to not only take advantage of potential profitable investment opportunities, but also to fulfill the social function

of enhancing their lives and welfare (Manganhele, 1999). Improved access to agricultural credit and savings, according to Spio (2006), may help those with limited assets to invest in agricultural technology or land improvements, such as high-yielding seeds and chemical inputs that increase incomes thereby increasing their levels of production. This is also in line with the statement made in Mozambique by the Mozambique Rural Finance Support Programme MRFSP (2003) which reported that well-timed credit may help a poor household to make additional investment.

Some positive impact deprived from access to agricultural credit have also been reported by Zeller and Sharma (1998) who noted that in Bangladesh, access to credit by smallholder farmers has a positive impact on food consumption and school enrolment. In the study on the accessibility to and impact of credit on small-scale farmers in Limpopo, Spio (2002) found that the difference in productivity between borrowers and non-borrowers is due to both the use of credit and to the preexisting inherent characteristics of farmers. Spio (2002) further reported that the difference measured up to 40%, of which 21% is due to credit; thus, credit can increase the output of a randomly selected farmer by 21%. Bruck and Van den Broeck (2006) suggested that, in order to reduce poverty most developing countries must prioritize the agricultural sector and smallholder farmers, effectively emphasizing rural initiatives that would promote productivity, marketing, international trading possibilities and therefore contributing to development of that particular country.

2.3 The demand for agricultural and rural financial services

According to Okurut *et al.* (2004), the demand for credit for productive investments usually comes from those poor who are less risk-averse and enables them to overcome liquidity constraints, making it possible to undertake investment that can boost production, employment and income. The supply of and demand for financial services in South Africa's low-income rural areas, whether for productive or consumptive activities, in the opinion of De Klerk *et al.* (2013) needs to be located in the context of centuries of formal and informal racial division, the imprint of which is still all too evident on agriculture, after nearly 20 years of democracy. Most obvious is the continuing division of agriculture into large-scale, exclusively commercial farming – currently about 40 000 farming units (Department of Agriculture, Forestry and Fisheries (DAFF), 2010) – and small-scale, predominantly non-commercial farming, entrenched under apartheid. Since the early years of the twentieth century until the 1990s, agricultural land in

South Africa was effectively demarcated into areas in which only whites could farm (about 86%) and those in which blacks – including coloureds and Asians – could farm (about 14%) (DAFF, 2010). It was until the institution of the first non-racial, democratic government in 1994 that much emphasis has been given by the state to creating a more representative agricultural sector, led primarily by reforms to increase the occupancy of land by black South Africans. This policy has had three major thrusts:

- ✓ 'land restitution' which entails to transfer land acquired by whites after 1913 through the displacement of black occupants back to these occupants and/or their descendants,
- ✓ 'land redistribution' to purchase land otherwise acquired by whites, for the purpose of settling new black commercial farmers, and
- ✓ 'land tenure reform' to reshape the tenure systems in operation in the 14% of agricultural land previously reserved for blacks almost none of which provided for freehold ownership partly to adapt them better to the needs of commercial farming.

The joint goal of the first two of these thrusts has been to ensure that at least 30% of farm land previously demarcated for whites is owned by blacks by 2014 (DAFF, 2010). What is most relevant here is that between them, 'land restitution' and 'land redistribution' have established classes of land reform beneficiaries who are in most cases attempting to engage in large scale commercial farming (De Klerk *et al.,* 2013). As the general intention has been for them, with some adaptations, to continue operating the commercial enterprises acquired for them by the state, this group cannot be classified as 'small farmers', although in some instances it is possible that the farms acquired have been sub-divided informally into individual smallholdings. Rural smallholder farmers have financial services needs similar to those of any other large scale commercial enterprise. It is in respect of credit that large part of these farmers needs need to be met by state grants for land, fixed improvements and machinery. However, literature suggest that their capacity to raise the working capital needed for the medium and long term assets to generate recurrent income has been seriously hamstrung by tenure restrictions which do not allow the new owners to use such assets as collateral for loans. Understandably, government does not wish either to see land purchased with public funds for restitution or redistribution passed back into white hands through forced sales on the open market or to be obliged to

purchase it a second time from a bank or other financier in the event of default (De Klerk *et al.,* 2013).

These two thrusts of the overall land reform agenda according to De Klerk *et al.,* (2013) have received the lion's share of the state's attention and financial resources, but the exact number of such new farming entities that have been created is seldom disclosed. The number of households engaged in some form of agriculture in the 'traditional' black farming areas – mostly on plots of about one hectare – is estimated at up to 4 million (DAFF, ibid, 2012). The number may not be as great as this, as the findings of FinScope's Consumer Survey, 2010 indicate that the total number of households in these areas, including those not engaged in farming activities of some kind, is probably closer to 3 million, although a surprising percentage of South Africa's small-scale farmers are to be found in urban and peri-urban areas. With very few exceptions, these farmers are also unable to use the land that they farm for collateral, as the state owns almost all land in the 'traditional' black rural areas (De Klerk *et al.,* 2013). This not only makes borrowing more difficult, but it also obstructs land rental, thereby hindering the development of economies of scale for those who would like to farm commercially. In the absence of freehold ownership unlikely in the foreseeable future - even firm defined period rental agreements might make banks less reluctant to advance working capital loans to smallholders in these areas.

2.4 Conceptual Framework

Access to agricultural support services remains the major factor constraining the growth of small-scale agriculture in South Africa, most especially the former homelands. Experience from other countries indicates that a comprehensive approach to the provision of support services is required to achieve growth in the small-scale agriculture sector (SASIX, 2007). In South Africa, comprehensive support programmes are available. However, the lion's share of the budget is channeled to beneficiaries of Land Redistribution beneficiaries. This leaves farmers in the former homeland and those farming in communal with little or no support except approaching financial institution for credit. The problems associated with small-scale farmers accessing credit are not exhaustive.

Sebopetji (2008) is of the view that perhaps it is important to focus on some of the factors that affect farmers' decision in deciding whether or not to take credit. Bagi (1983) referred the

farming experience, education and frequency of contact with extension service as the indicators of managerial ability of a farmer. Farmers with better contacts, better education, hence better information, are likely to participate in the markets (Sebopetji, 2008). In support of this, literature suggests that all these managerial traits are likely to be positively related to the farmers' decision to use credit. Furthermore, Bagi (1983) found out that the probability of using short-term credit as well as long term credit is directly related to the length of farming experience, level of formal education, frequency of contact with the extension agent, and size of the farm. This implies that increasing all of the above factors would increase the probability the farmers take credit and vice versa, when all other things are held constant. The interaction between factors influencing farm household's decision is summarized in below. Of interest is the inclusion of credit among the factors.

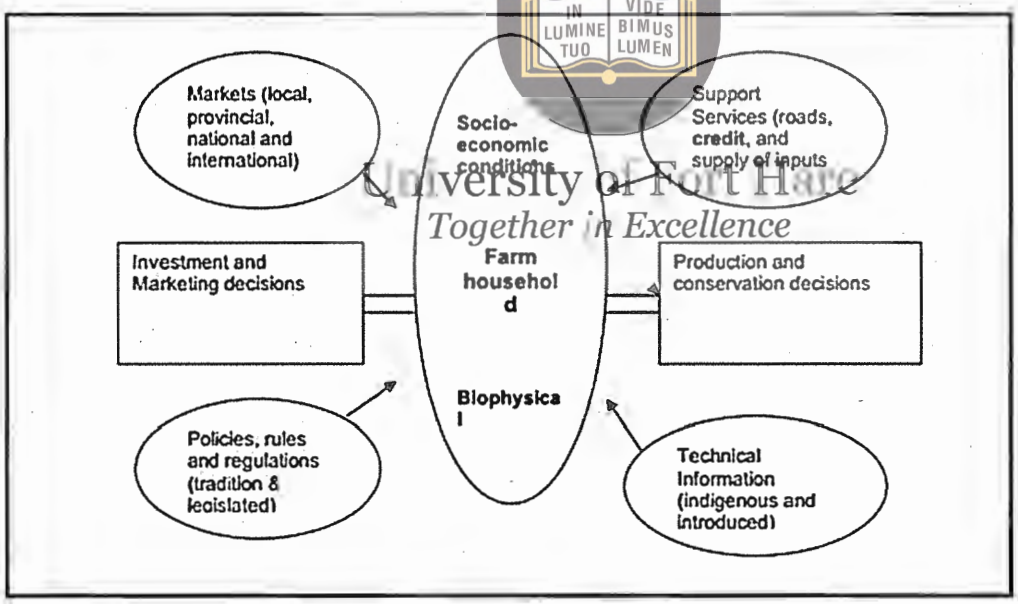

Figure 2.1: Conceptual frame work
Source: French (2007)

According to French (2007) farm household is the level at which most resources allocation decisions are made, a central factor affecting investment, production and conservation decisions is the farmers' level of control over his land. This means that a farmer with secure tenure is more likely to think of long-term production and conservation activities. However, the decision is not linear as farmers consider the factor listed simultaneously.

2.5 Determinants of Access to Credit

The factors affecting access to credit vary, below is the description of some factors which are thought to be affecting access to credit.

2.5.1. Institutional Constraints

These institutional constraints can be broadened in to two categories.

2.5.1.1 Individual Finance Institutional Constraint

According to Manganhele (2010), individual finance institutional constraints occur when appropriate types of financial services are not being provided. In a study conducted in Mozambique, (MRFSP, 2003) points out that, many NGOs operating in rural areas of are providing credit mainly for trading purposes, but the majority of smallholder farmers demand credit for investment purposes such as mechanized equipment, tractors or trucks, and for consumption purposes. This proposes that [illegible] farmers' credit needs are possibly not being adequately addressed by these financial institutions (Claessens, 2005). High transaction costs are associated with the fact that smallholder farmers demand small amounts. Together with high fixed costs of applying, collateral requirements and other no pecuniary barriers, such as requiring literacy, often lead to high rejection rates (Claessens, 2005; FAO, 1993). Other barriers to access to credit for smallholder farmers according to (Atieno, 2005; Besley, 1994 and Claessens, 2005) explain why many financial institutions have been failing to provide appropriate financial products and services to smallholder farmers and other segments in rural areas. They include;

I. low population density (making it difficult to provide physical infrastructure in rural areas);
II. lack of security in cash transfers and branches (which implies that financial services cannot be operated commercially and in a profitable fashion);
III. high transaction costs for small volumes (smallholder borrowers frequently borrow and repay in small installments);
IV. Smallholder farmers and firms in developing countries may seek financing or insurance for specific purposes (major life events such as marriage, health and specific crop insurance), for which contracts are difficult to design.

2.5.1.2 Institutional environment constraints

In the opinion of Manganhele (2010) designing viable rural finance institution policies, financial technologies are crucial but, in order for them to be appropriately adopted and implemented, organizational design also matters. This implies that access to technology can impact positively on demystifying some unknown dimensions of access to credit for smallholder farmers, but many rural financial institutions lack access to technology (Gonzalez-Vega, 1994). As a result, the product design in many developing countries reflects poor organizational design. For this reason, Gonzalez-Vega (1994) concludes that institutional environment constraints have been hindering access to credit for smallholder farmers. Poor institutional design can be revealed in many ways. These may include, financial institutions operating in an environment with an absence of credit information, can find it difficult to assess collateral that can be registered and recovered, if necessary (Manganhele, 2010).

Manganhele (2010) further argues that, dif[illegible]nforcement and general contract design, or an uncertain repayment capacity arising from volatile income and expenditure, can seriously curb the efforts of financial institutions in attempts to improve access to credit for smallholder farmers. Manganhele (2010) noted that in the past, the development and spread of financial institutions were suppressed by excessive state interference, such as rigid exchange rate regulations and caps on interest rates. But today, it is widely recognized that the role of establishing macroeconomic stability and of maintenance and enforcing a legal framework that ensures contract compliance, has to be played by the government. According to Gonzalez-Vega (1994) this is important to ensure that financial markets are free to respond to economic incentives, while following prudential banking practices. Therefore, while a liberalized financial market is a necessary condition for improving the supply of financial services to the poor, it is not sufficient. Institutional innovation is also necessary (Zeller and Sharma, 1998).

2.5.2 The costs involved in lending to rural areas

Formal financial services are expensive because they are almost a luxury good and require a lot of valuable human and material resources with high opportunity costs (Manganhele, 2010). For this reason, Manganhele (2010) assumes that formal finance usually implies high fixed costs. Moreover, an efficient evaluation of creditworthiness is essential to make services less costly, for both the financial intermediary and the society. In serving smallholder farmers, these fixed costs

become much higher, particularly because these clients often apply for small loans, they are heterogeneous and are scattered in sparsely populated areas (Gonzalez-Vega, 1994). Borrowing costs include nominal interest payments made to lenders, additional loan transaction costs and changes in the purchasing power of money. In turn, borrowers' transaction costs are affected by time and travelling costs to and from the office to negotiate the loan, application fees, bribes, forced purchases of other services provided by lenders, service fees, compensatory balances and loan-closing costs (Njie, 1983). According to Klein *et al.,* (1999), there are many factors contributing to raising the costs of lending to smallholder farmers, as highlighted below.

2.5.3. Dispersed clients

Dispersed locations and the low population density of rural clients in many developing countries make the provision of the rural financial services costly for both lenders and borrowers. Given the spatial dispersion of production and the comparatively high incidence of location specific factors and exogenous shocks on yields, monitoring of borrowers is very costly. The covariance of farmer incomes from agricultural activities makes it difficult for banks to diversify their portfolios (Gonzalez-Vega and Graham, 1995). From the rural borrower's side, financial transaction costs of institutional credit can also be high as a result of high opportunity costs: a borrower may need to travel several times to the bank branch which requires not only a long time for processing, but also money to cover travelling costs. Since loans demanded are often very small, these costs could significantly increase the effective lending interest rate (Klein *et al.*, 1999).

In undermining the structure of operating costs, many Agricultural Development Bank's (ADBs) lacked institutional and financial viability (Manganhele, 2010). Consequently, their design placed more emphasis on specialization, public ownership and the lack of a profit motive. Only an appropriate organizational design and incentive structure would lead to more effective management strategies that would lower the costs of lending to smallholder framers and cause it to be in the interest of decision-makers to secure the viability of their institutions (Gonzalez-Vega and Graham, 1995). Transaction costs of lending to agriculture could be lowered if innovative ways of providing financial services, such as mobile loan officers and/or branch officers, were adopted. However, although branch networks reduce risks, they are costly to

maintain and support; nevertheless the establishment of a rural branch may be preferable, because mobile facilities may be subject to security risks if bank staff are required to transport money (Klein *et al.*, 1999).

2.5.4. Seasonality and loan term structure

The seasonal nature of agricultural production and the relatively long gestation periods before crops can be harvested and sold, have a direct influence on the financial transaction costs of the lenders. Often, agricultural loans are larger and required for longer periods. As a result, matching assets and liabilities (source of loanable funds) makes lending more difficult than providing loans for non-farming activities. Lending to the agricultural sector also requires one or two larger loan repayments, rather than the regular weekly or monthly instalments common in micro lending (Klein *et al.*, 1999; Meyer *et al.*, 2004). Furthermore, lending to smallholder farmers implies that monitoring repayment capacity and willingness to repay the loan is much more difficult, and an uneven distribution of agricultural lending operations over the year increases the fixed costs of personnel.

Hence, earnings from lending activities might not be sufficient to cover these costs. The paradox is that, during times of high seasonal loan demand, liquidity requirements raise the price of loanable funds while, during periods of low demand, excess liquidity needs to be invested in low or non-earning assets. This increases the opportunity costs of these funds which causes lenders to face high costs (Klein *et al.*, 1999). As noted, local intermediation is also made difficult by the seasonality of sowing and harvesting cycles which contributes to the covariance of cash flow (Gonzalez-Vega and Graham, 1995).

4.3.1 Heterogeneity of farming

Loan officers in rural areas often lack adequate information about the financial household situation of smallholder farmers. Consequently, the diversity of farming and non-farm income-generation activities is more difficult to deal with in rural areas than in urban areas. This may extend the bank staff's time and expenses needed to carry out the appraisal. It is also likely to increase the costs to train agricultural loan officers (Klein *et al.*, 1999; Meyer *et al.*, 2004). Consequently, the nature of the costs involved in lending to smallholder farmers is complex and they tend to be high.

By implication, smallholder farmers' decision-making when requesting loans from formal banks, Meyer *et al.*, (2004) states that, it will depend more on the proportion of the borrowing costs to the household's income, while financial institutions' willingness to lend to smallholder farmers will depend more on the magnitude of the costs on the institutional side. The making of decisions by these two role players will be reflected in their unwillingness to learn and unwillingness to borrow, rather than by the real demand for agricultural credit. In addition, lending to smallholder farmers is not only costly but also risky. This may also lead to additional factors to be weighted, as far as lending to agriculture is concerned. The following section concerns the specific risks in this respect.

4.3.2 Credit rationing problem

Bester (1985) viewed credit rationing, as when some borrowers receive a loan and others do not, although the latter would be willing to pay even higher interest or to offer an increase in collateral. Spio (2006) viewed credit rationing as a situation whereby demand for commercial loans exceeds the supply of these loans at rates quoted by the banks. In economics and banking, the concept of credit rationing is commonly used to describe a situation when bank limits the supply of loans, even though it has enough funds to loan out, and the supply of loans has not yet equalled the demand of prospective borrowers. According to Jaffee and Russell (1976), credit rationing occurs when lenders quote an interest rate on loans and then proceed to supply a smaller loan size than demanded by the borrowers. Recent literature suggest that there is a great debate about the rationale, mechanism and effects of credit rationing on both borrowers and lenders, because of the interest of various governments and donor agencies to advancing credit to smallholder farmers, micro-enterprises and the rural poor and the asymmetric information characterising most rural credit markets. Information and incentive problems may lead to market imperfections (asymmetric information, moral hazard, and adverse selection) that induce credit rationing (Gonzalez Vega and Graham, 1995). The theory of asymmetric information comes from the discipline that is known as "economics of information". The basic teaching of this discipline as addressed by Akerlof (1970) is that many markets such as labour, finance and insurance, information is asymmetrically distributed and is costly to acquire. Brown, *et al.* (2004) synthesizes that information asymmetry models assume that at least one party to a transaction has more, better or relevant information than others. For example, the problem of

high collateral requirements is one form of pure credit rationing which restricts market access to otherwise creditworthy clients, including smallholder farmers (Pederson and Khitarishvili, 1997). This builds an imbalance of power in transactions, which can sometimes cause the transaction to go awry.

According to Stiglitz (1989), financial contracts include elements that lead to the basic problems of adverse selection and moral hazard. In adverse selection, the ignorant party lacks information while negotiating an agreed understanding of or contract to the transaction, whereas in moral hazard the ignorant party lacks information about the performance of the agreed-upon transaction or lacks the ability to retaliate for a breach of agreement (Aboody and Baruch, 2000; Brown, *et al.,* 2004). On the other hand Manganhele (2010) maintains that market imperfections increase the costs of screening and monitoring borrowers and the costs of enforcing financial contracts, which may lead to credit rationing. They arise when private market participants, acting in self-interest, do not allocate resources efficiently [illegible]-Vega and Graham, 1995). According to Zeller and Sharma (1998), owing to imperfect information problems, commercial banks usually shy away from rural clients' altogether, limiting their services to the urban or peri-urban economy.

In these urban areas Manganhele (2010) proposes that, information on prospective borrowers is less costly to obtain and transaction volumes are larger. In addition, there is little evidence to date that financial institutions in the private sector are willing to invest resources to devise profitable savings and loan services for smallholder farmers in rural areas. Therefore, imperfect and costly information, risks (arising from uncertainties about their income that create borrowers' potential to default), lack of effective contract enforcement and market segmentation in rural credit markets, may also emerge as important explanations for credit rationing (Manganhele, 2010). In turn, these issues worsen the problem of lack of access to credit for smallholder farmers. Report from the study of Schmidt and Kropp (1987) revealed that, the type of financial institution and its policy will often determine access. Where credit duration, terms of payment, required security and the provisions of supplementary services do not fit the needs of the target group, potential borrowers will not apply for credit even where it exists and when they do, they will be denied access.

4.3.3 Risk

Spio (2006) describes risk as a blessing as well as a curse of rural finance. Von Pischke (1994) states that it is risk that motivates lenders' efforts to remain liquid so that payments are honoured on demand and to remain solvent by using profits to build capital. Risk is the important element of finance. Baiyegunhi (2008) suggest that this is illogical because it is risk that unseats systems, institutions and projects that issue excessive credit, risk translates otherwise rational behaviour into forces that depreciate credit contracts and destroys credit institutions. Debtors are unable to pay, creditors are unable to collect or both (Spio, 2006). From (Herath 1996; Barry and Lee, 1983), six sources of risk for an intermediary can be identified, which include:

I. Credit risk from potential delinquency or default by borrowers,
II. Investment risk from capital gains or losses on securities sold before maturity,
III. liquidity risk from possible losses of funding resources,
IV. Cost of funds risk from unanticipated changes in the cost of funds,
V. Financial risk from intermediaries' high financial leverage, and
VI. Regulatory risk from unanticipated changes in the regulatory environment.

One source of credit risk that is more prominent in rural credit markets is information asymmetry. Some scholars in literature (notably, Blinder and Stiglitz, 1983; Herath, 1996) argues that imperfect information about the likelihood of default has several fundamental implications for the nature of credit markets as it gives rise to institutions that specialize in acquiring information about default risk, hence influencing the behaviour of the lender towards its clients. Therefore, it is easy for a lender with superior information to distinguish between good and bad risks. With such superior information, a lender's ability to identify the borrowers with the best investment opportunities improves greatly. Hence lenders can discriminate between borrowers only in very broad terms, and will indiscriminately adopt rational and/or irrational methods to reduce risk when information is poor (Baiyegunhi, 2008). Lenders may raise interest rates charged on loans to cover risk; this approach may lead to adverse selection. It is assumed by Baiyegunhi (2008) that both borrowers and lenders are risk-neutral, and there are two groups of borrowers, safe and risky ones, and the value of output if successful, while the bank is assumed ignorant of the probability of success of the individual borrower projects. Even though it is assumed that the bank is ignorant about the characteristics of each individual project, it does

know the value of the common expected gross returns of the two projects. In the model developed by Stiglitz and Weiss (1981), it is indicated that lender does not use the interest rate as a screening device because changes in interest rate may affect the riskiness of the pool of borrowers. The implicit assumption in literature as also assumed by Baiyegunhi (2008) is that riskier borrowers have access to risky projects with lower probability of success but higher return if they succeed, while safe borrowers have projects with higher probability of success but a lower return. This means that for any class of projects with the same mean gross return but differing risk, the interest rate can be used to determine the riskiness of a project.

4.3.4 Transaction Costs

It has been argued by Baiyegunhi (2008) that, high transaction costs are the major factor discouraging many of the rural poor in developing countries from using formal loans. Transaction costs have clearly influenced on the structure of rural financial markets (Gonzalez-Vega, 1993 and Olomola, 1999) and the behaviour of participants. Spio (2006) suggest that, transaction costs are an appropriate measure of the higher degree of "friction" in the functioning of markets. Transaction cost is inversely proportional to market efficiency. The higher the transaction costs of financial intermediation, the less efficient is the performance of the financial markets, and the more constrained is their contribution to development (Baiyegunhi, 2008). Higher transaction costs limit the services that the financial institutions are willing to provide to the rural poor and their new clients. High transaction costs encountered by clients of financial institutions have been a major obstacle discouraging them from seeking loans and making deposits.

According to Olomola (1999), if rural financial intermediation is to be sustained and expanded, it will largely be dependent on a decrease in transaction costs for both the institutions and their clients. Understandings of how efficiently and equitably rural financial markets are functioning is provided by information on transaction costs. If the clients of rural credit markets are incurring high transaction costs, there is a likelihood that relatively few people are being served by these markets and that the qualities of services provided to clients are poor (Baiyegunhi, 2008). It also an indication that intermediaries are inflicting extensive transaction costs on non-preferred clients, which shows that interest rates are not doing an efficient job of rationing credit.

According to Meyer *et al.* (2004), a decline in total transaction costs is a sign that intermediaries are successfully innovating, that more people have access to financial services and that the quality of services is increasing. According to Adams (1978), the intermediaries can transfer, absorb, or in some cases, increase transaction costs incurred by various classes of individuals through a rationing device, depending on whether they are preferred or non-preferred clients.

2.5 Credit Rationing and Credit Constraint

In spite of the frequent use of the term "credit constraint" in economics literature, Baiyegunhi (2008) states that it is not clear that the term is always employed to refer to the same phenomena. Furthermore, Baiyegunhi (2008) adds that access to credit and participation in a credit program are two distinct concepts, which are often confused to mean the same thing and are often used interchangeably in many studies. Nevertheless, in order to satisfactorily analyze the socioeconomic determinants of both access to credit and participation in credit programmes and to assess their respective impacts on household economic outcomes, a clear distinction between access to credit, participation in credit programmes, and being credit constrained must be made. Access to credit does not imply that the demand for credit will be satisfied. In the opinions of Okurut *et al.* (2004), lenders determine how much credit is allocated based on the probability of loan default, often resulting in credit rationing. The likelihood of default may be influenced by a number of factors that include the expected returns of the project, the terms of the loan, market imperfections and borrower characteristics.

A distinction between access to credit and participation in credit markets has been made by credit market literature, Diagne and Zeller (2001) believes that a household has access to credit from a particular source if it is able to borrow from that source, although it may choose not to borrow for a variety of reasons. This maximum amount a household can borrow is a measure of the extent of access to credit it has and this is its credit limit. A household as it is said by Baiyegunhi (2008) is said to have access if this amount is positive, whereas it participates in the credit market if it actually borrows from that source of credit. From various studies in literature this implies that access to credit can be a constraint externally imposed on the households, while participation in a credit market is a choice made by a farm household. Therefore, in the summary

of Baiyegunhi (2008), a household can have access but may choose not to participate in the credit market for such reasons as expected rate of return of the loan and/or risk consideration.

It is in this regard that Eswaran and Kotwal (1990) argue that a non-participating household that has access to credit will still benefit if the knowledge of access increases its ability to bear risk, as it can be encouraged to experiment with riskier, but potentially high-yielding technology. Deaton (1991) further supports by saying that the ability to borrow will also alleviate the need for accumulation of assets that mainly serve as precautionary savings, yielding poor or negative returns. In Baiyegunhi's (2008) view, when a household lacks access to credit or cannot borrow as much as it wants, it said to be credit constrained. Hayashi (1987) points out that consumers are said to be credit constrained if they face either some quantity constraint on the amount of borrowing or the loan rate available to them is higher than the rate at which they could borrow. However, Duca and Rosenthal (1993) challenges the view that a farm household is credit constrained only when it would like to borro[illegible] lenders allow or if its preferred demand for credit exceeds the amount lenders are willing to supply.

On the other hand Stiglitz and Weiss (1992) describe credit constraints in two terms namely: redlining and credit rationing. Redlining, according to Baiyegunhi (2008) refers to excluding certain observationally distinct groups from credit markets, rather than offering them a contract that require higher interest payments and collateral guarantee. Credit rationing on the other hand is said in literature to refer to a situation in which, among observationally identical borrowers, some get loans and others are denied. In relation to credit constraints Zeller *et al.* (1997) distinguish four groups of farm households. The first, being referred to as voluntary non-borrowers, are those who decline to borrow at will either because they have strong risk aversion and fear of getting into debt or because they are prudent and only would like to consume up to what they earn. Zeller *et al.* (1997) describe the other as being those who want to borrow less than their combined available credit lines from all lenders referred to as non-rationed borrowers. The third one are those rationed borrowers are those who want to borrow more than their available credit limit at a particular point in time. The last type of farm households, Zeller *et al.* (1997) referred to them involuntary non-borrowers, are non-borrowers with no access to credit,

or those who perceive that they are highly unlikely to get credit, so that the perceived borrowing costs outweigh the expected benefits of the loan.

On the supply side Foltz (2004) identified quantity, transaction costs and risks as relevant factors in the existing credit market literature. First, farm households are credit-constrained if they face a binding supply constraint as limited by lenders' considerations (Baiyegunhi, 2008). Second, as lenders may pass on transaction costs associated with screening, monitoring, and enforcing loan contracts to borrowers, as in the case of group lending scheme (Besley and Coate, 1995), farmers with investments profitable when evaluated at the contractual interest rate may not be profitable when transaction costs are factored in. Thus, they may decide not to borrow but remain credit-constrained. Finally, Baiyegunhi (2008) believes that, for households with access to credit, risk may reduce loan demand and hence productivity.

Lenders evaluate creditworthiness of their c[illegible] on observable characteristics Bigsten *et al.* (2003), and extend loans at certain interest rate. This means that borrowers are credit-constrained if, at specific interest rate, they would have liked to borrow larger amount than the lender supplied. In this case, the borrower exhausts this supply and then looks for another lender. However, Baiyegunhi (2008) cautions that the fact that this borrower exhausts its supply from one source, at specific interest rate, makes it a risky borrower for another lender. According to Bell *et al.* (1997) credit markets in developing countries are inefficient due to market imperfections such as interest rate ceilings imposed by governments, monopoly power often exercised by informal lenders large transaction costs incurred by borrowers in loan acquisition, and moral hazard problems. Stiglitz and Weiss (1981) understand that the problem where the lender bears risk of the transaction and the borrower obtains project benefits can be seen as an information problem. The asymmetries of information in credit market in Baiyegunhi's (2008) view imply that first-best credit allocation is not possible, and this leads to the need for partial or full collateral. What rises from this is that, inadequate collateral or lack of it implies that some individuals are denied credit, being otherwise identical to those who have the collateral and obtain the credits. In this context, Banerjee (2001) argues that high-income individuals can borrow large amounts at low costs whereas low-income ones are able to borrow a small amount at high cost. In the opinion of Baiyegunhi (2008) this suggests that income or wealth level of

borrowers has a direct relationship with the amount of available credit and an inverse relationship with cost of credit.

In a study conducted in Ethiopia, Emana *et al.* (2005) noted that lenders may not be allowed legally to charge above certain limits on loans, although informal lenders in practice may do so. Therefore, if the lender is not allowed to charge an interest rate at which the expected return is positive, then there will be credit rationing. Even if allowed to do so, Baiyegunhi (2008) suggests that lenders may be affected by adverse selection and/or incentive problems so that the expected return on a loan may not monotonically increase with interest rate. This may lead to lenders trying to avoid selection and incentive problems by rationing credit. Baiegunhi (2008), generalizes that lenders are generally unwilling to distribute credit based on price alone because of transactions costs and asymmetric information.

According to Baiyegunhi (2008) credit m[illegible]ubject to credit rationing when lenders provide less than they could at the prevailing interest rates and allot credit based on non-price considerations. Some scholars in literature have noted that a potential borrower may be unable to borrow a desired amount, under credit rationing, even if the client is willing to pay the prevailing interest rate. Household is said to be credit constrained when he/she lacks the finance from any source to undertake an investment that is profitable at the prevailing input, factor, and output prices. In the opinion of Baiyegunhi (2008), it is possible for a credit-constrained agent to have access to some credit, but not be able to borrow as much as would be optimal under the given terms and prices or may face terms that are inconsistent in timing and investment. A household with no access to credit and who also has no investment needing finance is not credit constrained, but one with an investment opportunity and lack access to finance may be constrained.

Baiyegunhi (2008) gave two distinct stages that are involved in the credit process. The first constitutes the demand side of the bargain, the household who wants credit decides on the sum to apply for from a particular source at the prevailing market price. On the other side in second stage, the lender makes a financing decision on the loan application; this constitutes the supply side of the bargain. This means that the lender undertakes the screening of the potential client

based on observable characteristics in order to minimize default risk; the results of this screening influences the lender's response to the client's credit demand. Three outcomes can be expected here; firstly, the loan amount demanded by the client may be fully granted by the lender; secondly, the loan amount demanded by the client may be partially granted by the lender and thirdly, the loan application may be completely rejected by the lender. The two last scenarios according to (Zeller, 1994) represent credit constraint; the state in which the borrower is constrained in his/her access to credit markets or is credit rationed by the lender.

What we learn from this is that access to credit does not imply that the demand for credit will be satisfied. It is the lenders who determine how much credit is allocated based on the probability of loan default, often resulting in credit rationing. The probability of default according to Baiyegunhi (2008) may be influenced by a number of factors that include the expected returns of the project, the terms of the loan, market imperfections and borrower characteristics. Kochar (1997) explains that the expected return on the borrower's proposed investment project plays a key role in influencing the lender's credit rationing behavior. The interest rate plays the role of a screening device in this case. If the expected return is less than the principal loan amount plus interest, then the probability of default will be high. In such a scenario, the optimal lender's decision will be either to ration the borrower by granting a smaller amount than originally applied for or to reject completely the loan application.

Baiyegunhi (2008) reports that the specific borrower characteristics that influence the informal lenders' credit rationing behaviour include strength of previous business relationships, reputation in the market, and acceptance of interlinked credit contracts, debt-service capacity and wealth status. Aleem (1990) declares that informal lenders mainly use the established relationship with borrowers as a screening and credit rationing mechanism. The longer the previous business relationship, the lower will be the probability of the borrower being credit rationed mainly because, it takes so long to build a relationship with formal lenders, borrowers tend to stick to particular informal lenders so as to avoid the long screening process and high probability of loan applications being rejected by new lenders (Bell, 1990).

The theoretical background above shows that credit market failures give rise to heterogeneous resource allocation and different outcomes among farm households with varying characteristics.

That is to say, a farm household that faces a binding credit constraint, when all other factors are held constant, will misallocate its resources and under-invest compared to its unconstrained peer. Availability of finance and its accessibility crucially affect production start-up and subsequent performances of the households. Barriers to access adequate loans will have adverse effect on household welfare (Aleem, 1990). Increased welfare output following improved access to credit is therefore evidence of binding credit constraint.

2.6 Measuring Access to Credit and Credit Constraints

In credit literature there are two methodologies for measuring household access to credit and credit constraints. The first one as noted by Baiyegunhi (2008), being the indirect method which detects the presence of credit constraints from violations of the assumptions of the life cycle or permanent income hypothesis, while the second involves the collection of information directly from household surveys on whether households perceive themselves to be credit constrained.

4.3.5 Detection of Credit Constraints [illegible] Violation of Life-Cycle Hypothesis

One of the testable implications of the simple version of the life-cycle/permanent income hypothesis (LC/PIH) in Deaton (1992) is that in the absence of liquidity and borrowing constraints, transitory income shocks should not affect consumption. According to Baiyegunhi (2008) empirical models use household consumption and income data to look for a significant dependence of consumption on transitory income to test for the presence of credit constraints based on the life-cycle/permanent income or "consumption-smoothing" hypotheses. Empirical evidence of a significant dependence is taken as an indication of a borrowing or liquidity constraint. Based on empirical evidence on the LC/PIH approach, Baiyegunhi (2008) argues that it is inconclusive in general. Baiyegunhi (2008) supports his argument by stating that the first reason that often comes to mind is to think that this is because empirical testing of the implications of the LC/PIH requires repeated observations on the same household, whereas most of the studies are based on relatively short panels. However, there are more fundamental reasons why the evidence from the LC/PIH approach for detecting credit constraint has been inconclusive.

First and possibly the most important violation of the implications of the LC/PIH can result from prudent or precautionary behaviour, under condition of uncertainty, even if the household is not

credit constrained (Kimball, 1990; Carroll, 1991). Some scholars (notably, Deaton 1991; Paxson 1992) have extended the standard lifecycle model to clearly incorporate both liquidity constraints and precautionary behaviour, and assess through either simulation or empirical testing the importance of each effect. However, due to identification problems to separate the effects of credit constraints and precautionary behaviour from the type of income, consumption, and asset data typically available for these studies would be practically impossible (Browning and Lursardi 1996). Secondly, according to Carroll (1991), if conditions of uncertainty are correlated with wealth, then even in the absence of borrowing constraints, current income will be negatively correlated with consumption growth. In addition, as Deaton (1991) clearly points out, the initial asset position of households is a major determinant of the effects of negative income shocks on consumption. Browning and Lusardi (1996) has outlined several other reasons why even without a credit constraint the implications of the LC/PIH may be violated. Furthermore, from the simulation results of Deaton (1991), there is an important insight that a credit-constrained household may still be able to smooth consumption through precautionary saving and therefore not violate any implication of the LC/PIH. For this reason, it is possible to conclude that the violation of an implication of the LC/PIH is neither a sufficient nor a necessary condition for being credit constrained.

4.3.6 Detection of Credit Constraints by directly asking households

On the other hand, the second method is mostly used in empirical studies for detecting the presence of credit constraint using information obtained directly from household members on their participation and experiences in the credit market to determine whether they are credit constrained or not. In practice, several qualitative questions regarding household loans applications and rejections during a given recall period are asked and households based on their responses are classified as credit constrained or not (Baiyegunhi, 2008). This classification is then used to analyze the determinants of the likelihood of a household being credit constrained and the effects of this likelihood on various household outcomes in reduced form regression equations.

Examples of this approach known as the direct elicitation methodology (DEM) include Foltz (2004) who evaluates the impact of credit constraints on farm profit in Tunisia; and Carter and

Olinto (2003) who examines the impact of credit constraints on investment level in Paraguay. This method was first used by Jappelli (1990) with data from the United States 1983 Survey of Consumer Finances. Feder *et al.* (1990) using data from a household survey in China also employed this method.

2.7 Conclusion

In light of the literature provided, it is evident that access to agricultural support services including credit remains the major factor constraining the growth of small-scale agriculture in South Africa, most especially in the former homelands. Furthermore, access to credit coupled with preexisting inherent characteristics of some credit users increases the productivity of small-scale farmers. Farmer's traits such as, better education, off-farm activities, and access to a network of information are positively and significantly influencing the probability of access to credit. It is also evident that financial institutions distance themselves with serving small-scale farmers due to risk and costs implications associated with serving this category of farmers. Access to credit can facilitate levels of inputs closer to their potential levels when capital is not a constraint. Provision of production credit can, therefore, lead to higher levels of output per farm and yield given fixed resources such as land.

CHAPTER 3

CREDIT AND RURAL FINANCIAL SYSTEMS

3.1 Introduction

This chapter focuses on the credit and rural financial systems which are also characterized by the same inequitable nature as the agricultural sector. In this chapter the range of credit options reviewed include commercial financial and credit institutions, micro-credit schemes, credit unions, the structure of the market for agricultural and rural financial services, market failure problems in rural financial market, state-led rural finance, rotating credit and savings associations, moneylenders, self-finance, loan targeting and strategies to address default and loan repayments. This chapter ends by giving government interventions to improve access to credit.

3.2 Commercial financial and credit

Coetzee *et al.* (1996) divide South African rural society into four main categories, each requiring different systems of financial service provision. These are large-scale commercial farmers (who normally have sufficient collateral and are generally serviced by commercial banks), small-scale commercial farmers (who generally have some collateral but not sufficient amounts to make them a viable investment for commercial banks), the bankable poor and the non-bankable poor. In the view of Weideman (2004), the bankable poor include subsistence farmers whose financial needs are generally serviced by informal lending practices characterised by small amounts and high interest rates. Weideman (2004) further states that the non-bankable poor have no collateral and include the landless and impoverished female farmers. In the general view of Weideman (2004) the author generalizes that formal financial institutions are unlikely to provide credit to the latter two categories.

The unwillingness of commercial banks to embark on rural credit programmes might be because of the particular difficulties encountered in rural financial markets. These, in the explanation of Adams and Vogel (1986) include the difficulty of serving clients who are widely dispersed, administrating a large number of relatively small transactions and operating in an industry (agriculture) that experiences unanticipated changes in prices, incomes and yields. Weideman

(2004) included other problems (particularly in developing countries) which includes poorly developed legal systems and information infrastructure, high transaction costs, lack of (or poor) credit and financial records of potential borrowers and collateral that is not secure.

For example, in Guatemala Barham *et al.* (1996) mentioned that commercial banks in rural areas operate according to a centralized credit review process, "which relies primarily on quantifiable, comparable information provided by loan applications, evaluations of collateral, enterprise records, project viability and individual credit records". Barham *et al.* (1996) acknowledge the limits this costly review process imposes on their capacity to make loans to lower wealth producers. Furthermore, Weideman (2004) synthesizes that since adversities in rural areas tend to affect a large number of households at the same time, it is difficult for banks to diversify lending portfolios to cushion economic shocks. Coetzee *et al.* (1996) gave explanation that specialization in rural areas in a few economic activities linked to agriculture expose rural clients to the vagaries of the climate, pests, diseases etc., and leading to co-variance in their incomes. Additionally, the seasonal nature of agricultural production results in expensive and administratively difficult fluctuations in the demand for credit and deposit services. Weideman (2004) admits that, the poorest sectors of rural societies also tend to be excluded from access to commercial bank loans because they do not have access to the collateral required to qualify for loans.

According to Letsoalo (1987), the collateral requirement for credit is seen by some as a method of redistributing income in favour of those who already own sufficient resources. The 1997 United Nations World Development Report estimated that only 0.2% of global commercial lending reaches the poorest billion (20% of the worlds' population) (Muhumuza, 2002). Buckley's (1997) stance is that research undertaken on micro-entrepreneurs in the informal sector in Kenya, Malawi and Ghana, further indicated that although many survey respondents had a relationship with the formal financial sector, this was nearly always in terms of savings deposits and not in terms of credit. The incidence of formalized credit was very low in all three countries. Buckley (1997) provides evidence that among the Kibera sub-sample in Kenya, for example, 96% of respondents had never applied for a loan from a commercial bank, usually because they had neither the skills nor the collateral to be taken seriously. None of the respondents in Malawi had obtained commercial bank loans.

Apart from collateral, Barham *et al.* (1996) noted that commercial banks also operated with other "wealth biases" that included the fact that these institutions often had better knowledge of, access to, and relationships with, wealthier borrowers. In various countries, governments have attempted to encourage commercial banks to operate in rural areas but these policies have not been very successful. In India and Bangladesh, Weideman (2004) states that commercial banks are forced to open a certain number of rural branches before they can open additional, more profitable, urban branches. However, in Vietnam, the Philippines and Ghana, government funds have been used to induce the formation of private rural banks. Banks have responded to government pressure in Adams and Vogel's (1986) view by building token offices in rural areas, which are either hardly operational or, which offer only a limited range of services.

In South Africa however, in response to recommendations made by the Strauss Commission, in September 1996, (i.e. to provide "appropriate financial services" to "release South African creativity" in rural areas as a "strategy for unlocking" the "development potential" of rural areas) Weideman (2004) noted that the Land Bank has expanded its rural branch network from 25 branches in 1997, to 80 outlets in 2003. In spite of the relative absence of commercial banks in rural areas, and the inability of these institutions to provide viable credit options to the poorest members of rural society, Buckley (1997) mentioned that the number of respondents (in the Ghana, Kenya and Malawi study) with bank accounts, however, was surprisingly high – in Kenya, 88% of respondents in the regional survey had bank accounts (savings/ current accounts). The figures for Ghana were similar, while the number of account holders in Malawi was significantly lower. These accounts tended to be dormant or had very negligible sums in them. According to Buckley (1997), what this prevalence of savings/ current accounts suggests, is that although formal banking institutions "are averse to extending credit" to the rural poor, formal banking institutions can effectively extend deposit facilities to the rural poor.

3.3 Micro-credit Schemes

Rahman (1999) is of the view that micro-credit schemes extend small, collateral free loans to poor members of rural societies in an attempt to promote self-employment and income generation. During the 1990s, Muhumuza (2002) noted that the micro-finance programmes increased numerically as a result of perceived successes (mostly in Asia and Latin America) in providing the rural poor with access to credit. By 1997, 8 million poor people in developing

countries were being served by micro-credit programmes (Muhumuza, 2002). The association of micro lenders reports that micro-financing industry also appears to be playing a stronger role "in the social and economic empowerment of the poor and disadvantaged" micro-financiers have "played an enormous role in making millions of people part of the growing South Africa". Furthermore, the South African Land and Agricultural Bank has developed a micro-credit scheme, primarily to provide credit to impoverished women (Dolny, 2001). The Land Bank micro-credit programme, named "Step-up", provides small loans to individuals who require credit for small-scale operations such as vegetable gardens, and can be regarded as successful (Dolny, 2001). In 1998, 70% of the 32 000 Step-up clients were women (Land bank, 1998), and the repayment rate in 1999 was 87% (Land bank, 1999).

By 2003, the Step-up" programme had made more than R300 million available to approximately 130 000 borrowers "who were previously regarded as unbankable" (Land bank, 2003). Nevertheless, Rahman's (1999) study, on the success of the micro-credit programme of the Grameen bank in Bangladesh, indicates that micro-credit schemes can lead to increases in the debt liability of individual households and increased tension within households and consequently, increased violence against women. Rahman (1999) also provides evidence from Bangladesh and elsewhere, which indicates that the interest rates of micro-credit schemes are significantly higher (approximately 8% in Bangladesh) than commercial market rates. This discrepancy in results according to Weideman (2004) can, in part, be explained by the criteria for success employed in assessing micro-credit schemes.

Generally, micro-credit schemes are deemed successful if repayment rates are high. Repayment rates, however, do not reflect whether credit was used to meet household consumption needs or for productive purposes and does not take account of the manner in which funds for repayment are obtained (Weideman, 2004). Rahman's (1999) study, for example, provides evidence that individual members of households are sometimes forced into low-paying wage labour or, forced to obtain loans from other credit intermediaries (e.g. moneylenders) to pay back loans. In South Africa, the Micro-Finance Regulatory Council has made several attempts to regulate the micro-lending industry. In 2001, the Micro-Finance Regulatory Council established the National Loans Register and, in June 2002 introduced a rule to prohibit "reckless lending" (i.e. lending that exceed borrowers capacity to repay), and to curb increasing "over-indebtedness". In terms of the

National Loans Register, micro-lenders are compelled to submit all loans to the National Loans Register, thereby building-up a database of micro-loans. Many of the most successful micro-credit programmes have been built on extensive donor finance and Weideman (2004) warns that this raises questions around future sustainability.

3.4 Credit Unions

According to Weideman (2004) the success of agricultural/rural credit programmes depends, in part, on whether poorer producers or households gain access to credit. Barham *et al.* (1996) collected survey data from 950 small-scale producer households, in areas of Guatemala in which market-orientated credit unions operate, in order to assess whether credit unions provide the poor with better access to credit than private or commercial banks. As a result of financial market liberalization policies, Barham *et al.* (1996) states that state support for and involvement in credit services have been systematically reduced in Guatemala and, has resulted in the emergence of arguably more efficient financial systems and services, for example, credit unions. Barham *et al.* (1996) argues that, credit unions are of special interest, because they can be effective full-service intermediaries, which offer savings opportunities, make loans and provide other financial services to members.

Savings mobilization should contribute to lower default rates, since depositors' interests are directly tied to repayment rates. Credit unions, which operate locally, will also be able to overcome the information problems experienced by private banking institutions. In the Guatemalan credit unions, Barham *et al.* (1996) extrapolates that loan applications are reviewed locally by a committee made up of union members who tend to have considerable knowledge of the risks and potential associated with individual applicants. For the same reasons and, because these unions operate within a community context, credit unions can be more efficient in monitoring and enforcing loan contracts.

Better information also means lower transactions costs and greater overall efficiency. The local nature of credit unions also implies a greater level of participation in decision making and management for members and potential members, which enhances the legitimacy of these institutions. On the other hand, Weideman (2004) synthesizes that the small areas in which credit unions operate coupled with the risks associated with lending in the agricultural sector means

that economic shocks such as crop failure due to bad weather, could lead to widespread loan default and deposit runs that can undermine the credibility and sustainability of these organizations. Barham *et al.* (1996) found that credit unions tend to relax credit constraints so that poorer households have better access to credit from credit unions than from commercial banks but, that the poorest households are still excluded from access to credit. . Clearly, other types of finance or financial systems need to be developed if the poorest sectors of rural society are going to gain access to sufficient credit to enhance production and/or generate income and, thereby, improve their living conditions (Barham *et al.,* 1996).

3.5 Market failure problems in rural financial markets

According to Baydas *et al.* (1994) credit markets are characterized by imperfect information that disables interest rates from playing their classical market-clearing role. Information asymmetry in credit markets arises because borrowers have better information about their potential risk of default than the lenders (Aleem, 1990). This asymmetry is compounded in informal credit markets by the fact that the credit histories of borrowers are not documented and pooled. The costs of acquiring this information are very high, in terms of both time and financial resources. According to Besley (1994), market failures occur when a competitive market fails to bring about efficient credit markets. The functioning of the latter is based on supply and demand forces. In the opinion of Manganhele (2010), the reality in the developing world is that there are many mismatches between potential demand and supply of financial services, which makes the exact source of market failures vague when they occur. In addition, "evidence on what is affecting households' and firms' access to financial services across countries is limited" (Claessens, 2005).

In Mozambique, Bertelsmann Transformation Index (2006) states that the situation seems to be more related to market failures than lack of demand. In other cases, the lack of access to credit may be an indication of a country requiring a certain overall level of development before more universal access to credit can be viably defended (Sebopetji, 2008). In the opinion of Claessens (2005), when demand exists and the environment is sufficiently competitive, banks can be expected to extend access to credit to include a larger variety of clients, including serving poor smallholder farmers and firms who are currently considered to be high-risk and too high-cost propositions.

Stiglitz (1989) argues that the reality in the developing world is that markets are very often imperfect and when markets are imperfect, both imperfect competition and imperfect information exist. In this case, simplistic models (perfect competition and perfect information) are no longer valid. Instead of the operation of credit markets being based on the supply and demand principle, Manganhele (2010) suggest that there is a need for more realistic theories of labour and financial markets that provide explanations for the existence of unemployment and why those most in need of credit, particularly smallholder farmers, often cannot obtain it. Gonzalez and Graham (1995) add that, in developing countries, information, contract enforcement problems and incentives tend to be particularly acute when an attempt is made to lend to the poor, particularly in the rural areas. Efforts by governments in many developing countries aiming to partially resolve market failure problems where undertaken. For example, over the past two decades, most African governments have carried out reforms to deregulate agricultural markets and reduce the role of state enterprises. Despite that reforms have had many favorable results; their effect has b[illegible] by partial implementation and structural constraints" (Manganhele, 2010). Therefore, with non-well-functioning markets, it would be difficult to achieve the goals desired (Jama and Pizarro, n.d.).

3.6 Governments and rural finance

Since formal financial institutions are unlikely to provide for the needs of the bankable and non-bankable poor and as a result of the persistent failure of market-based credit programmes, many governments have taken over the function of credit provision to poorer sectors of society (Weideman, 2004). Notable examples include Kenya, Brazil, Taiwan and the Philippines. State credit provision (or intervention in financial systems) includes loan targeting, direct loans to farmers (often through parastatals or government agencies) and bank nationalization. Weideman (2004) further states that state intervention in the provision of credit has not been particularly successful either. Scholars have argued that state-owned or directed financial institutions lack accountability, foster arbitrary practices and allocate credit more on political than economic grounds (Muhumuza, 2001). In Weideman's (2004) view, governments/government agencies often lack the capacity to implement effective credit programmes.

In Kenya, studies show that overworked staff members of the Agricultural Finance Corporation were unable to access individuals in the more remote rural areas. In the Philippines, the obstacle

was resource constraints. The Taiwanese rural financial system, on the other hand, was hardly affected by capacity constraints because of the focus on deposit mobilization and the large number of institutions involved in credit provision. These included the Land Bank, the Farmers' Bank, the Cooperative Bank, a number of commercial banks, savings companies and farmers' and fishermen's associations that provided 40% of the necessary funds (Adams and Vogel, 1986). In Weideman's (2004) view, part of the answer may lie in government support for small-scale Non-Government Organisation and CBO based credit provision systems. In India and Thailand, farmers receive direct government loans through public or semi-public institutions (Adams and Vogel, 1986).

A number of developing countries have nationalised some or all of their commercial banks. These include Costa Rica, Mexico, India, Pakistan, Sudan and Bangladesh. Weideman's (2004) noted that nationalised banks have been effective in increasing the number of bank branches in rural areas. However, Adams and Vogel, (1986) cautions that it is less clear if nationalised banks are more effective than other financial intermediaries in increasing the financial services available to the rural poor, in increasing the amounts of medium and long-term loans for farmers, in providing attractive deposit services, in lowering transactions costs associated with financial intermediation and in creating rural financial institutions that are innovative and self-sustaining. This caution is supported by the findings in Costa Rica, for example, which shows that the nationalised bank performance appears to be no better than that of the other developing countries where banks have not been nationalised (Adams and Vogel, 1986). Nevertheless, in many cases, direct state intervention or assistance may be the only means to provide the poorest sectors of society with access to credit. In this respect, Molino (1997) argues that state provision of rural credit must meet a number of criteria for sustainability and success. These include: beneficiary participation in policy formulation, practical policies that are easy to implement, access to the necessary capacity, clear policy parameters and rules relating to default and a sound land price and market system (Molino, 1997).

3.7 Rotating credit and savings associations

Rotating savings and credit associations emerge in the absence of formal credit institutions or in cases where the poor are unable to access credit from other formal and informal credit institutions and intermediaries. According to Muhumuza (2001) these associations provide credit

on a more impersonal level than credit from friends and relatives but at lower interest rates than, for example, moneylenders. Rotating savings and credit associations are relatively small, self-sufficient and voluntary-based organisations where members contribute fixed sums of money at fixed intervals to a collective pool. The total amount is then paid to individual members on a rotational basis. Members of rotational credit and savings associations are therefore either creditors or debtors, depending on their position in the cycle. Buckley (1997) found that rotating savings and credit associations were a common source of enterprise finance for micro-entrepreneurs in Malawi, Kenya and Ghana. In fact, over half of the micro-entrepreneurs that participated in Buckley's survey where members of Rotating savings and credit associations. The reasons for the popularity of these associations according to Buckley (1997) are varied. Firstly, because members of credit and savings associations are not accountable to the associations for use of funds - i.e. they are free to use their money as they wish. Secondly, because transaction costs are low and interest rates are low or absent.

Rotating savings and credit associations are not only a popular but also an efficient, source of finance. The fact that potential beneficiaries play an active role in the establishment and management of these institutions can, in part, explain the success of credit associations. Since members of associations tend to know each other, these associations in the view of Muhumuza (2001) are not plagued by the same risks (related to information constraints) as commercial banks. For the same reasons (easy access to information about members, the ability to screen members with a lot of precision as well as, monitoring and peer pressure by other members) Muhumuza (2001), members of associations are less likely to default.

These associations, by definition, have simple and transparent management systems. Meetings are regular and members participate freely and records are simple and understandable. The procedures for accessing loans were also simple and transparent. These associations were also flexible and occasionally rescheduled loans depending on circumstances where the borrower was unable to repay on time (Weideman, 2004). Money is available within a week. It is therefore evident that the success and strengths of these associations is built on the easy accessibility of information about members, simplicity and transparency of the institutions, high levels of participation, and simple procedures. There is also peer pressure to repay or to make the monthly contributions" (Muhumuza, 2001). Muhumuza's study of six credit associations in Uganda

revealed that these associations improved the welfare (social and economic) of members. According to Weideman (2004) membership of Rotating savings and credit associations translated into increased political influence and access to substantial funding, which could be invested in income generating projects, including agriculture.

With regard to household welfare, respondents said that the nutrition of children as well as, the ability to pay school and medical fees had improved since joining the associations. Respondents also indicated that they were able to accumulate assets such as land, animals and equipment. In addition, leadership skills were developed and, in some cases, participation in associations had empowered women and enhanced their status in society (Muhumuza, 2001). Although membership in rotating savings and credit associations have clear economic and social benefits, these associations are not likely to address problems such as structurally entrenched poverty or transform economic power relations in rural societies. These associations are affected by severe capacity constraints and can only provide limited resources and, as such, are "coping mechanisms" rather than "permanent solutions" to poverty (Muhumuza, 2001). The reason is that the total amount of resources available to a community does not increase significantly, even if payments are invested in income generating projects or capital accumulation.

3.8 Money lenders

According to Buckley (1997) moneylenders are able to disburse short-term loans (at high interest rates) significantly faster than institutions do. Therefore, moneylenders are generally considered to be an important source of finance for the rural poor. Yet, empirical evidence indicates that moneylenders are only used as a last resort – largely because of the stigmatised nature of money lending. Moneylender use was not prevalent among micro-entrepreneurs in Kenya, Malawi or Ghana (Buckely, 1997). In cases where individuals did obtain loans from moneylenders, Buckely (1997) states that, it was for consumption and/or distress purposes and not for productive purposes.

In a study of 950 small-scale producer household areas in Guatemala, Barham *et al.,* (1996) found that moneylender's are generally viewed by borrowers as lenders of last resort, or for short-term loans at high contract rates but with low transaction costs, rather than as lenders of first resort for productive loans. Like many other credit intermediaries, moneylenders provide

loans only to individuals with some form of security, hence excluding the poorest members of society from access to credit. On the other hand, Weideman (2004) argues that it is normally the poorer sectors of rural communities who borrow from moneylenders, at often exorbitant rates of interest, because they cannot access credit on more reasonable terms from other credit institutions or intermediaries. Hence, the lack of regulation leaves those who access credit through moneylenders open to exploitation. Furthermore, empirical evidence suggests that moneylenders are also affected by capacity constraints that limit their ability to lend to more than a small group of individuals (Weideman, 2004). In Barham's *et al.* (1996) view the informational problems and transaction costs are likely to rise as soon as moneylenders expand their scope of activity, hence negating the informational advantages they enjoy relative to formal institutions.

3.9 Self-finance

In many cases, agricultural development has taken place without access to formal credit institutions. In the absence of effective formal credit systems, Buckeley (1997) reports that self-financing played a crucial role in agricultural development in Kenya. In literature it is stated that agricultural sectors of developing countries, private informal sources of credit tend to be the most prevalent, with relatives and close neighbours dominating in the extension of credit. Buckley's (1997) research among micro-entrepreneurs in the informal sector in Kenya, Malawi and Ghana indicated that a common source of enterprise finance was from family and friends, while the major source of finance was self-generated funds (self-generated funds mean any funds that are not borrowed from lending institutions). Buckley (1997) also points out that extending credit to those who are unable to generate own resources may not solve problems relating to poverty, income generation or employment, since those who are unable to generate self-finance have already "distinguished themselves as less entrepreneurial". Weideman, (2004) argues that it might be more cost-effective to improve supporting infrastructure (marketing facilities, roads and input supply networks) and have farmers/rural entrepreneurs supply their own seasonal/start-up finance.

3.10 Tenure security

It is has been argued in studies that access to credit is dependent on land ownership. Weideman (2004) concludes that this is certainly true with regard to South African credit institutions that remain tied to the requirement of land as collateral for loans. This argument has also often been a

primary motivation for conversion to freehold tenure systems. However, international evidence suggests that land ownership is not a sufficient condition for access to credit. Firstly, Weideman (2004) argues that commercial banks hesitate to lend to small-scale farmers and the rural poor for a variety of reasons. According to Bruce (1993) banks consider factors, such as savings records and access to viable income streams, other than from farming, when they consider whether to lend to small-scale farmers. What has emerged clearly from the redistribution programme, in an example given by Weideman (2004), is the fact that banks are not keen to go into ventures with Communal Property Associations. This statement is further supported by Lyne and Lima rural development foundation (1998) who suggested that communally owned land can hardly be used as collateral because banks look beyond the value of collateral pledged by the trust – they are concerned with quality of management and ability to control co-owned resources. Furthermore, Bruce (1993) confirms that banks look for larger opportunities in which administrative costs are low in proportion to the size of the loans and in which capital can be recovered much faster.

The Land Redistribution for Agricultural Development Programme arguably introduced a shift in the government's thinking and implementation of land redistribution, placing far more emphasis on the development of a class of black commercial farmers. Conversion to freehold tenure in Kenya, also did not increase access to credit. Shipton (1992) synthesizes that this failure was the result of the fact that new landowners were not willing to risk losing their land by mortgaging it. Land in Kenya (and in many African communities), has a cultural and religious significance (i.e. linked to the presence of ancestors), which discourages land mortgaging.

Furthermore, conversion to freehold tenure and collateral requirements could deprive small-scale farmers and the rural poor of their land. Land may be lost to debtors or sold in emergencies (Weideman, 2004). The 1997 White Paper on land reform, for example, argues that one of the advantages of communal tenure is that land cannot be sold in emergencies or foreclosed for debt. In the Eastern Cape, a number of farmers have been offered land title but are not willing to take it. The farmers have built up a combined debt of R20 million with the Ciskei Agricultural Bank and fear that they will lose their land to their debtors as soon as they receive ownership rights (Kretzman, 2001)

3.11 Government interventions to improve access to credit

The formation of parastatal institutions with a mandate to channel credit to smallholder farmers is one of the approaches used by governments in developing countries to promote smallholder agricultural development (Machethe, 2004). According to Kirsten (2006), prior to the first exemption notice issued in 1992, much of South African population people have been excluded from formal banking systems, and do not have legal access to formal credit. The Usury Act, according to Baiyegunhi (2008) limited pricing and effectively restricted the product offering in the market. As the government has taken a market-based approach for policy, the government has done more to facilitate and regulate rather than provide direct financial services (Kirsten, 2006). These policies which are in line with the capitalist neoliberal policies, which move the responsibility to the individual rather than to the government, while aiming at increasing lending for small businesses has not actually provided formal sector jobs (Akpan, 2005).

The government has wholesale financiers like Khula, which fund and start up the microfinance organizations. Khula offer guarantee products to registered commercial banks and other private sector financial institutions with a risk sharing arrangement so Khula assumes some risk associated with lending to the small, medium and micro enterprises (SMME) community. Micro Finance Institutions (MFI) then must use their own minimum standards for loans, with over R165 million having been channelled to SMMEs (Rogerson, 2004). These MFIs target historically disadvantaged communities, particularly women and semi-urban areas, with over 70 per cent of loans given to women to help them start small businesses or expand existing ones (Akpan, 2005). Khula has received a lot of criticism because they have not built capacity or expanded outreach (Akpan, 2005; Rogerson, 2004). In 2005, the government created the South African Microfinance Apex Fund (SAMAF) to replace Khula, with the mandate to address poverty and unemployment through the provision of affordable access to financial services, institutional and client capacity building and savings mobilization through co-operatives and other indigenous formations such as burial societies and Stokvels. The failure of Khula is an example of how lending may not be effective without structural change. Furthermore, the Land Bank and the Agricultural Credit Board were established to serve commercial farmers, while parastatals were established in the former homelands to serve smallholder farmers (Sebopetji,

2008). The collapse of such parastatals resulted in smallholder farmers without access to credit services (Sebopetji, 2008).

At the same time, the land Bank's mandate was broadened to accommodate those previously excluded from its service (DBSA, 2005). The Land Bank in its annual report in 2004 reported that the loan amount granted for development farmers grew by 5.3% from R1 041 billion to 1 096 billion, 10 confirming the great progress made by the bank in carrying out its mandate of improving access to finance by resource-poor farmers, and on the other hand continuing to serve the commercial farmers (Land bank, 2004). The realization of insufficient progress made to improving access to credit for smallholder farmers prompted the government to establish the Micro-Agricultural Finance Institutions of South Africa (MAFISA) (DBSA, 2005). The Scheme is supposed to address credit needs of smallholder farmers while the Land Bank concentrate on lending to established commercial farmers (AGRITOV, 2006). The MAFISA pilot project is currently (2015) underway in three provinces, namely, Limpopo in Ga-Sekhukhune District Municipality, KwaZulu-Natal in Umkhanyagude District Municipality and the Eastern Cape in O.R Tambo District Municipality.

The launch of MAFISA pilot project is a great initiative by the South African government as its objectives are (NDA, 2006):

- ✓ To test delivery systems and channels,
- ✓ To identify problem areas for solution prior to full roll-out,
- ✓ To determine the acceptability of terms in the market and
- ✓ To obtain information on performance for future business case projections.

Despite mobilization of deposits and insurance services being important Besley, (1994) states that rural credit still plays a more significant role in promoting rural development in many developing countries. Manganhele (2010) reveals that experience in many developing countries demonstrates that access to credit could accelerate the adoption of new technology. Such access can stimulate agricultural production through increased farm output and improved rural income distribution (Klein *et al.,* 1999). Land Bank also provides credit, mostly to commercial farmers. However, Sebopetji (2008) states that small holder farmers are reluctant to get credit from the

Land Bank, since paperwork and guarantees are clearly oriented for commercial activities. In relation to this issue government interventions on increasing access to credit, Manganhele (2010) noted that in Mozambique, the financial sector is still underdeveloped with banks operating only in urban areas and almost no formal credit institutions exist in the rural areas. For this reason, the provision of many of the financial services (deposits, insurance, credit, etc.) in rural areas is limited (MRFSP, 2003). Most commercial banks are wary about lending to smallholder farmers in Mozambique (Bertelsmann Transformation Index, 2006).

3.12 Evidence from literature

Empirical evidence from literature suggests that household access to financial services both in the formal and informal sectors is influenced by institutional factors, product features and household socio-economic characteristics. When looking at the institutional perspective, the location of the lender and its conditions for credit allocation greatly influence the probability of access. In a study by Porteous (2003) in South Africa he observed that access to formal financial services in tends to be limited to salaried workers, therefore, excluding the poor, unemployed, self-employed and informally employed. This is attributed to the fact that most banks demand a pay slip as a pre-condition for account opening. Dallimore and Mgimeti (2003) also showed that long distances and high transportation cost constrained the poor rural household's access to formal financial services mainly located in urban areas.

Larson *et al.* (1994) argues that borrowers choose informal financial services because of easy access, variable loan size, flexible repayment schedule, personal guarantees, convenience and very short period needed to obtain loan approval. Rahji and Adeoti (2010) identified the determinants influencing Commercial banks decision to ration agricultural credit in South-Western, Nigeria. Data for the analysis were sourced from the agricultural credit transactions of the banks. Evidence, from the estimated logit model indicated that farm size of the farmers; previous year's income, enterprises type, household net worth and level of household agricultural commercialization are significant but negative factors influencing the banks decision to ration credit. Higher values of these factors decrease the probability that the borrowers will be credited rationed. The number of dependents in the household has a positive significant impact on the probability of being credit constrained by the banks. Hence higher values of this variable increase the likelihood of being credit rationed.

The results also indicate that the larger the magnitude of the coefficient estimated, the bigger is its impacts on the odds of being credit-ration per unit change in its variable (Salami and Arowomo, 2013). Other study by Yegoh and Kimeli (2013) in Kenya observed that: education, land size, security, age, gender, land owner, income, apply loan, repayment, interest, farming's and maize yield, were significant predictors of accessibility to credit. This study further indicated that access to agricultural credit is influenced by private land ownership, since they have sole ownership hence full rights to use or commit the collaterals they have in order to obtain credit. Kgowedi *et al.* (2002) studied the factors distinguishing the choice of moneylenders and non-money lender and found that age, level of occupation, and marital status are important determinants for the choice between the financial services of moneylenders and non-moneylenders.

The study also found that income influences the choice of a moneylender. Coetzee (2007) points out that a preferable approach in ensuring the availability of efficient rural finance services (including saving) rather than extending credit to finance exclusively agricultural production is a preferred approach when rural development is pursued. Emenuga (2004) argues that the establishment of efficient forms of rural financing is a vital aspect of rural development. Bradford *et al.* (1996) have identified loan size and quantity rationing, and the interest rate charged to be the effects of collateral on credit availability and there is ample support for this assertion. In a study conducted in India by Binswanger *et al.* (1993), the result showed that the probability of obtaining loans from lenders was determined by the amount and the form of the client's assets that have high collateral value, and by his personal characteristics. The likelihood of getting better loan terms and a larger loan size was influenced by increases in the client's wealth.

In a study of rural credit accessibility in Northern Nicaragua, Vaessen (2001) reported that both institutional and household level characteristics influence access to credit. On the institutional level, the target group the selection criteria of clients, the geographical area of operation, and the features of financial products to be provided to address sustainability concerns, all which influence credit availability are important factors which lenders based their decision on. At the household level, being part of the target group or living within the targeted geographical area also influences credit access. The results from the logit regression showed that education level,

off-farm activities, and access to a network of information and recommendation are all positively and significantly influencing the probability of access to credit. Bell *et al.* (1997) noted that interlinked credit contracts and visible household assets have a positive and significant influence on the amount of credit supplied by informal credit agents, while Baydas *et al.* (1994) in a different study observed that interest rates, loan period, business profits, and education level had a positive and significant influence on the amount of informal credit supplied.

Access to credit from the Gambian Co-operative according to Zeller *et al.* (1994) was influenced positively and significantly by age and household income, while being female had a negative and significant effect. This result implies that an older person who had control of household resources is likely to be rated to be more creditworthy, while women were discriminated against in the credit market. In the view of Daniels (2001), collateral requirements are a major determinant of household access to credit especially in the formal sector. He observed that the low levels of collateral among the poor, largely, explained their limited access to financial instruments in the formal financial market.

In studies conducted by Manganhele (1999) in Mozambique and in Tanzania by Mohamed (2003), managed to establish six common important factors, these factors included terms of credit and conditions, years of formal education, age, gender, income and degree of awareness of available credit services. Manganhele (1999) noted that in women, the level of power in decision making of an individual within the household was also established as an important factor in influencing an individual's chances to access credit. This finding was further supported by (Mohamed, 2003) who noted that, although some of microcredit programmes target women, they do not benefit equally with men from the available credit services. Stokvels are informal rural saving and money lending schemes operating at village level. Many village communities have 'stokvels', usually formed by females (Manganhele, 2010). The members usually put money in a common pool, which they share at the end of the year. Variations of the stokvels are emerging which allow members to invest the savings into some business or other investment options.

In addition, Bigsten *et al.* (2003), and Fliesig (1995), stated that in developing countries asymmetric information, high risks, lack of collateral, lender borrower distance, small and frequent credit transactions of rural households make real costs of borrowing vary among different sources of credit. These studies were on the power of collateral, determinants of

household access to and participation in formal and informal credit markets in Malawi (Yegoh and Kimeli, 2013). These are true with most Kenyan financial institutions, where loans are advanced to farmers at the start of planting season and expect them to repay at harvesting time. Atieno (2001) did an empirical assessment on the formal and informal institutions lending policies and access to credit by small-scale enterprises in Kenya. The findings showed that income level, distance to credit sources, past credit participation and assets owned were significant variables that explain participation in formal credit markets.

Udoh (2005) noted that, the demand of credit is influenced by several factors such as personal attributes of the individual, area specific attributes and credit source attributes. Udoh (2005) further states that these attributes influence individuals differently irrespective of their gender such that what might determine the demand for credit by a particular female farmer might be different from what determines credit demand by another farmer. These findings imply the existence of serious weaknesses in the cre[illegible] in targeting the right beneficiaries for poverty alleviation, since women are the majority farmers and the most disadvantaged groups in many developing countries, particularly in Africa (Mandishekele, 1999). However these studies contradict that one of Okurut *et al.* (2004) who noted that household composition, migration status and credit demand is higher for males than females and for households with a higher dependency ratio, demand for credit is less in households with sick members and more land assets per adult equivalent, while gender does not play a significant role in the demand for credit. Some other study conducted by Ololade and Olagunju (2013) in rural farmers of Oyo State revealed that gender, marital status, guarantor and high interest rate are the main factors determining farmers' access to credit in the study area. Also, lack of collateral security, lack of guarantor and high interest rate are the major problem the farmers are facing in credit acquisition (Ololade and Olagunju, 2013).

3.13 Chapter summary

This chapter studied a range of credit options that have been used in conjunction with land reform programmes elsewhere in the world. Of the range of credit options reviewed, micro-credit programmes and rotating credit associations seem to have the highest degree of success, in terms

of reaching the poorer sectors of rural societies and in producing "sustainable" results. However, most credit institutions programmes fail to reach the poorest sections of rural society. This chapter gave a description of the 1997 White Paper on South African Land Policy which identifies as a priority "the need for major institutional, policy and legal reform in regard to land and rural financing" and further states that the South African government has the "responsibility to provide assistance with farm credit" and that and increasing number of land reform beneficiaries "have developed business plans whose successful implementation requires access to credit and other financial services in order that production and income generation on their newly acquired land can take place. The majority of rural people still have very limited access to formal financial services". The challenges outlined above, coupled with the accepted premise that access to cheap credit is a crucial variable in the success or failure (short and long-term) of a land reform programme, as well as for income generating or profitable farming. Despite the government efforts to improve access to agricultural financial service literature suggests that many farmers (especially small scale farmers [illegible]eas) are still faced with major challenges when it comes to access to credit.

CHAPTER 4
DESCRIPTION OF STUDY AREA

4.1 Introduction

In this chapter, the review of the study area is presented with a detailed agro-ecological survey summary of the municipalities with special reference to Nkonkobe local Municipality which is the study area. This chapter focuses on climatic conditions, geology, and demographic data of the study area.

4.2 Amathole district municipality

Demonstrated in the figure below is the map of the Amothole district municipality in the Eastern Cape, South Africa. Amathole District Municipality is situated in the central part of the Eastern Cape stretching along the Sunshine Coast from the Fish River Mouth, along the Eastern Seaboard to just south of Hole in the Wall along the Wild Coast.

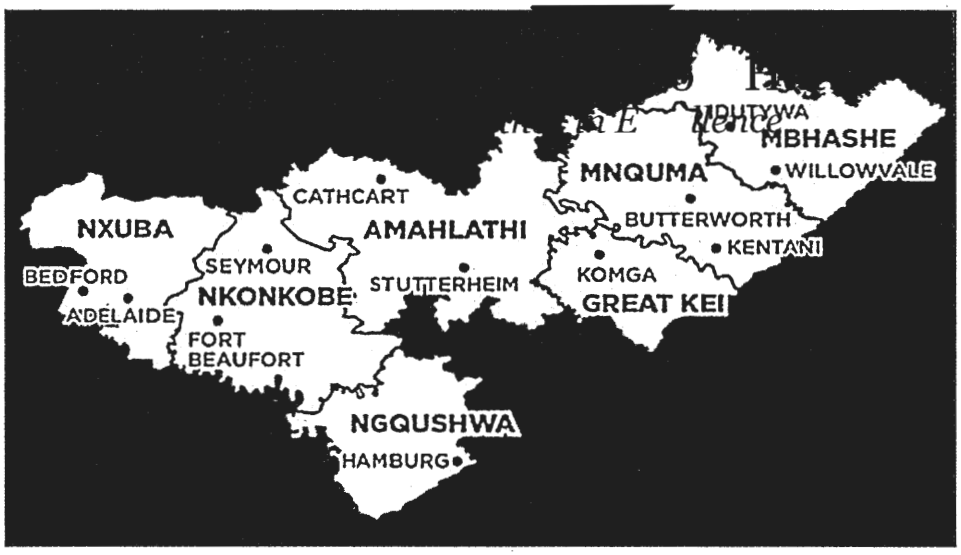

Figure 4.1: Map of Amathole District Municipality
Source: Census (2011) Municipal fact sheet, published by Statistics South Africa

It is bordered to the north by the Amathole Mountain Range. It is comprised of seven local municipalities: Mbhashe, Mnquma, Great Kei, Amahlathi, Ngqushwa, Nkonkobe and Nxuba. Four heritage routes have been developed that are named after Xhosa kings and heroes. They are the Maqoma Route, the Makana Route, the Sandile Route and the Phalo Route. These intertwine

with the other tourism routes located within the district, namely the Sunshine Coast Route, the Wild Coast Route, the Amathole Mountain Escape Route and the Friendly N6 Route.

Table 4.1: The demographics of Amathole District Municipality

Population	892 637
Age Structure	
Population under 15	33.40%
Population 15 to 64	57.60%
Population over 65	8.90%
Dependency Ratio	
Per 100 (15-64)	73.60
Sex Ratio	
Males per 100 females	88.60
Population Growth	
Per annum	-0.82%
Labour Market	
Unemployment rate (official)	42.90%
Youth unemployment rate (official) 15-34	53.40%
Education (aged 20 +)	
No schooling	13.50%
Higher education	6.10%
Matric	13.40%
Household Dynamics	
Households	237 776
Average household size	3.60
Female headed households	53.00%
Formal dwellings	52.60%
Housing owned	68.20%

Source: Census (2011) municipal fact sheet, published by Statistics South Africa

As it can be seen in above that the Amathole District Municipality (ADM) has a population of 892 637 which has about 237 776 households. The average size of households is 3.60 and most of the households are headed by females. The dominance of the public sector in the region's economy reveals the limited production base of the area. Although ADM has high agricultural production potential particularly in livestock, agriculture continues to contribute only 3% to the economy of ADM. Many local municipalities continue to import agricultural products from outside their boundaries despite this potential. This is probably explained by low levels of

development, especially high levels of poverty and poor infrastructural development. This suggests that potential and emerging farmers have limited access to resources necessary for production (Credit included). It is also important to note that although women are dominating the population at 53%, their role in agricultural activities is low.

4.3 Nkonkobe local municipality

Nkonkobe Municipality is a countryside municipality that sits at the foot of the ever-imposing and majestic mountain range of the Winterberg (IiNtabazeNkonkobe). The municipality was established in 2000 and is made up of now disestablished Transitional Local Councils. Alice is a legislative seat and Fort Beaufort is the administrative seat (The local government handbook, n.d). The latter is situated about 140km north-west of East London on the R63 and is approximately 200km north-east of Port Elizabeth.

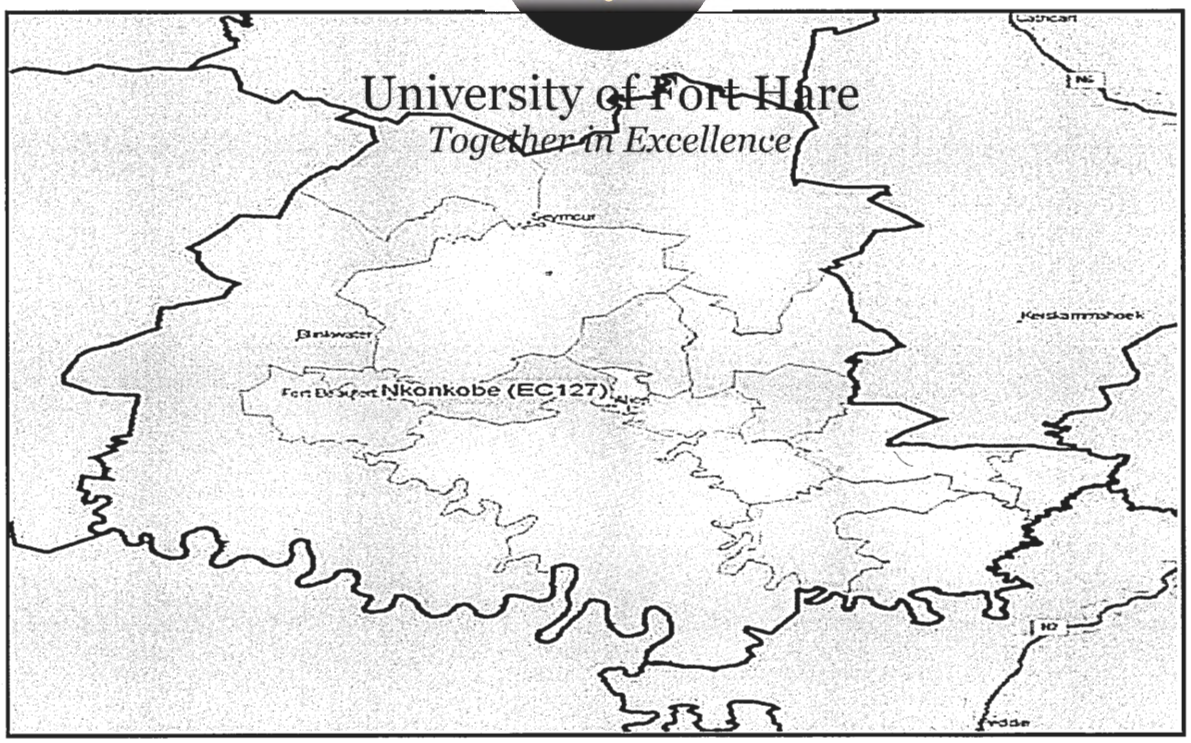

Figure 4.2: Nkonkobe municipality intergrated development plan
Source: Eastern Cape Socio Economic Consultative Council (ECSSEC), 2014

The municipality is the second-largest local municipality, constituting 16% of the surface area of the Amathole District Municipality. Nkonkobe Municipality is a countryside municipality that

sits at the foot of the ever-imposing and majestic mountain range of the Winterberg (IiNtabazeNkonkobe). Cities/Towns in the area include: Alice, Fort Beaufort, Hogsback, Middeldrift, Seymore. The economic growth of Nkonkobe Municipality has been supported by general government services; wholesale and retail trade; community, social and personal services; finance and insurance; business services; construction (Statistics South Africa, 2011).

4.4 Total population

According to ECSSEC, Nkonkobe Municipality has an estimated total population of 135,660.There are 21 wards within the Nkonkobe municipal area. Approximately 74% of people living within the Nkonkobe municipal area are indigent. The majority of the population of Nkonkobe (72%) resides in both villages and farms and 28% resides in urban settlements. Urbanisation is mainly concentrated in Alice and Fort Beaufort.

Table 4.2: Nkonkobe municipality total population

Population group			
Area	Population group	Number 2011	Percentage
Nkonkobe Local Municipality	Indian or Asian	141	0%
	White	476	1%
	Coloured	5,805	4%
	Black African	129,238	95%

Source: HIS Global estimates, (2010)

4.5 Population Growth Rate

The population of Nkonkobe has moved from -2.0% in 1997 to -0.5% in 2010. This is according to Global Insight estimates for 2010 and is reflected in the graph below.

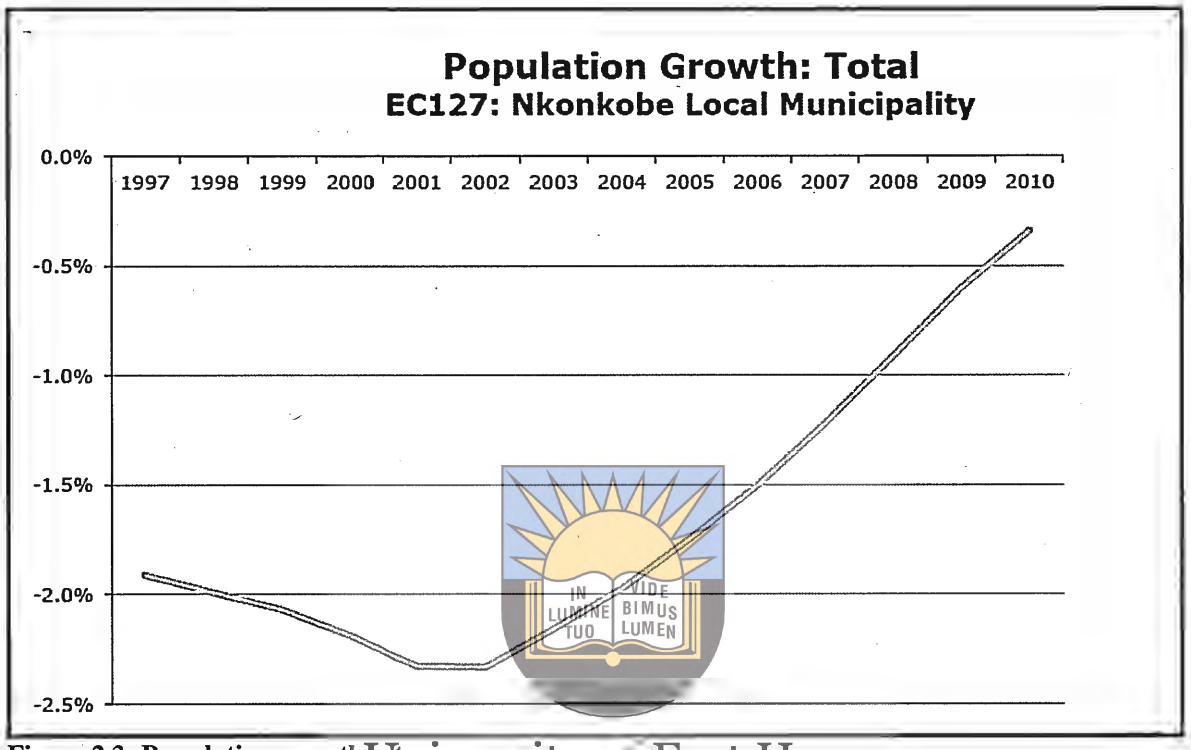

Figure 2.3: Population growth rate
Source: IHS Global insight estimates (2010).

4.6 Number of households by population group

According to Global insight, there are 27,716 households and are divided according to racial groups as follows, Africans with 25 866 households, Whites with 250 households, coloureds with 1114 households and Asians with 28 households.

Table 4.3: Number of households by population group

Group type	Number
African	25 866
White	250
Coloured	1 114
Asian	28
Total	27 716

Source: IHS Global insight estimates, (2010).

4.7 Human Development Index (HDI)

HDI is a summary of composite index that measures a country's average achievements, in the three basic aspects of the human development: longevity knowledge, and decent standard of

living. Longevity is a measurement by a combination of adult literacy rate and the combined primary, secondary and tertiary gross enrolment ratio and the standard of living is measured by GDP per capita .The Human Development Index (HDI) reported in the HDI report of the United nations is an indication of where a country is, in terms of development .The index can take value between 0 and 1,countries with an index over 0.800 are part of the high Human Development Group and countries between 0.500 and 0.800 are part of the medium and countries below 0.500 are part of the HDI group . The human development for Nkonkobe Municipality is sitting at 0.60. This shows that the levels of human development are still very low.

Table 4.4: Human development index

YEAR	2008	2009	2010
TOTAL PERCENTAGE	0.49	0.49	0.60

Source: IHS Global insight estimates, (2010)

4.8 Poverty indicators

The figure below shows that the level of poverty in Nkonkobe is declining. The total number of people living in poverty is less than 40%. This may be attributed to many aspects namely; the social grants offered by national government, seasonal jobs offered in the citrus industry and even contributions done by the municipality in terms of infrastructure development.

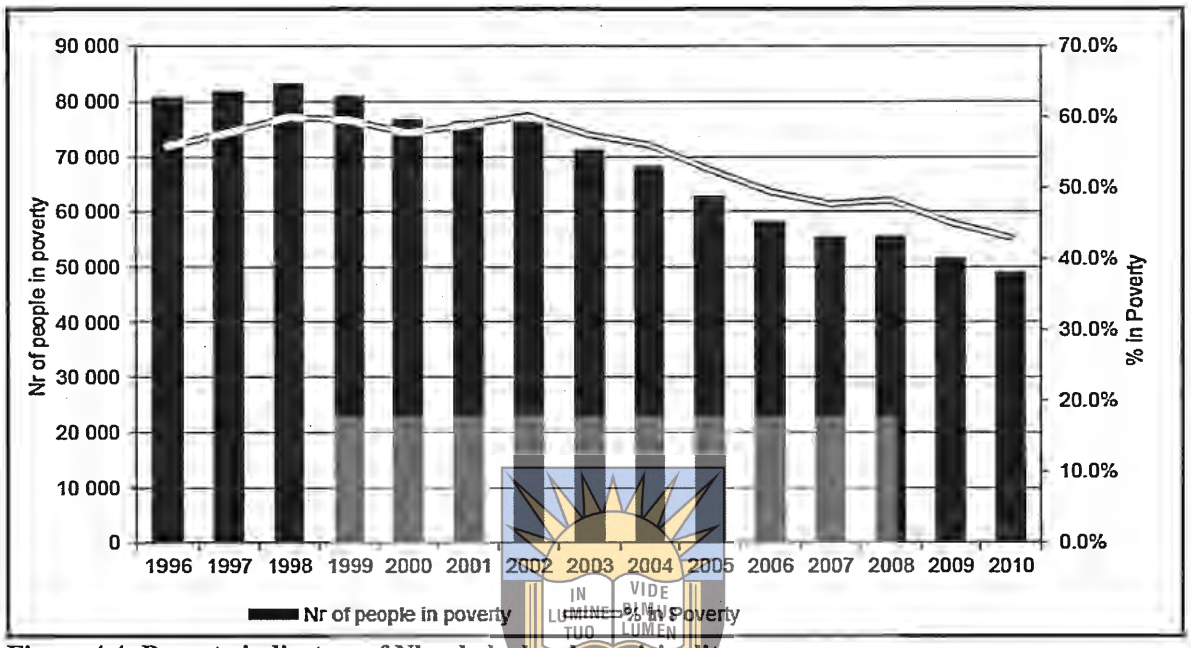

Figure 4.4: Poverty indicators of Nkonkobe local municipality
Source: IHS global insight estimates, (2010).

4.9 Education

Nkonkobe municipality is showing great improvement in terms of education. This is reflected by the figure below of highest levels of education of people at age 15+.

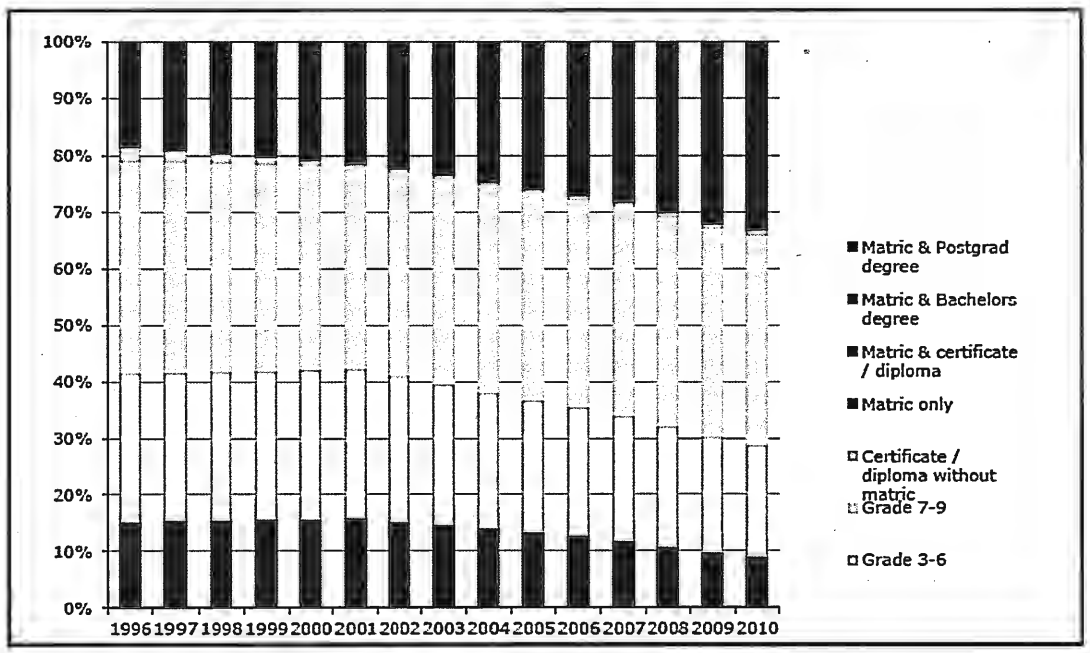

Figure 4.5: Level of education distribution
Source: IHS global insight estimates, (2010).

In terms of functional literacy, the municipality is also showing a great improvement. The total number of illiterate people as at 2010 is 21 293 and it was sitting at 19 541 in 2009. These people are at age 20 and have completed grade 7 or higher. Literate people are 50 017. In 2009 this number was sitting at 49 638. In terms of percentage, literacy is at 70.1%.

4.10 Formal Housing

Out of 27 716 households, Nkonkobe municipality has various types of houses ranging from very formal, formal, informal, traditional and other dwellings. The following table shows the number of households by type of dwelling. No of households by type of dwelling unit

Table 4.5: distribution of houses in different categories

Very formal	Formal	Informal	Traditional	Other	Total
3 048	15 352	182	9 119	15	27 716

Source: IHS global insight estimates, (2010)

This puts 66.4% of households occupying formal dwellings in Nkonkobe municipality. The backlog of formal housing is estimated at 9 316.

4.11 Sanitation

The municipality has done a great job in terms of sanitation. Toilet facilities have improved since 1996. The municipality has various types of toilets, these include flush toilets, ventilation improved, pit toilets and there are still few bucket system toilets. There are also areas where there are no toilets. According to Global insight (2010), there are 3 999 households with flush toilets, 2063 households with ventilation improved, 19 827 households with pit toilets, 386 households with bucket system toilets and 1440 households have no toilet facilities at all. 21.1% percent households have hygienic toilets.

4.12 Water Infrastructure

The municipality has also done very well in terms of water infrastructure since 1996. The water infrastructure is divide into piped water inside dwelling, piped water in yard, communal piped

water less than 200m(- within the RDP standard), communal piped water above 200m (Below RDP standard). There are still areas that are without formal piped water though. gienic toilets.

4.13 Labour

4.13.1 Economically Active Population (EAP)

Nkonkobe municipality has 25 692 economically active people as per the official definition (Global Insight, 2010). This represents 22.5% of the total population.

Table 4.6: Economically active population in the region

YEAR	2007	2008	2009	2010
PERCENTAGE	22.4%	23.0%	22.6%	22.5 %

Source: IHS global insight estimates, (2010).

4.13.2 Unemployment

Nkonkobe municipality still experiences high levels of unemployment. According to the official definition of unemployment, there are 14 848 unemployed people in the municipality. Unemployment rate is 57.8%.

Table 4.7: Unemployment rate from 2007 to 2010

Year	2007	2008	2009	2010
Percentage %	57.2	55.6	57.5	57.8

Source: IHS global insight estimates, (2010).

4.14 Agriculture

Local Government White Paper and the Constitution of the Republic of South Africa state that no country today can effectively meet its challenges unless the components of government function as a cohesive whole. This involves:

- Collectively harnessing all public resources behind common goals and within a framework of mutual support.

- Developing a cohesive, multi-sectoral perspective on the interests of the country as a whole and respecting the discipline of national goals, policies and operating principles.
- Coordinating their activities to avoid wasteful competition and costly duplication
- Utilizing human resources effectively.
- Settling disputes constructively without resorting to costly and time-consuming litigation.
- Rationally and clearly dividing between them the roles and responsibilities of government, so as to minimize confusion and maximize effectiveness.

The municipality has been working very close with Government departments. The Department of Agriculture through its Agricultural programmes namely; Siyazondla, Comprehensive Agricultural Support Programme (CASP), Citrus Production and King Sandile Development Trust projects (KSDT) has played a big role on the development of the Nkonkobe Municipal area. A large number of communities in various wards of the municipality who were confronted by poverty and unemployment benefited from these projects. Siyazondla beneficiaries are able to consume fresh vegetables from their home gardens and also able to sell the surplus produce to the surrounding communities at low costs. The Siyazondla project slightly curbed the dependency syndrome where communities were in the past heavily dependent on government for continuous assistance. Siyazondla project a government initiative will expand to benefit more communities for as long as communities are able to sustain their projects.

4.15 Agricultural statistics of the Nkonkobe local municipality

Nkonkobe municipality has some agricultural activities taking place in the area. The figure below shows that most of the households in the Nkonkobe municipality engage in different types of farming activities. It can be seen that most households practice livestock production. Only about 24.2% of the population practice vegetable production.

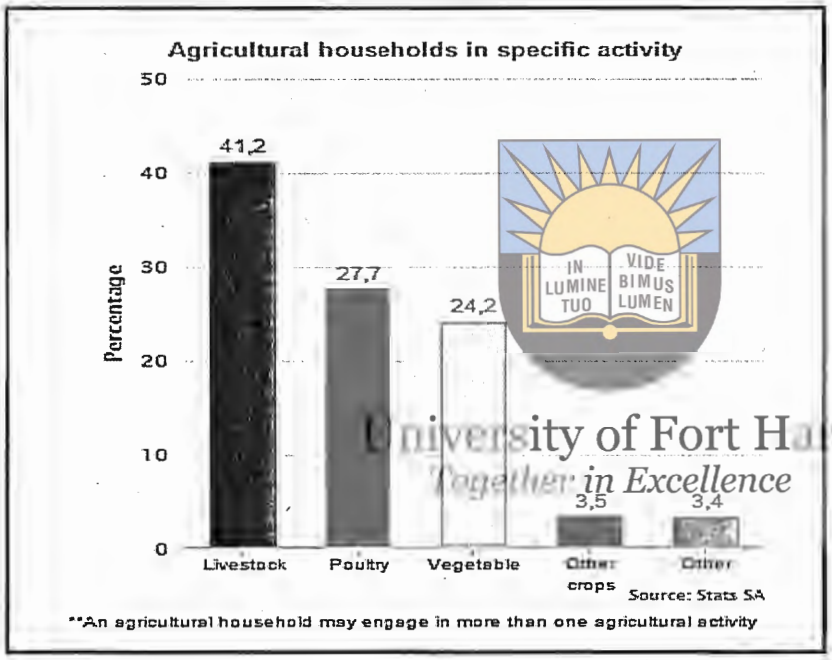

Figure 4.6: Agricultural households in different activities
Source: Stats SA, (2011)

4.16 Agricultural households by type of activity

The Figure 4.7 below which that 56.7% of the population in the municipality were only involved in livestock farming. In relation to this study, it focused on smallholder crop farming. The figure further showed that 13.6% of the local population farm with crops and livestock i.e. mixed farming amounted to 28.0% of the population.

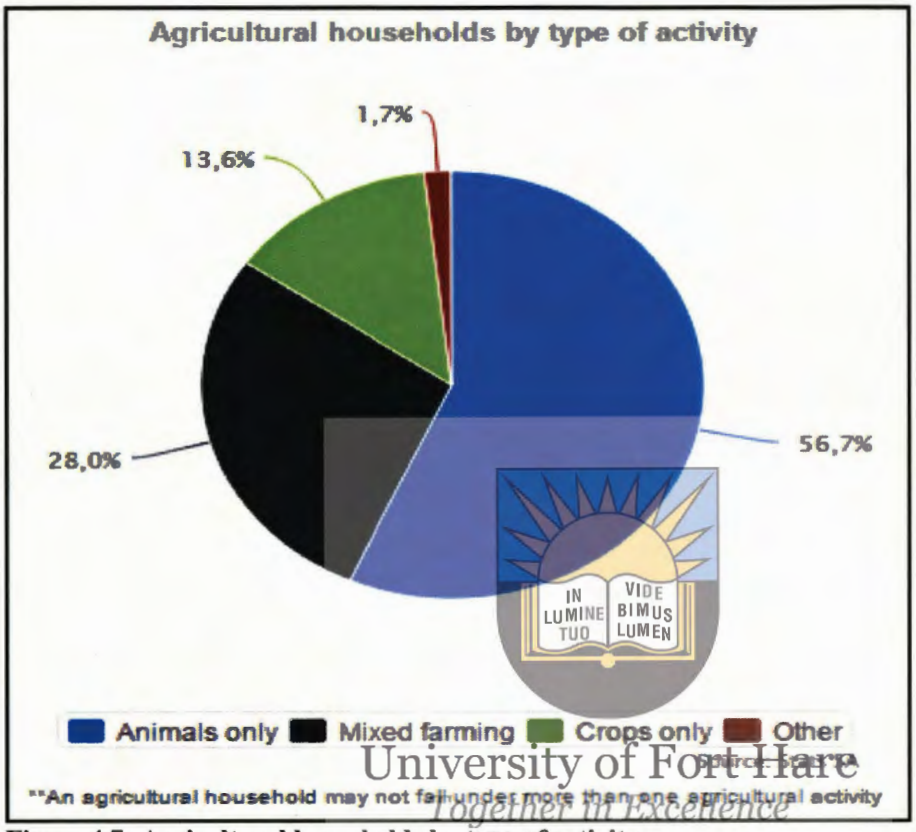

Figure 4.7: Agricultural households by type of activity
Source: Census (2011) Municipal fact sheet, published by Statistics South Africa

4.17 Distribution of households based on income category

It is noted that greater access to credit facilities has the potential to be the direct solution to increasing production in the farming sector. It is interesting to note from the table below that which indicates farmers' involvement in any farming activity in the Nkonkobe region of which most of them have incomes of R4 801 to R38 400. However, it is also pertinent to note that 28.4% of the population in the region have little or no source of income. The figure below shows the distribution of households based on income category of agricultural households'.

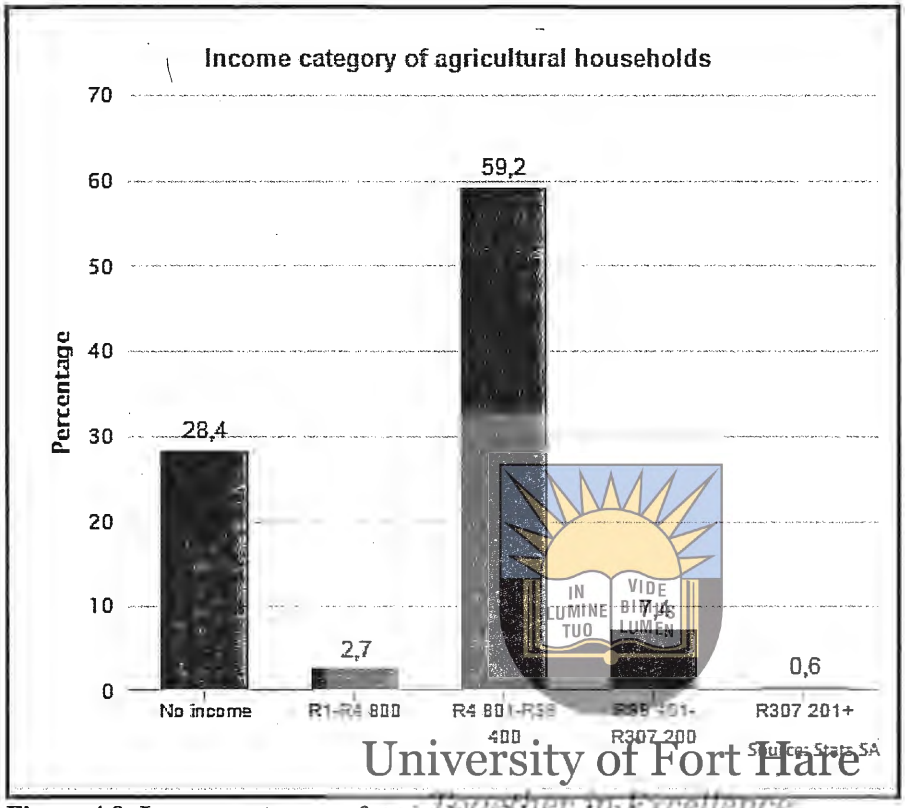

Figure 4.8: Income category of agricultural households
Source: Stats S.A, (2011).

4.18 Rainfall

According to Statistics South Africa (2011), Alice town is said to receive about 386mm of rains per year, with most rainfall occurring during summer. Alice s said to receive an average rainfall which is good for plantation and cultivation during September to October. The figure below summarizes rainfall of Alice based on averages: Nkonkobe Municipality.

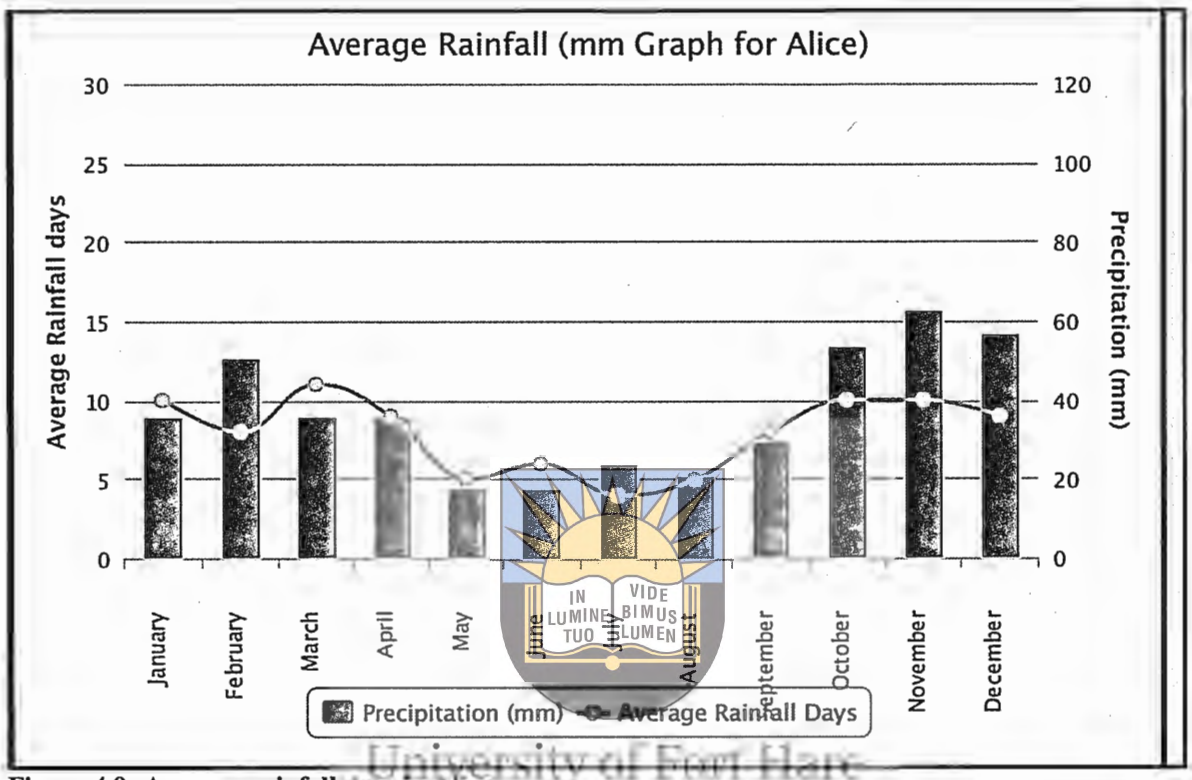

Figure 4.9: Average rainfall days in Alice
Source: Statistics South Africa, 2011

From the figure above, it is evident that Nkonkobe municipality receives the lowest rainfall distribution of about 19 mm in May and June with the highest rainfall which is more than 62 mm in November.

4.19 Temperature

It is evident from the figure below that Nkonkobe local municipality normally have hot summer and cold winter. The average temperature ranges from 25°C to 29°C during summer and 5°C to 10°C during winter. Minimum temperatures changes between 5°C in June, July and 15°C in February, and this means that the area is cold in winter and hot in summer. Maximum temperatures ranged from 19°C in July to 29°C in January. These are good temperatures for agricultural activities such as crop production. Figure 4.10 below summarizes the average temperatures for the year 2011.

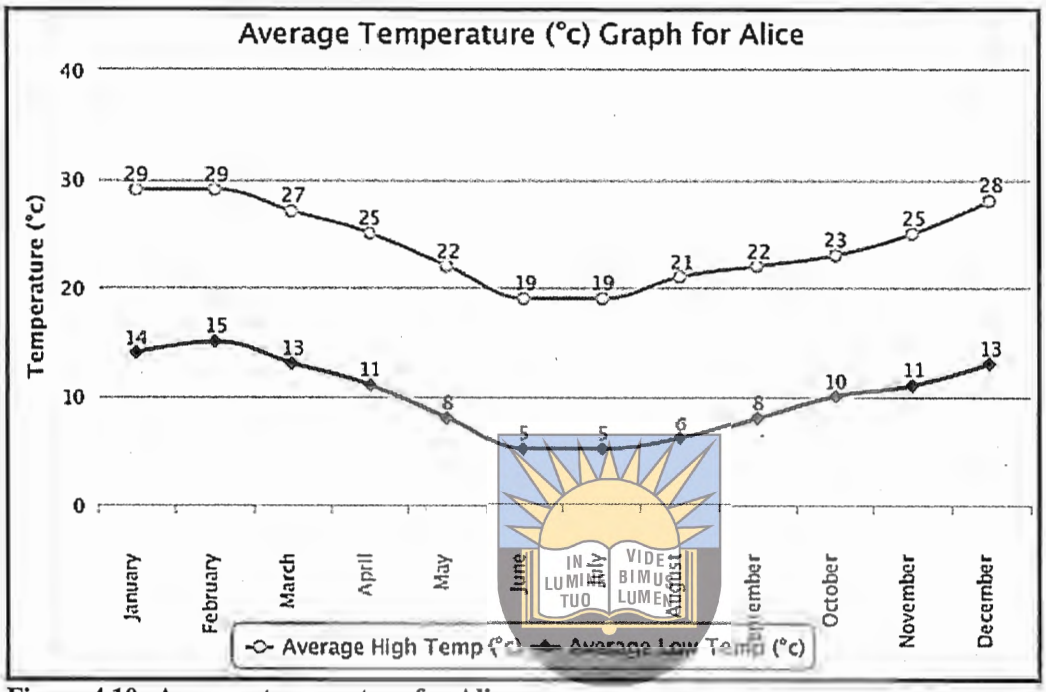

Figure 4.10: Average temperature for Alice
Source: Statistics South Africa, 2014

4.20 Agriculture in the region

This region is filled with many water basin basins to supply for irrigation during agricultural activities. These basins have favourable soils and adequate water supply for intensive irrigated crop production and needs proper conservation to promote sustainability. However, the agricultural sector in the Nkonkobe region has been in a state of decline in the past years. Government institutions such as Ulimocor which used to provide substantial support in citrus and beef farming in the 1980s were closed down in 1997 without any alternative, or back up support for farming in the area (Nkonkobe Economic Development Agency NEDA, 2013). Recent projects have, however been developed which benefited a large number of communities in various wards who were confronted by poverty and unemployment. Citrus production, wool growing, cattle production schemes and the Alice Fresh Produce Market are a few projects which are major contributors in the economic development of the area as they employ workers on a permanent and seasonal basis (NEDA, 2013). The NEDA (2013) paper further states that agriculture is producing 30% of food demand only despite the fact that there is a lot of arable land.

The Local government paper states that a number of high value crops have been identified in the Nkonkobe Municipal Area, namely paprika, olives and essential oils. Nkonkobe has tried to work closely with the relevant sector departments in the past years in order to assist rural communities and various cooperatives, e.g. through the Siyazondla and the Comprehensive Agricultural Support Programme (CASP) by the Department of Agriculture as well as through the King Sandile Development Trust (KSDT) (NEDA, 2013). This included support to crop (largely fruit and vegetable home) growers) and livestock smallholder farmers (sheep / woolgrowers, poultry) as well as citrus producers, mainly through the transfer of land transfer and infrastructure improvements (renovations, fencing, irrigation schemes).

4.21 Conclusion

This chapter discussed the description of the study area with its detailed socio economic and agro-ecological survey summary that includes population size, education, human development index, employment, climatic conditions and agricultural activities. It shows that the municipality has a total of 127 115 population with most of the population being between the ages of 15 to 64. It is evident from this background that most of the households do practice crop farming even though they are operating on a low budget as is shown by the fact that most people in the region have an income of R4 801 to R38 400. It is also evident that most people practice livestock production.

CHAPTER 5
RESEARCH METHODOLOGY

5.1 Introduction

This chapter concentrates on the research design of this study in an effort to explain how the study was conducted. The chapter is arranged in such a way that research design was presented first by giving details of research instruments that were used to gather different types of data used in this study. This is then followed by discussing the sampling procedure, sample frame and justification of the study area. This chapter concludes by discussing analytical techniques that were used to analyse data and the variables.

5.2 Data collection

The method of collecting data used in this study comprised a combination of primary and secondary data sources. The corresponding methods of gathering data consisted of a review of written documents and interviews with key i[illegible]complemented by direct observation. The documents were sourced from available publications on national and international cases of government intervention in credit markets. The interviewer administered questionnaires were designed to collect primary information on farmer-household socio-economic characteristics that were considered to be affecting the small scale farmers' decision on whether or not to take credit. The questionnaires were interview-administered so as to alleviate the problem of misinterpretations or misunderstandings of words or questions. Structured interviews regulate the order in which questions are asked, so the questions are always answered within the same context.

The interviewer administered questionnaires also ensures that all questions are answered and that respondents do not omit difficult questions. By having the questionnaires administered by an enumerator, it also means that information can be obtained from respondents who can neither read nor write. All these advantages, however, overshadow the disadvantages of this method. Such disadvantages include costs in terms of time and money, as interviewers have to interview the respondents separately and require transport to reach the respondents. The characteristics of households that were required included the following: Size of arable land in hectares, farmers' age in years, number of years of formal education, gender, farming experience in years, family

size, and farm-income in Rand per annum. The questionnaire consisted of both open ended and closed ended questions. Open ended questions are important as they allow respondents to express their views freely, but they were minimized for easy data analysis as well as to pay focus on issues relating to research.

5.3 Sampling procedure

Taking into consideration cost implications and other relevant factors such as the extent of the study area amongst other things this study used simple random sampling. In this technique, each member of the population has an equal chance of being selected as subject. One of the best things about simple random sampling is the ease of assembling the sample. It is also considered as a fair way of selecting a sample from a given population since every member is given equal opportunities of being selected. As it is the case in this study, smallholder farmers were selected randomly around the communities of the Nkonkobe local municipality to ensure that all these communities can have a representative. As the appropriate people for the study have been selected, this process becomes a lot less time consuming. The results of simple random sampling are usually expected to be more representative of the population than those achieved with an alternative form of sampling.

5.4 Sampling frame

Literature defines sample frame as, the source material or device from which a sample is drawn. It is a list of all those within a population who can be sampled, and may include individuals, households or institutions. Due to lack of funding and lack of time this study targeted a sample of 200+ respondents and ended up with 214 farmers. Respondents were randomly selected from the population.

5.5 Justification of sample size and location

The study was conducted in the region of Nkonkobe local municipality since the site is near and the transport was not that of a limiting factor during data collection. To conduct this kind of the study it can be very expensive and time consuming. Thus, this study used simple random sampling. Singh and Chaudhary (1986) stated that a large sample is more reasonable and accurate than a small sample hence the 200+ respondents households was the target after the

consideration of certain factors such as financial resources available, time and the fact that the larger the sample size the better the viability and reliability of results.

5.6 Analytical Tools

5.6.1 Descriptive Statistics

Descriptive statistics such as mean, median, percentages and frequency distribution were used in describing the socio-economic characteristics of the households involved in the study.

5.6.2 Cross Tabulation

This is a type of a bivariate analysis that involves testing whether a relationship or an association exists between two categorical variables only so that the direction of association is made obvious (Norusis, 2004). Cross tabulation presents several tests of association, directional and symmetrical measures. In this study, *Pearson Chi-Square* statistical test was used to cross check the systematic relationship between household demographic characteristics and access to credit using non parametric model.

Existence of association between households' demographics and household access to credit was estimated using *Pearson Chi-Square* test of association as a follow up cross check measure to quantify the systematic relation inferred by correlation model. The Pearson chi-squared test is used when you have two or more independent samples with data consisting of frequencies to discrete categories, Pearson chi-squares entails the comparability of the observed and expected frequencies in two way tables known as contingency table. More so, a measure of the discrepancy existing between observed and expected frequencies supplied by the statistics chi-squares .It is also to test the independence or association between two or more criteria or classification comparing the observed frequencies to expected frequencies. The computation of chi-squared test is normally done on contingency tables which represent the frequencies of class.
Chi-square test can be used for the following

1. To examine the difference between proportions of two independent populations.
2. To test for independence.
3. To determine the goodness of fit of probability distribution.

Chi square test in this study was done to study the relationship between household's socio-economic characteristics and access to credit.

$$X^2 = \sum_{i=1}^{k} \frac{(O_i - E_i)^2}{E_i} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Where: X^2 is the chi square test

$\sum$ is the summation

O is the observed value

E is the expected value

5.7 Correlation model

For purposes of estimating, the association of socio economic demographic and access to agricultural credit a non-parametric correlation model was used to establish whether there exists a relationship between households' demographics and participation in credit market. Specifically, the *Spearman's rho* analyses was computed which provide correlation coefficients that indicate the strength and direction of the linear relationship.

An important competitor of the Pearson correlation coefficient is the *Spearman's rank correlation coefficient*. This latter correlation is calculated by applying the Pearson correlation formula to the ranks of the data rather than to the actual data values themselves. Daniel (1990) noted that by so doing, many of the distortions that plague the Pearson correlation are reduced considerably. Pearson correlation measures the strength of the linear relationship between *X* and *Y*. In the case of nonlinear, but monotonic relationships, a useful measure is *Spearman's* rank correlation coefficient, *Rho,* which is a *Pearson's* type correlation coefficient, computed on the ranks of *X* and *Y* values (Daniel, 1990). It is computed by the following formula:

$$rho = \frac{[1 - 6\,\Sigma(di)^2]}{[n(n^2 - 1]} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

Where; di = is the difference between the ranks of Xi and Yi.

n = the number of (X, Y) observation (ranks).

r_s = +1, if there is a perfect agreement between the two sets of ranks.

r_s = - 1, if there is a complete disagreement between the two sets of ranks.

5.8 The logistic regression model

To estimate the determinants of household access to credit, the probability of household access to credit is assumed to be determined by an underlying response variable that captures the true households' socio-economic status. The technique has been used for this kind of a situation (field of social sciences) where prediction of the presence or absence of an outcome based on values of a set of predictor variables is needed. According to Wooldridge (2009), the logistic regression coefficient can be used to estimate odds ratios for each of the independent variables in the model. The logistic regression model (logit model) is applicable to a broader range of research situations than discriminant analysis.

According to Wooldridge (2009) the term "logit" refers to the natural logarithm of the odds (log odds) which indicates the probability of falling into one of two categories on some variable of interest. Binary logit in the view of Harrell (2001) has only two categories in the response variable, that is, event A and non-event A. Harrell (2001) also asserts that the model shows how a set of predictor variables (X[s]) are related to a dichotomous response variable Y(ln (Pi/1 – Pi). The dichotomous response variable Y=0 or 1 with Y=1 denotes the occurrence of the event of interest while Y=0 denotes otherwise. The dummy variables, also known as indicators and bound variables, characterize dichotomous responses. In this study, since only two options were available, namely "access to credit" or "no access to credit" a binary model was set up to define Y=1 for situation where the farmer accessed credit and Y=0 for situations where the farmer did not access credit from either formal or informal credit sources. Assuming that **X** is a vector of explanatory variables and p is the probability that Y=1, two probabilistic relationships as stated by Wooldridge (2009) can be considered as follows:

$$p(Y = 1) = \frac{e^{\beta x}}{1 + e^{\beta x}} \dots\dots\dots\dots (3)$$

$$p(Y = 0) = 1 - \frac{e^{\beta x}}{1 + e^{\beta x}} = \frac{1}{1 + e^{\beta x}} \dots\dots\dots\dots (4)$$

Woodridge (2009) concluded that since Equation (3) is the lower response level, that is, the probability that farmers did not access credit from formal and informal credit source, this will be the probability to be modeled by the logistic procedure by convention. Chauke et al. (2013) states that both equations present the outcome of the logit transformation of the odds ratios which can alternatively be represented as:

$$\log it[\theta(x)] = \log\left[\frac{\theta\ (x)}{1 - \theta(x)}\right] = \alpha + \beta_1 x_1 + \beta_2 x_2 + \cdots \beta_k x_k \ldots\ldots (5)$$

Thus allowing its estimation as a linear model for which the following definitions apply:

θ= logit transformation of the odds ratio;

β= the regression coefficient or slope of the individual predictor (or explanatory) variables modeled;

α= the intercept term of the model and;

X_i = the explanatory or predictor variables.

The foregoing operations were feasible within the SPSS package. In relation to Equation (3) the analysis generated the odd ratios using the maximum likelihood procedure (Field, 2005). The logistic regression in this study can be specified as:

$$Y_i = \alpha + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + \beta_6 x_6 + \beta_7 x_7 + \ldots U_K \ldots\ldots\ldots\ldots (6)$$

The set of explanatory variables selected as possible determinants of household access to credit in the study area are presented in Table 5.1. It is difficult to separate completely the variables affecting demand or access because decision-making at both stages is based almost more on households' demand for rather than access to formal credit. These include; age, household size, household head education level, farm experience, Social capital, farm income and household size.

Table 5.1: Description of variables specified in the model

Variables	**Type**
Dependent variable: Access to credit 1-yes 0-No	Binary
Independent variables	
Age (x_1)	Continuous
Farm size (x_2)	Continuous
Household size (x_3)	Continuous
Educational level (x_4)	Continuous
Farm Income (x_5)	Continuous
Farm experience (x_6)	Continuous
Social capital (grant) (x_7)	Continuous

5.9 Conclusion

A detailed description of the sampling procedure and methods of data collection has been presented in this chapter. The analytical techniques and the econometric specifications of the various models (which includes descriptive statistics, correlation, and binary logistic regression models) employed to achieved the stated objectives of the study were also presented in this chapter. The next chapter presents the discussions of the empirical results.

CHAPTER 6
ANALYSIS OF FINDINGS

6.1 Introduction

This chapter presents research findings based on descriptive results from selected respondents. However, in broad terms, this chapter summarizes the descriptive findings of the households' characteristics in order to indicate averages of variables. The reason for using descriptive statistics is to achieve this objective in the study and to provide simple summaries of the variables as well as the measures. Household characteristics of respondents were also explored with the objective of trying to establish their influence to the final farmers' decision to the use of credits. Lastly, the factors which influence accessibility are discussed.

6.2 Socio-Economic Characteristics of Households

The socio-economic characteristics of the respondents in this study area were analysed under the following headings: gender, household size, [illegible]ning experience, years of schooling, and farm income. A total of 214 farmers were involved in the study, from those farmers 30 were borrowers and 184 were non- borrowers.

Table 6.1: Average of some socio economic factors

Socio-economic variables	Total (214)	Borrowers (30)	Non- borrowers (184)
Gender (%) Males	62%	73%	58%
Gender (%) Females	38%	27%	42%
Household Size	1	1	1
Age of farmer	67	66	61
Farm experience	12	9	12
Years of schooling	7	6	7
Average farm income (R)	3442.75	6400.00	2960.59
Social grant (R)	3749.52	2349.33	2999.67
Size of land (ha)	3.42	3.44	3.42

Source: Field Survey, (2015).

The result in table 6.1 above summarizes socio-economic characteristics of the households and provides evidence that the average age of the household head in the sample is 67 years, with that

of borrowers being 66 years compared to 61 years for the non-borrowers. This indicates that older people are the ones involved in farming in the region. The average year of birth for the borrowers was noted to be 1951 which implies that most of the farmers are above the age of 60 and may largely depend on social grants. It is evident that most of the households are male headed as results showed that 73% of the borrowers were males and 27% were females. These results on gender which access credit are similar to those findings of Ololade and Olagunju (2013) in rural farmers in Oyo State who revealed that most of the borrowers in that region were males.

Literature suggest that credit demand is higher for males than females for households with a higher dependency ratio, demand for credit is less in households with sick members. This can be attributed to the fact that males are generally seen as household's head and providers of food. When looking at the level of education, it was evident that borrowers had an average of 6 years of schooling while the non-borrowers had an average of 7 years. Overall both the borrowers and non-borrowers have the same average number of household members. All the farmers in the sample cultivated on communal land (have no title deeds to the land), thus land cannot be used as collateral for loans. This can be associated with fact that most of the areas in the Nkonkobe local municipality are rural and are under the custodianship of traditional authorities. Both the borrowers and non-borrowers had an average land size of 3 hectares.

When looking at the monetary values, it was evident that borrowers have an average farm income of R6400.00 per month which is double when compared to that of non-borrowers was R2960.59. This is consistent with the finding of (Spio, 2002; Sebopetji, 2008). The majority of the farmers in the region have access to social grants. The results show that non-borrowers have an average close to R3000.00 on social grant while the borrowers have an average of R2349.33 per month on social grant. The average farm experience of borrowers was found to be 9 years while that of non-borrowers was found to be 12 years. These results on farm experience contradict the findings of Spio (2008) who noted that borrowers in Great Letaba Local Municipality had more farm experience than the non-borrowers.

6.2 Off Farm Income

Off farm income refers to income which accrues to farmers outside the farming enterprise. In order words, it refers to the portion of farm household income obtained off the farm (Babatunde, 2012). Such income includes non-farm wages and salaries, pensions, and interest income earned by farm families. For this study, the summary of the farmers with and without access to off farm income is shown in figure 6.1 below.

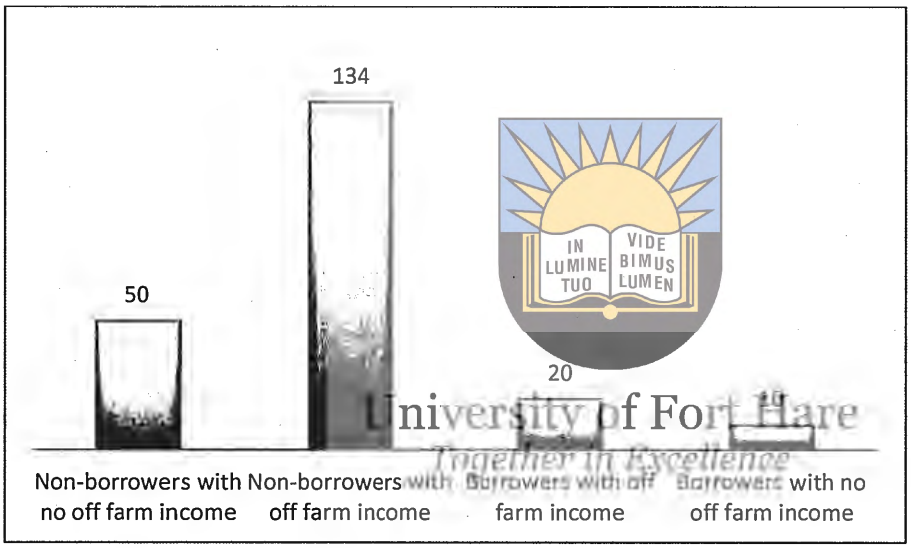

Figure 6.1: Distribution of households' in relation to off farm income
Source: Field Survey, (2015):

The results show that the majority of the non-borrowers have an off farm income. This may explain why the majority did not take credit. The results also show that about 67% off the borrowers had an off farm income, meaning that they have means to repay the loan amount they have taken.

6.3 Cross tabulation of factors affecting households' participation in credit market.

This section presents research findings based on descriptive statistics in as far as factors that influence households credit use is concerned. Some elements of association between access to credit and households' socio economic characteristics can be confirmed. However, their direction and strength could not be established using descriptive statistics. Several household socio-economic factors showed some elements of association to access to credit capable of

influencing credit market participation by households, although the magnitude and direction of the association could not be established at descriptive statistics level.

Household size as measured by number of family members within a household was one of the factors expected to be critical towards influencing farmers' decision to use credit. Table 6.2 below represents the cross tabulation summary of households' size with respect to access to credit. Findings from the study show that the majority of both borrowers and non-borrowers have a household size of less than 3. While they also shared the same amount numbers in terms of households size which is greater than 4. This implies that households with less household number are more likely to participate in credit market.

Table 6.2: Households' size with respect to access to credit

Variable	Access to credit				Total	
	No	% of total	Yes	% of total		
Household size						
Less than 3	180	84.1	26	12.1	206	96.2
4 and above	4	1.9	4	1.9	8	3.8
Total	184	86	30	14	214	100
Pearson chi square = 0.033* *Significant at 0.05% Number of observed cases = 214						

Source: Field Survey, (2015).

The level of education of the Household head was investigated with its association to participation in credit market by households as shown in Table 6.3 below. Out of the 214 respondents 49.5% (106 households) had a primary education in the study area. Interestingly, none of the borrowers had tertiary education. Possible explanation for this might be that most of the educated persons are employed in sub-urban areas and receive a reasonably fair amount of income. Only about 4.7% (10 respondents) of the non-borrowers had a tertiary qualification.

Table 6.3: Household head level of education with respect to access to credit

Variable	Access to credit				Total	
Educational level	No	% of total	Yes	% of total	No.	%
Primary	86	40.2	20	9.3	106	49.5
High school	88	41.1	10	4.7	98	45.8
Tertiary	10	4.7	0	0	10	4.7
Total	184	86	30	14	214	100
Pearson chi square = 0.087 **significant at 0.01% Number of observed cases = 214						

Source: Field Survey, (2015).

The age of the household head was investigated with its association to participation in credit market by households shown in Table 6.4. In order words, the empirical findings shows that majority of the farmers are above the age of 50 years. These are most likely to be pensioners who are receiving social grants. Table 6.4 shows the level of association indicating different age categories with respect to their access to credit.

Table 6.4: Household head age with respect to access to credit

Variable	Access to credit				Total	
Household head age	No	% of total	Yes	% of total	No.	%
Less than 30	4	1.9	0	0	4	1.9
31 to 49	32	14.9	4	1.9	36	16.8
50 and above	148	69.2	26	12.1	174	81.3
Total	184		30	14	214	100
Pearson chi square = 0.027* *significant at 0.05% Number of observed cases = 214						

Source: Field Survey, (2015).

It was stated earlier that, the magnitude and direction of the association between households' socio economic characteristics and access to credit could not be established at descriptive statistics level. Hence below estimates of the missing strength and direction of association based on analytical models used to analyze the data are presented.

6.4 Correlation results

Using non parametric correlation model the magnitude of association between households' socio economic characteristics and access to agricultural was investigated. Statistical attempts were made to ascertain the strength and direction of the association between these variables.

Correlation was used to give a possible clue on the relationship, with full understanding that correlation does not necessarily imply causation, but rather indicates a systematic relationship which could also imply causation when supported with logical inference. Table 6.5 below shows *Spearman's rho* correlation matrix between households' socio economic characteristics and access to credit.

Table 6.5: Spearman's rho correlation matrix between the socio economic features and access to credit

Spearman's Rho		Access to credit	Level of education	Age	Farm income	Size	Farm experience	Social capital	Household size
Access to credit	C.F	1.000							
	Sig	-							
Level of education	C.F	-.148*	1.000						
	Sig	.031	-						
Age	C.F	.142*	-.076	1.000					
	Sig	.038	.269	-					
Farm income	C.F	.153*	.030	-.053	1.000				
	Sig	.025	.663	.438	-				
Size (ha)	C.F	.048	.181**	.071	.022	1.000			
	Sig	.484	.008	.303	.753	-			
Farm experience	C.F	-.143*	-.099	.057	.002	-.287**	1.000		
	Sig	.036	.149	.406	.973	..000	-		
Social capital	C.F	.080	-.091	.100	-.036	-.108	.150*	1.000	
	Sig	.241	.185	.164	.596	.114	.029	-	
Household size	C.F	.718**	-.033	-.083	.141*	.028	.029	.286**	1.000
	Sig	.001	.636	.224	0.39	.688	.677	.003	-
	N	214	214	214	214	214	214	214	214

C.F – Correlation coefficient
*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

Source: Field Survey, (2015).

A weak positive correlation was confirmed between age and access to credit as shown in Table 6.5. Although age and access to credit by households indicated a significant positive linear

relationship *Spearman`s rho p-value* of (0.038), in Table 6.6, the coefficient was (0.142), whose absolute value was not large enough to give a convincing clue of the association. This was also noted by significance of the *p-values* at 95% instead of 99% as shown in Table 6.6.

At the household size level a strong positive linear correlation between household size and access to agricultural credit was confirmed as shown in Table 6.6. At 99%, the *Spearman`s rho p-value* of (0.001) was obtained indicating a strong linear correlation between the two variables. A much higher absolute value of the coefficient (0.718) was obtained indicating the strength of the association between households' size and access to credit at the number of households' members' level. Two of the variables (households head level of education and farm experience) had a weak negative correlation with respect to access credit.

6.5 Determinants of households access to credit.

The task in this section is to determine which specific variables affect households' decision to whether or not to take credit. Which economic, demographic and physical factors enhance or inhibits households access to credit. In logistic analysis one can directly estimate the probability of an event occurring and identifies the variables that are useful in making such predictions. Access to credit is explained by using a logistic regression analysis, as the information is available only on whether a credit transaction was observed or not, rather than on the amounts of credit received.

Out of the five significant predictor variables, three had positive signs (household size, age of the household head and farm income) implying that an increase in either of these variables would be associated with an increase in households` access to agricultural credit, while the other two (level of education of the household head and farm experience) had negative signs indicating that an increase in either of these variables would be associated with a decrease in the level of participation in the credit market.

The coefficient of household head level of education was significant but negatively related implying that the more educated the household head would be, the less likely that household would participate in credit market. Per every unit increase in household head`s education, a 0.928 decrease in the *log* odds of participation in credit acquisition by households, *ceteris paribus*.

These findings are in line with the findings of Yegoh and Kimeli (2013) in their study in Kenya who observed that education was one of the significant predictors of accessibility to credit. Educated households enjoy multiple better options to trade their labour as compared to their uneducated counterparts. In essence it would be logical to find uneducated household heads engaging in farming for they are limited in terms of their labour trade options (hence they are the ones who are likely to participate in credit market). Most of the educated households on the study area were on most occasions reported to be working. The results from estimation of the logistic regression are presented in Table 6.6 below.

Table 6.6: Logistic regression estimates of determinants of households access to credit

Variables	B	S.E.	Wald	Sig.
Household size	.384	.228	2.846	.092**
Age	.052	.020	6.621	.010*
Farm income	.000	.000	5.190	.023*
Size of farm (ha)	-.039	.108	.130	.719
Farm experience(yrs)	-.087	.032	7.235	.007*
Social capital (grant)	.000	.000	1.296	.255
Educational level	-.928	.417	4.939	.026*
Constant	-3.857	1.506	6.560	.010
Log Likelihood = 71.148 *Significant level at 5% **Significant level at 10%				

Source: Computed from Field Survey Data, 2015

The variable farm experience is statistically significant at 5%. The coefficient of farmers experience was significant but negatively (-0.087) related implying that the more years of farm experience a farmer has, the less likely that household would participate in credit market. Per every unit increase in household farm experience in years, a 0087 decrease in the *log* odds of participation in credit market by households holding all other independent variables constant. These findings support the observation of Sebopetji (2008) who also noted a significant influence by farm experience. This might be explained by the fact that in this study, borrowers had fewer average years of farm experience (9) when compared to that of non-borrowers (12).

The positive significant coefficient of household head age indicates its positive influence on probability of credit access which was as expected. Per every unit increase in household head

age, a 0.52 increase in the *log* odds of taking credit by households holding all other independent variables constant. This is true for this study as the average age for the borrowers was 66 years and that of non-borrowers was 61 years. Households' size is positively related to the probability of access to credit and is statistically significant at the 10 percent confidence level. Thus implying that the higher the households' size, the more likely that a credit agent will lend to it.

6.6 Chapter summary

This chapter presented empirical results of the study. Using descriptive analysis some elements of association between households' demographics and access to credit was confirmed. Their direction and strength could not be established using descriptive statistics. Several household socio-economic factors showed some elements of association to credit access capable of influencing household's decision to use credit, although the magnitude and direction of the association could not be established at descriptive statistics level. Using logistic regression the influence of some socio economic characteristic of households on decision to use credit was confirmed.

CHAPTER 7
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

7.1 Introduction

This chapter summarizes the main findings of the study and concludes on the basis of the findings derived from the empirical results. The chapter discusses the extent to which objectives and hypotheses posed at the beginning of the study have been addressed by the analysis. This chapter also generates the recommendations on the basis of the results.

7.2 Summary and conclusions

The broad objective of the study was to determine the factors that affect access to agricultural credit amongst small holder farmers thus contribute to effective policy making for small- scale farmers in the Nkonkobe local Municipality. The study used a set of analytical techniques to analyze the data; such as the descriptive statistics (frequency, cross tabulation), Spearman's rho correlation, binary logistic regression model to determine the magnitude and direction of the association between households' socio economic characteristics and access to credit. The first objective was to determine the socio economic characteristics of households in the study area. Major findings drawn from the analytical chapter were that out of the total of 214 farmers who were involved in the study, 30 of them were borrowers and 184 were non- borrowers. It was also evident that non-borrowers are more educated than the borrowers. The results also showed that non-borrowers had an average close to R3000.00 on social grant while the borrowers had an average of R2349.33 on social grant. The average farm experience of borrowers was found to be 9 years while that of non-borrowers was found to be 12 years.

Household head level of education was also investigated its association to participation in credit market by households. The results showed that there was a positive association (Pearson chi test .027*) between the two variables. The second objective was to investigate the association between households' socio economic characteristics and credit usage. From the study results, a correlation analysis revealed a positive association between age and access to credit. However, although age and access to credit by households indicated a significant positive linear

relationship *Spearman`s rho p-value* of (0.038), the coefficient was (0.142), whose absolute value was not large enough to give a convincing clue of the association. This means that there was a weak positive association between the variables. A strong positive linear correlation between household size and household size was confirmed by the results. The variables were statistically significant at 99% with the coefficient at (0.718) indicating the strength of association.

Lastly the study focused on investigating factors capable of influencing households" decision to participate in credit market. Socio-economic household characteristics including household size, household head age, household head level of education and farm experience were expected to influence households` decisions to participate in credit market as the main hypothesis. Major findings inferred indicated that household head level of education and farm experience were significant factors capable of negatively influencing participation of households in credit market. This means that, targeting households with [illegible] of education would result into a negative likelihood that they take credit. As the logit estimates results have shown, per every unit increase in household head`s level of education, would results in a 0.928 decrease in the *log* odds of participation in credit acquisition by households, *ceteris* paribas.

Household head age, household size and farm income were also significant factors capable of positively influencing participation of households' to credit market. That is to say, an increase in farmers' age in years would result in an increase in the likelihood that farmers use credit and vice versa, ceteris paribus. The same applies for household size, targeting households with more household members would result into a positive likelihood that they take credit. Farm size and amount of social grant received were found to be insignificant in as far as its influence on credit market participation by households was concerned.

Hypothesis: Farmers' socio-economic characteristics, human capital, and institutional variables do not influence access of households to agricultural credit. The hypothesis is rejected on the basis that, the empirical results show a positive influence of some socio-economic factors in credit access. Variables that were found to be highly significant are: household size, age of farmer and farm income.

In general the study concludes that farmers in the study area are credit constrained since there is a very low amount of credit users in the region, and that farmers` credit accessibility can be determined through the influence of certain socio-economic factors.

7.3 Recommendations

This study recommends that efforts to ensure sustainable agricultural production should be targeted at the active population who are relatively young to carry out the business of farming. There is therefore the need for policy support for improved credit access, empowerment and more active involvement of the youth and younger population in the farming sector. This would also serve as a succession arrangement to ensure that there is no generational gap in agricultural production. Given the limited scope of implementation of government credit institutions and there is need to scale up and expand the scope of implementation of these institutions to cover more local government areas for a wider benefit of the programme to reach majority of the people.

There is also a need for effective training programmes that would include access to insurance and use of modern technologies such as cell phones, to close the gap between lender and borrower. Training of farmers, both borrowers and non-borrowers in the identification of profitable projects and the use of production credit is also recommended. Production credit is recommended for the area as there are no possibilities of long term financing as most of the land in the area is communal and without title deeds. The same training may stimulate the demand for credit among those farmers who are currently not credit adopters.

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APPENDIX
QUESTIONAIRE

PART A: HOUSEHOLD SOCIO-ECONOMIC CHARACTERISTICS

1. Gender Male ☐ Female ☐
2. How old are you? .....
3. What is your year of birth? .....
4. Please list the household members that live here with you
    1. Husband
    2. Wife
    3. Mother
    4. Father
    5. Son
    6. Daughter
    7. Cousin
    8. Niece
    9. Nephew
    10. Uncle
    11. Aunt
    12. Brother
    13. Sister
    14. Friend
    15. Grandson
    16. Granddaughter
    17. Grand Father
    18. Grandmother
    19. Other: specify
5. How many years did you spend in school? .....
6. Occupation .....
    - Farmer ☐
    - Wage Employment ☐
    - Unemployed ☐
    - Other; specify.....
7. Are there any members of the family receiving social grant? Yes ☐ No ☐
8. If yes to question 7, please list the type of grant and amount below;

Type of grant	Amount (Rands)
Child support grant	
Disability grant	
Grants for older persons	
War veterans grant	
Other	

PART B: FARMING

1. What is the size of your arable land in hectares? .....
2. Do you own the land your farm on? Yes ☐ No ☐
3. How many years of farm experience do you have? .....
4. Is there market available in the village? Yes ☐ No ☐
5. If no, what is the distance to nearest market?
   .....
6. Do you have other source of income be... eceived from farming? Yes ☐ No ☐
7. What is the total income you received from farming? .....

PART C: CREDIT

1. Did you take any credit? Yes ☐ No ☐
2. What was the purpose of taking credit?
   1. Farming
   2. Wedding
   3. Funeral
   4. Education
   5. Building
   6. Food
   7. Entertainment
   8. Transport
   9. Furniture
   10. Others
3. Amount borrowed (Actual).....
4. What was the source of credit? .....
   - Stokvel
   - Mashonisa
   - Microlenders
   - Friends/relatives/neighbours
   - Others

5. What was the percentage interest on Credit (Actual).....
6. Was the loan sufficient? Yes ☐ No ☐

THANK YOU FOR YOUR TIME

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CODE BOOK

GEND01= Gender (Male=1, Female=2)

YRBORN= Year Born (Actual)

AGE = Number of years since birth (Actual)

YRSCH= Number of years spent in school (Actual)

OCCUP= occupation

- Farmer
- Wage Employment
- Unemployed
- Other: specify

CAT04PK= Cattle kept (Actual)

SHP04PK= Sheep kept (Actual)

GOT04PK= Goat kept (Actual)

PIG04PK= pig kept (Actual)

POUL04PK= poultry kept (Actual)

MAZ28H= How much of maize harvested (Actual)

VEG28H= How much of vegetables harvested (Actual)

CRED37= Take any credit (Yes=1, No=0)

SOS37 = Source of credit

- Stokvel
- Mashonisa
- Microlenders—Nerpo
- Friends/relatives/neighbours

LOAN 38= was loan sufficient? (Yes=1, No=0)

LOAN38R= Reason if 'No'

1. Income
2. Assist in farming activities
3. For manure
4. Home consumption
5. Ritual purpose
6. Entertainment
7. For social status
8. Payment of school fees
9. Only when necessary
10. Sell more in the village because it is cost effect
11. Livestock feeding
12. Highly demanded
13. Insufficient land

FARM40= farm income (Actual)

GRANT39= Income form old age and child grant (Actual)

MARKET41= Market available in village (Yes=1, No=0)

DIST41U= Distance to nearest urban centre (Actual)