SUSTAINABLE FARMER LIVELIHOODS AND ENHANCEMENT OF FOOD SECURITY IN MBHASHE MUNICIPALITY, EASTERN CAPE PROVINCE, SOUTH AFRICA

By

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ABSTRACT

The present study aimed to investigate how smallholder farmers use sustainable farming practices and how this contributes to their household and food security. Data were collected from 130 smallholder farmers residing in Mbhashe Municipality in the Eastern Cape, South Africa. The approach used in this study combined household survey on sustainable agricultural practices and food security in five villages in Mbhashe Municipality. A total of 62 percent of the respondents stated that they do not use artificial mineral fertilisers. Their reasons were not connected to using sustainable farming practices; however, it ranged from lack of subsidies from the government and expensive inputs. Meanwhile, 49 percent of the respondents used animal manure because it is readily available and cheaper compared to artificial fertilisers. On the other hand, 39 percent of respondents used pesticides and the remainder did not use it because of lack of finance. The results of the regression model show that five variables namely; age, education, farm size, membership in association, household size, extension visits and farmers' perceptions were statistically significant in influencing the utilisation of Sustainable Agricultural Practices (SAPs). This implies that perceptions of farmers, education, gender, membership in an association and credit access were important factors in SAPs adoption.

In terms of food security, 81 percent households were food secure in the study area. Rarely has there been situations where there is no food to eat. However, 35 percent of respondents of those who faced food shortages stated that they do so in June/July. This is the winter period were fields are usual dry, especially in the rural areas. The main cause of food shortages was mainly due to unemployment, lack of finance and weather conditions. In order to improve SAPs utilisation in South Africa, it is necessary for the government to provide incentives and provide a legal framework that will allow more organisations to provide extension services to their communities. The creation of such a framework will increase autonomy for agricultural associations to provide specialised knowledge to their areas of jurisdiction. The study proposes a model that will bring sustainability if well implemented.

Keywords: Agriculture, Decision Making, Food Secure, Household Economy, Sustainability, South Africa

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I, the undersigned David Fundisile Bese, hereby declare that the dissertation is my own original work and that it has not been submitted, and will not be presented, at any other University for similar or any other degree award.

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I, David Fundisile Bese, the undersigned, student number 2001039086, hereby declare that I am aware of the University of Free State's policy on plagiarism and I have taken every precaution to comply with the regulations

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DEDICATIONS

This is dedicated to my Wife, Ntomboxolo Bese, Mother, Nothusile Bese and my family at large because of the loneliness they endured during the time I was busy with the collection of data, analysis and writing up the thesis.

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ABBREVIATIONS

AAAE	African Association of Agricultural Economists
AEASA	Agricultural Economics Association of South Africa
AES	Associated Energy Services
ANC	African National Congress
BFAP	Bureau for Food and Agricultural Policy
CAADP	Comprehensive Africa Agricultural Development Program (CAADP)
CASP	Comprehensive Agricultural Support Programme
CRDP	Comprehensive Rural Development Programme
COGTA	Cooperative Governance and Traditional Affairs (COGTA
DAFF	Department of Agriculture, Forestry and Fisheries
DAFF	Department of Agriculture Forestry and Fisheries
DBE	Department of Basic Education,
DfID	Department Of International Development
DoA	Department of Agriculture
DRDLR	Department of Rural Development and Land Reform
DSD	Department of Social Development (DSD
DoA	Department of Agriculture
DWA	Department of Water Affairs
ECSECC	Eastern Cape Socio-Economic Consultative Council
FAO	Food and Agriculture Organisation
GDP	Gross Domestic Product
GNP	Gross National Product
SHD	Sustainable Human Development

IDC	Industrial Development Co-operation
IDP	Integrated Development Plan (IDP)
IFAD	International Fund for Agricultural Development -IFAD
ISRDP	Integrated Sustainable Rural Development Programme (ISRDP)
LRAD	Land Redistribution for Agricultural Development (LRAD
MDG	Millennium Development Goals
MDG	Millennium Development Goals
NDA	National Department of Agriculture
NDP	National Development Plan
NGO	Non-Governmental Organisation
OECD	Organisation of Economic Co-Operation and Development
PAPSL	Participatory Assessment and Planning for SL (PAPSL
PGDP	Provincial Growth and Development Programme (PGDP
PGDP	Provincial Growth and Development Programme (PGDP
RDP	Reconstruction and Development Programme
RDP	Reconstruction and Development Programme (RDP)
RDP	Rural Development Programme
RLSA	Rapid and Participatory Livelihood Security Assessments (RLSA)
SADC	Southern Africa Development Community
SAPs	Sustainable Agricultural Practices
SASSA	South African Social Security Agency
SDG	Sustainable Development Goals
SHD	Sustainable Human Development
SLA	Sustainable Livelihoods Approach

SLAG	Settlement/Land Acquisition Grant
StatsSA	Statistics South Africa
UDF	Urban Development Fund
UNDP	United Nation Development Programme
UNICEF	United Nations International Children's Emergency Fund
UREC	University Research Ethics Committee
WHO	World Health Organisation

CHAPTER 1: INTRODUCTION AND BACKGROUND

1.1 Introduction

This study investigated sustainable farmer livelihoods and its impact on food security. In addition, it also investigated how agriculture contributes to sustainable food security and the role played by government in enhancing food security in Mbhashe Municipality, Eastern Cape province, South Africa.

1.2 Background of the study

Aliber (2001) noted that agriculture in South Africa has a central role to play in building a strong economy and, in the process, reducing inequalities by increasing incomes and employment opportunities for the poor and improving food security and livelihoods sustainability. The South African Constitution (Chapter 2, Section 27.1b) asserts that every citizen has the right to have access to sufficient food and water and that the state must take reasonable legislative and other measures, within its available resources to achieve the progressive realization of this right to sufficient food. In response to this imperative, the Department of Agriculture Forestry and Fisheries (2015) has adopted it as its guiding vision to the attainment of universal physical, social and economic access to sufficient, safe and nutritious food for all South Africans to meet their dietary requirements. In accordance with the then Millennium Development Goals, now better known as Sustainable Development Goals, the overarching goal of the strategy is to eradicate hunger, malnutrition and food insecurity by 2015 (StatsSA and UNDP, 2003).

Simister and Piesse (2002), posit that while food security has come to represent an incontrovertibly salient governmental priority and despite the country being considered self-sufficient in respect of food production, food insecurity continues to remain a substantive developmental challenge. Estimates suggest that approximately 1.5 million South African children suffer from malnutrition, 14 million people are vulnerable to food insecurity and that 43% of households suffer from food poverty (Charlton and Rose, 2016). The long-term impact of such high rates of food deprivation on the development potential and quality of the labour force and hence on economic growth and poverty reduction stretching over as much as three generations is extraordinarily high. There can be few investments with such rewarding long-term rates of return as adequate child nutrition.

According to the National Treasury (2003), the changes in the agricultural sector include broader processes of rural development, which include land reform, investment in water supply and transport infrastructure, and improved food security. They are intended to make a major contribution to the food security in the country. These changes are also part of a process of freeing the economy from business-inhibiting aspects of regulation and state intervention. In the agricultural sector, there is a positive response in terms of production and export performance, and in competition in supplying farm requirements and marketing.

Mbaya (2003) indicated that farmers have made great progress towards reduced reliance on state subsidies and towards sourcing the services; they need from the private sector and from farmer organisations. Large-scale established agriculture has the potential for increased food security, levels of employment and for improving the welfare of farm workers. Encouragingly, many individual commercial farmers have shown in recent years that they can play a constructive role in facilitating and supporting land redistribution projects, which will contribute to social stability and safety in rural areas.

Mbaya (2003) further indicated that food safety is further a primary concern for the agro-food industry. The food sector is subject to stringent legislation and regulation aimed at ensuring that food reaching consumers is not harmful to their health. Mano *et al*., (2003), despite these measures there exist a number of risks to food safety, which appear to be increasing. South African river water that is used for irrigation purposes shows high concentrations of faecal indicators and numerous other pathogens, which can cause severe illnesses in humans.

Mano *et al.,* (2003) noted that South Africa is considered food secure at a national level, there is enough food available for the whole population. Taking a longer-term view, the current ability of South Africa's farmers to continue meeting the increasing demand for food is expected to be tested by the emerging impacts of climate variability and climate change on production. Mabeza-Chimedza (2000) showed that the trend towards greater consumption of wheat, fuelled by the preferences of the growing middle class, could see the country moving into a situation of production deficit and net import of grains. Food security in South Africa is largely about direct or indirect access to cash to purchase food, particularly in the urban context, where purchasing

food is the dominant means of accessing food. The country is further experiencing a nutrition transition in which under nutrition, notably stunting and micronutrient deficiencies, co-exist with a rising incidence of overweight and obesity and the associated consequences such as hypertension, cardiovascular disease and diabetes (Mabeza-Chimedza, 2000).

Drimie and Van Zyl (2003) pointed out that agriculture plays a central and strategic role in Africa's development. Indeed, it is the key to economic growth, increased incomes, improved living standards, poverty eradication, and enhanced food security. In fact, all the Millennium Development Goals (MDGs) have direct or indirect linkages to agriculture. It is for these reasons that in 2003, the African Heads of state and Government adopted an Africa-owned and Africa-led initiative, namely the Comprehensive Africa Agricultural Development Program (CAADP), to assist African countries to revitalize agriculture growth as a strategy to combat poverty and hunger (Drimie & Van Zyl, 2003).

Sustainable development requires policy changes in many sectors and coherence between them. It entails balancing the economic, social and environmental objectives of society, which are the three pillars of sustainable development (Mabeza-Chimedza, 2000). Integrating them wherever possible, through mutually supportive policies and practices, and making trade-offs where it is not possible. The policy options presented below are crosscutting, emphasizing the interwoven nature of human, economic and natural resource considerations.

Bayley (2000) argued that in addressing the social challenges it is important that focus is placed on food security and poverty. Agriculture plays a crucial role in sustainable development and in hunger and poverty eradication. Agricultural productivity growth can bring about swift and sustainable reductions in hunger and poverty. Increasing agricultural productivity remains one of the most effective ways to combat hunger and poverty. Agriculture can make significant contributions to the reduction of poverty levels in South Africa. It is the sector from which most of the rural poor derive their livelihoods (Aliber, 2001).

1.3 Legislative Framework for Food Security in South Africa

The role of agriculture in food security cannot be overstated; agriculture plays a key role in the overall local production, exports and employment, especially in domestic

countries (Crush & Battersby, 2016). The role in food security does not end in only food production, but also agro-industries, transportation, commercial and other similar activities that create employment opportunities. In addition, the majority of the wo0rld`s population still reside in rural areas, and these rely on agricultural production (Conway, Van Garden & Dernyg, 2015). The role of agriculture in food security is usually determined by the nature of the agricultural policy. Currently, the agricultural policy is mainly influenced by neoliberal policy, which prioritizes production through efficient players and leaving food pricing to the market (Peyton, Moseley & Battersby, 2015). An agricultural policy consists of numerous set of laws that guides, how land is utilized, owned and purchased, the nature of food production, how food is priced, and the decision on whether to prioritize importing or export food depending on the nature of food production.

The need for a coordinated approach in addressing the pillars of food security can also be contextualized in the legislative framework in South Africa. The right of access to food is a constitutional right entrenched in the Bill of Rights of the Constitution of the Republic of South Africa, 1996. Sections 27(1) 28(1) and 35(2) of the Constitution of the Republic of South Africa, 1996, entrenches the right of access to sufficient water and food to all citizens, the right of every child to basic nutrition and the right of detained person and sentenced prisoners of access to basic nutrition. The Constitution of the Republic of South Africa, 1996 emphasizes the requirement that the state must take reasonable and other measures within its available resources to achieve the realization of these rights.

Section 8 of the Constitution of the Republic of South Africa, 1996, binds all organs of state to ensure that the rights in the Bill of Rights are protected, promoted and respected. The government of South Africa is constitutionally bound to promote adequate access to food. The White Paper on Agriculture, 1995, recognizes the contribution of agriculture in the improvement of income, food security, employment and the quality of life. The White Paper on Agriculture, 1995, states the need for a multidimensional view to enhancing household and national food security. South Africa is a net food exporter and is self-sufficient in terms of maize, wheat, vegetables, sugar and sunflowers (Du Toit, 2011:8). The White Paper on Land Reform, 1997, identifies land reform as a way to ensure that more households will be able to continually access enough food. The White Paper on Land Reform, 1997, also identifies the

consequences of the absence of household level security on the physical and mental development of children, and this is of importance to the Department of Basic Education which aims to improve the physical and mental development of children through its National School Nutrition Programme. Household food security is impacted by agricultural activities as sources of food and income, and household food security has an effect on the following aspects of nutrition, health and education.

As a result, a multisector approach to food security should be devised and implemented. The White Paper on Land Reform, 1997, makes provision for accessing productive land which provides the chance for households to acquire more food and financial resources to purchase food. It also points to the fundamental role of land to economic growth and reducing poverty. In this context identifies the effect of poverty and income on food security, hence recommend the necessity of multisector approach between the agriculture sector and other sectors. The New Growth Path also identifies three challenges, poverty, inequality and unemployment that have an impact on the capacity of people to acquire food. In this context, the New Growth Path also identifies a microeconomic package whose purpose is to contain the effect of higher prices on the livelihoods of people.

South Africa has emphasized the following aspects since 1994, namely; reducing poverty, creating employment. Concerning food security, the agricultural sector has a fundamental role in creating employment opportunities. With regards to multisector coordination, economic policies are important to other sectors, which aim to promote the capacity of people to acquire food and enhance food security. Since South Africa still faces numerous developmental challenges, the National Development Plan is another strategy adopted by the National Planning Commission in the office of the Presidency in 2011 and provides a strategic framework to guide vital choices and actions with the aim of obtaining specific goals in 2030. The purpose of the National Development Plan is ensuring that South Africa obtains a decent standard of living through emphasizing on the basic services, public transport, the development of human capacity, health care services and sufficient nutrition. In this context, food and nutrition are regarded as a necessity in the context of South Africa. The NDP identifies poverty as the main challenge in South Africa. With the aim of reducing poverty, specific social welfare policies have been implemented by the DSD, which administers social security with the South African Social Security Agency as stipulated by the

Social Assistance Act, (Act 13 of 2004) and the South African Social Security Act, 2004 (Act 9 of 2004). The argument is that the capacity of people to access food is influenced by their individual food security. In this context, the DSD has a vital role in ensuring that those households without sufficient resources are provided with sufficient assistance.

The White Paper on Social Welfare, 1997, stated the necessity of government departments to work together in order to guarantee that people who suffer from malnutrition are assisted with programmes such as feeding programmes, works, capacity building and other programmes that contribute to household food security. Poverty cannot be measured by income only; there is a need for different sectors to work together in terms of the different programmes they offer related to poverty reduction and food security. School feeding programmes are provided for as part of the programmes made provision for in the White Paper on Social Welfare, 1997. The school feeding programme offered by the Department of Basic Education is the National School Nutrition Programme. The National School Nutrition Programme is the key programme relevant to the nutrition and food safety element of food security. There is a clear link between the agriculture, economy, social, health and education policies in South Africa. The National Policy on Food and Nutrition Security acknowledges the complex nature of food security and aims to provide a framework for synergy between the various programmes and policies in place. The Household Strategy on Food and Nutrition Security specifically targets the availability and affordability of food to households and identifies a need for interaction between the spheres of government. The multidimensional nature of food security is evident in the legislative framework applicable to food security in South Africa

1.4 Research Problem and Aims

1.4.1 Research problem

The problem which is being investigated can be traced back from the past dispensation in to the present circumstance. Post-apartheid, South Africa introduced policies and interventions for sustainable farmer livelihoods that promote food security in the country (Philips, 2012). FAO report for 2008 indicated that despite all the challenges faced by farmers in South Africa, agriculture remained important in maintaining food security and creating jobs for many South African citizens. Whilst

agricultural policies and interventions remain intact, the reality on the ground suggests that the policies were not fully implemented so that they will cover all aspects of agriculture (Pereira & Ruysenaar, 2012).

Various government intervention strategies and policies in agriculture which are meant to redress the past injustices which were caused by the apartheid, such as the land reform programme have made it an objective to uplift smallholder farmers. Given the current debates on land expropriation without compensation, the idea of practising sustainable farming becomes relevant. It is estimated that over 75 percent of smallholder farmers practice subsistence farming. This number increases in certain localities such as the Eastern Cape Province that is predominately composed of traditional farms (Cheteni, 2017). Therefore, if ever the Sustainable Development Goals (SDGs) are to be achieved, there is a need for a paradigm shift on how smallholder farmers can contribute to this goal of food security and poverty eradication using agriculture.

In the Eastern Cape Province numerous smallholder farmers struggle to have access to farming inputs both provided by the government and private (Cheteni, Mushunje & Taruvinga, 2014).

Sustainable farmer livelihoods, though touted as the way forward, has not been comprehensively investigated in the context of small scale farming in South Africa. As it stands, there is no scientific clarity regarding how various factors influence implementation of sustainable agricultural practices and the resulting impact on food security. Given the urgency of this matter, this study investigated sustainable farming practice in the Mbhashe Community in the Eastern Cape Province.

1.4.2 Research objectives

The objectives of the study are:

1) To carry out a demographic analysis of Mbhashe Municipality
2) To analyse the experiences of using sustainable farming practices by smallholder farmers in the Mbhashe Municipality
3) To determine the contributions of farm characteristics towards encouraging sustainable livelihoods in the Mbhashe Municipality
4) To assess the role of household food security in building sustainable livelihoods

in Mbhashe Municipality

5) To assess the factors influencing farm household decision making process in utilising sustainable farming practices in the Mbhashe Municipality
6) To determine if whether sustainable agricultural practices improve farmer livelihoods and food security for smallholder farmers in Mbhashe Municipality
7) To determine the food security status of the farm households in the Mbhashe Municipality and the coping strategies employed by these households in order to mitigate food insecurity; and
8) To propose a model based on the current research to sustain livelihoods in Mbhashe community in Eastern Cape.

1.5 Significance of the study

In South Africa, the agriculture sector contributes to over 9% of the Gross Domestic Product (StatsSA, 2018). It is stated in various national strategies that broad based development of the agricultural sector is key in addressing poverty and food insecurity. Poverty remains one of the core targets that the South Africa government is addressing. As pointed by Statistics South Africa (2018), over a 50% are still in poverty and the mostly affect being the black Africans.

The relevancy of this study lies in its intention to explore the anti-poverty interventions and food security strategies in post-apartheid South Africa. Regardless of the fact that South Africa is better in terms of economic development as compared to other African countries, poverty and lack of food still affect a number of people in South Africa. In this context, the government has come up with diverse strategies and policy meant to reduce poverty and ensures food security. Hence, this study intends to explore anti-poverty interventions and food security strategies in South Africa. In addition, more importantly the study will not merely explore these anti-poverty interventions, but will further examine the effectiveness of these interventions on the concerned individuals. That is the study will investigate if there are any changes on the livelihoods of the people who are the target of these interventions. If there is any positive change, is the change consistent or sustainable enough, such that the interventions should be regularly or consistently adopted as solutions to these complications. If there is no impact or significant impact, the study will examine if there are any alternative or strategies adopted by the government to ensure that there is impact.

In addition, the relevancy of the study lies in its intention to examine the cooperation between government and other sectors in generating strategies that will have positive impact on people in relation to food security and poverty. The study will also add a perception or some ideas into the literature; though there are different studies conducted on food security and poverty interventions, these studies have rarely focused on the impact of these strategies on the livelihoods of the people. Therefore, the study will add this into the literature. The study will come up various recommendations, debates and argument. It is envisaged that this addition will be relevant to the stakeholders on poverty and food security interventions, especially the government.

More so, why there are policy inconsistencies in the formulation and implementation of policies related to agriculture. Therefore, the study main problem is to investigate anti-poverty policies and how they influence sustainable farmer livelihoods and food security in South Africa since literature indicated that many people are still suffering from a shortage of food in the country. To add on, there is still limited literature on anti-poverty interventions and food security. Therefore, the study intends to fill that literature gap.

1.6 Thesis Outline

Chapter One: Introduction

This chapter covers the background information, problem statement, objectives of the study, significance of the study and thesis outline.

Chapter Two: Literature review

This chapter reviews the existing literature on sustainable farmer livelihoods and enhancement of food security. A number sustainable and food security models are explored.

Chapter Three: Research Methodology

This chapter is comprised of the following themes: overview and description of the study area, site selection, research population, research instrument, questionnaire and data collection, data and statistical analysis methods.

Chapter Four: Demographic Analysis of Mbhashe Municipality

This chapter provides an analysis of the research findings and discussions.

Chapter Five: Household economy in Mbhashe Municipality

This chapter provides a breakdown on household characteristics of the respondents in the study area.

Chapter Six: The contributions of farm characteristics towards encouraging sustainable livelihoods

This chapter provides discussions and findings on farm characteristics contribution to sustainable livelihoods in the study area.

Chapter Seven: Role of household food security in building sustainable livelihoods in Mbhashe Municipality of Eastern Cape

This chapter focuses on food security and it gives findings if whether the households in the study area are food secure or not. Lastly, a regression model on sustainability is estimated.

Chapter Eight: A proposed model to sustain livelihood in Mbhashe Municipality in Eastern Cape

This chapter provides the originality of this study and it present a model that can suit the study area in improving the level of farmers participating on sustainable practices. The model is based on the findings of the study.

Chapter Nine: Summary of findings, conclusion and recommendations

This chapter provides a summary of findings, conclusions and recommendations about the study. It also provides future research ideas.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

This chapter presents a review of theoretical and empirical literature informing this study. The theoretical framework informing this is known as the sustainable livelihoods approach (SLA). The main agenda driven by the SLA is to provide an alternative way of development as well as promoting livelihoods in developing and low-income territories to enhance progress in poverty elimination. The framework is reviewed under such headings as origins, core principles, criticisms levelled against the framework as well as its relevance to the current study. The chapter also reviews various SLA models that have been put forward by various authors.

The chapter also reviews empirical literature related to the current study. In addition, key concepts of the study such as poverty, food security and livelihoods are defined in this chapter. The chapter also explores anti-poverty interventions that have been implemented both in South Africa and how they contribute to sustainable livelihoods. Policy considerations for sustainable farmer livelihoods and how they impact on food security are also reviewed based on available literature. Furthermore, the chapter also discusses literature on how agriculture as an economic activity contributes to sustainable food security. The chapter also explores the role that is played by the government in enhancing food security in the Eastern Cape and South Africa at large.

2.2 Theoretical Framework: The Sustainable Livelihoods Approach (SLA)

This section discusses the sustainable livelihoods approach in light of its origins/developments, its key underlying principles, how it addresses the question of poverty reduction and lastly, the criticism levelled against the approach. The approach is also referred to as the sustainable livelihoods framework (SLF).

2.2.1 Origins of the Sustainable livelihoods approach

The sustainable livelihoods approach emerged around the late 80s as an alternative approach to poverty reduction and development. The origins of the approach can be traced back to development theories, policies and practices as well as activities and actions concerning people in poverty and their surroundings (Haug, 1999). This shows that thoughts on how to help the poor started way back, however, the SLA emerged as a new way/idea of analysing various development programs and project aimed at fighting poverty. The SLA was first proposed by the Advisory Panel of the World

Commission on Environment and development in 1987 (The Brundtland Commission Report) (Elllis, 2000). The SLA is deeply engraved in the broader context of rural development and poverty research. In many ways, the SLA is similar to the old Integrated Rural Development approach. The crucial difference is that the SLA does not necessarily aim to address all aspects of the livelihoods of the poor. The intention is rather to employ a holistic perspective in the analysis of livelihoods to identify those issues of subject areas where an intervention could be strategically important for effective poverty reduction, either at the local level or at the policy level. The Brundtland Commission report comprised of two concerns which are the issue concerning the limitations of the environment's ability to cater for present and future needs and the idea of the needs of people living in poverty.

As a result, the report prompted the initial policy debate regarding the concept of SLA (Solesbury, 2003). From there on, a series of publications leading which are credited for the development of the SLA was made. In 1988, Conroy and Litvinoff edited a paper titled The Greening of Aid: Sustainable Livelihoods in Practice which was published by the International Institution for Education (Solesbury 2003). The United Nation Development Programme (UNDP) then published the first Human Development Report in 1990 and, the same year, the Institute of Development Studies published Sustainable Rural Livelihoods: Practical Concepts for the 21st century, authored by Chambers and Conway (Solesbury 2003).

Subsequent to these publications, a number of development international development organisations started to explore and adopt the concept of the sustainable livelihoods approach (Ellis 2002). These organisations include DfID, CARE, UNDP who are involved in development programmes and poverty eradication initiatives across the world. Another important view on the development of the SLA is provided by Ellis (2000) who states that a follow-up of the international development discourse since the 1950s indicates that there are a series of subsequent ideas and themes that culminated in the SLA way of thinking. Principally, notable contributions that played an important role in the development of SLA concept came from McNamara (redistribution with growth), Chambers (powerlessness, vulnerability and strategies) and Sen (entitlement and gender) (Ellis and Biggs 2001).

At its core, the SLA represents a departure from the conventional evaluations which

only focused on resources and outputs only, rather, the SLA put a focus on people's lives, outputs and resources (Sharpley, 2000). Short (1999) states that The SLA theme, which revolves around social protection, livelihoods and vulnerability, goes beyond rural development and thus includes urban areas. Although the concept of SLA put more emphasis on rural livelihoods, initially, the distinction between rural and urban livelihoods was equally important in SLA thinking (Short, 2002). The SLA is discussed in detail in the next section

2.2.2 The Sustainable livelihood approach

There are three insights into poverty which underlies this new approach (Scoones, 1998). The first one is the recognition that while economic growth may be crucial in efforts to reduce poverty, there is no automatic relationship between the two since much is reliant on the capabilities of people to take advantage of growing economic opportunities.

Secondly, there has been a realisation that poverty, as interpreted by the poor, is not only an issue of low income but also includes other is not just a question of low income, but also includes other concerns such as illiteracy, health, lack of social services together with one's feeling of powerlessness and vulnerability. Finally, it has also been discovered that the people living in poverty best know their situations and needs hence they must be actively involved in the formulation of projects and policies intended to better their plight (Ashley & Carney 1999).

The concept of a sustainable livelihoods approach is multidisciplinary and intensely rooted in international development publications and literature. According to Scoones (1998), the SLA, which encompasses a paradigm shift from the rational approach of dealing with poverty, is increasingly widely accepted and important in the debate regarding development and poverty eradication. The shifting views on the lives of people living in poverty, the importance of food security, together with institutional and policy concerns are entrenched in the concept of SLA (Ashley & Carney 1999).

The need to reduce poverty is the principal focus and goal of the SLA (DfID, 1999). The SLA aims to encourage development that is environmental, socially institutionally economically and environmentally sustainable in order to generate positive livelihood outcomes (Ashley & Hussein 1999). The SLA has increasingly grown in popularity since the 1990s, thus reflecting a growing recognition of how governments and

organisations can promote development by reducing poverty. As such this study uses the SLA as a framework to evaluate the impact of anti-poverty interventions and policy considerations for sustainable farmer livelihoods and enhancement of food security in Mbhashe Municipality. The thrust of this research resonates with the key tenets of the SLA way of development thinking and approach to developing livelihoods in developing and low-income territories to strengthen progress in poverty eradication (Ellis & Biggs 2001). According to Chambers and Conway (1992), in its simplest form, the SLA is a combination of capabilities, equity and sustainability. However, the idea of accepting and understanding the resource constraints of the poor, together with the risks they face and the established setting that either allows or hinders them to make progress, is the core of the sustainable livelihoods thinking (Ellis, 2002). Through this combination, the SLA aims to assist people to attain long term improvements against any indicator of poverty (Ashley & Carney 1999). Close to half of the world's population, more than 3 billion people live on less than US$2.50 a day (UNICEF, 2016). In addition, more than 1.3 billion live in extreme poverty (UNICEF, 2016). Approximately 22 000 children die each day due to poverty (UNICEF, 2016). It is the intention of the SLA to find solutions on how to assist those who are impoverished to develop acceptable livings standards (Hussein, 2002). Several organisations have formulated their own versions of the SLA as an approach to deal with poverty in a sustainable manner. A review available literature shows that the SLA developed by Scoones (1998), DfID (1999), UNDP and CARE are the most referenced, however, the one by DfID is the most adopted.

2.2.3 Sustainable livelihoods framework models

There is no universal approach to the application of SLA framework. Available literature shows that various organisations have operationalized the SLA in slightly different ways (Carr, 2013). Depending on the agency of development, the SLA can be used primarily as an analytical framework (or tool) for programme planning and assessment or as a programme in itself. Although there are evident differences, there are three primary features common in most approaches followed by different organisations. These are (a) the focus of the SLA IS on the livelihoods of the poor (b) the approaches reject the standard procedure of conventional approaches of taking as an entry point a specific sector such as water, agriculture or health and (c) the SLA puts emphasis on involving people in the identification and the implementation of the

activities where necessary (Scoones, 2009). Unlike the Integrated Rural Development approach, the SLA does not primarily aim to address all aspects of the livelihoods of people living in poverty. Instead, the aim is to use a holistic perspective in analysing livelihoods in order to locate such issues of subject areas where interventions could be strategically important for effective poverty eradication, either at the policy level or local level (Coulthard, Johnson & McGregor, 2011).Mbhashe. The next section discusses a various SLAs that have been formulated by various development agencies which include the DfID, UNDP, CARE and IDS.

2.2.3.1 The SLA by UNDP

As an international development agency promotion of sustainable livelihoods approach is at the centre UNDP's mandate. The goal to promote sustainable livelihoods is encapsulated in the Sustainable Human Development (SHD) mandate which was adopted in 1995. The mandate comprises eradicating poverty, employment creation, sustainable livelihoods, gender issues, protection and regeneration of the environment as well as governance. The SLA is a way of achieving enhancing poverty reduction efforts, even though there are other strategies which are being pursued within the UNDP such as macroeconomic growth, community-based natural resource management and community development (United Nations Development Programme, 1990).

Since it is one of the UNDP's corporate mandate, sustainable livelihoods provide a programming and conceptual framework for poverty eradication or reduction in a manner that is sustainable. From a conceptual perspective, livelihoods represent the activities, means, assets and entitlements by which people make and earn a living. In the UNDP's SLA, assets refer to the natural or biologically inherited belongings which include water, land, property resources and forests, social belongings such as family, community and social networks, political belongings such as participation and empowerment, human (labour, nutrition, education and health), physical (clinics, markets, roads and bridges) and economic (credit, savings and jobs).

Sustainability of livelihoods, therefore, becomes a function of how people (men and women) use the assets portfolio on both a short- as well as long-term basis. Basically, sustainable livelihoods refer to those livelihoods that are able to recover and cope with stresses and shocks through coping and adaptive strategies. In addition, they should

be economically effective. Furthermore, sustainable livelihoods should be ecologically sound by ensuring that livelihoods activities do degrade natural resources beyond reversible or renewable levels within a given ecosystem. Lastly, livelihoods should be social equitable meaning that promotion of livelihoods one generation/group should not endanger option for the other generation, either in the present or future (United Nations Development Programme, 1990).

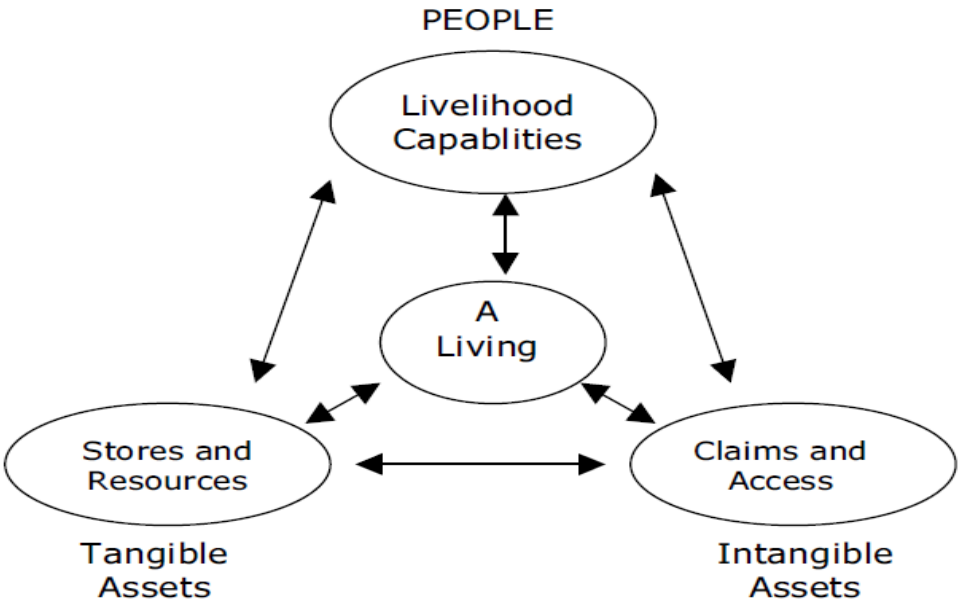
The UNDP utilises an asset-based approach to sustainable livelihoods and places emphasis on the promotion of people access to assert and the sustainable use of those assets which they rely on as a means to poverty reduction. As a result, the SLA by UNDP stresses the importance of understanding adaptive and coping strategies followed by men and women living in poverty. As explained by (Scoones, 1998), coping strategies refer to short term responses to particular shocks such as drought, earthquakes and natural disasters, on the other hand, adaptive strategies include long term changes in behaviour patterns as a result of stress and shock. It should be noted that both adaptive and coping strategies are influenced and impacted by people's assets status that could have depleted or regenerated. Moreover, UNDP pays specific attention to the importance of technological advancements as a means to people to emerge out of poverty. Other key issues emphasised by the UNDP SLA are that focus should be put on people's strengths as opposed to focusing on their needs. In addition, the UNDP SLA also stresses that focus should be on governance and policy (macro-micro links) issues as they impact on people's livelihoods hence they should be taken into consideration and addressed through specific actions. The other key issue considered is that sustainability should be continuously supported and assessed. Most of UNDP poverty eradication and development programs are carried out at national level whilst specific activities and programmes are carried out at district and village level. Preferably, the SLA initiatives are initially discussed with counterparts in governments at a national level. For instance, the introduction is done through the Advisory Note and Country Co-operation Framework, and the programmes are then applied as a distinct approach in the programming cycles which subsequently result in specifically sustainable livelihoods. UNDP has developed a procedure for designing, implementing and evaluating sustainable livelihoods programmes comprising of five steps which are discussed below.

The first step in the procedure involves carrying out an assessment of the assets, risks

and local knowledge that is found in a specific community as revealed in the adaptive and coping strategies pursued by women and men belonging to that community. Furthermore, the second step in the procedure is to analyse the micro, macro and sector-based policies that influence people's livelihoods strategies. The third step involves carrying out an assessment and determination of potential contributions of new technology and inventions that complement local knowledge systems with the aim of improving livelihoods. The fourth step entails identifying social-economic investments such as expenditures on education and health and microfinance that hinders or assist available livelihood strategies. The last step involves getting assurances that the first four stages are properly integrated in real time in order for the process to be part of the greater scope of programme development instead of a case where there are a series of isolated events (United Nations Development Programme, 1990).

For each step, different methodological tools and guidelines have been developed. These include a manual for Participatory Assessment and Planning for Sustainable Livelihoods (PAPSL); a programme support document template for SLA to be used by UNDP country offices in their programming efforts. In addition, discussion papers on policy analysis and formulation for SLA as well as on how indicators of SLA can be developed and a note on how gender aspects can be integrated into the five steps (United Nations Development Programme, 1990). The UNDP's Sustainable livelihood approach is summarised in Figure 2.1.

In summary, the SLA by the UNDP serves as a primary framework for programming. Basically, in the UNDP, the SLA is applied as means for devising a set of integrated supporting activities to that are aimed at improving the sustainability of livelihoods amongst vulnerable and poor groups through strengthening the resilience of their adaptive and coping strategies. In principle, this is considered an open-ended process, however, particular emphasis is placed on the introduction of improved social-economic investments and modern technologies.



Source: (United Nations Development Programme, 1990)

Figure 2.1 UNDP Sustainable livelihood approach

In addition, the emphasis is also put on governance and policy and issues because they impact on people's livelihoods are. The various support activities are organised as specific sustainable livelihoods programmes, usually implemented at a district level with ramifications at the community and household level.

2.2.3.2 The SLA by CARE

Like, the UNDP, CARE utilises the SLA in its efforts to carry out their organisational mandate. The mandate of CARE as a developmental agency (international non-governmental organisation NGO) is to carry out programmes that are aimed at assisting the most vulnerable and poorest through relief work and regular development programmes. Since 1994 CARE what it refers to as Household Livelihood Security (HLS) as a framework for programme analysis, design, monitoring, and evaluation. The concept of HLS derives from the classic definition of livelihoods developed by Chambers and Conway (1992), which embodies three fundamental attributes: the possession of human capabilities (such as education, skills, health, psychological orientation) access to tangible and intangible assets; and the existence of economic activities. The interaction between these three attributes defines what livelihood

strategy a household will pursue.

According to CARE, livelihood security should include capacity building approach to development, regarding people as active beings who are capable of shaping their own livelihoods as opposed to treating them as passive recipients of outside help even in relief activities. CAREs SLA was developed as a result of three significant shifts in its internal development as an organisation (Drinkwater & Rusinow, 1999). The shifts include a departure from national and regional food security concerns for food nutritional status and food security of individuals and households at large. Another shift involves a departure from a 'food first" perspective to a sustainable livelihood that aims not only on food production but on the ability of individuals and households to procure additional food required for a balanced diet. The other shift regards the movement from a materialist perspective that focuses on production food to a social perspective that puts emphasis on the enhancement and improvement of people's capabilities to make and secure their own livelihoods (Drinkwater & Rusinow, 1999).

CAREs sustainable livelihoods approach is centred on a household's livelihood strategy. As depicted in Figure 2.2, the asset box comprises the capabilities of household members, the assets and resources to which they have access, as well as their access to information or to influential others, and their ability to claim from relatives, the state, or other actors. In so doing, there is a realization that production and income activities are only a means of improving livelihoods and not an end in themselves. To evaluate what changes are taking place in the livelihood security status of households requires a monitoring focus on the consumption status and asset levels of household members.

Existing literature show that CARE aims to operationalise its sustainable livelihood approach through an interactive and dynamic programming process that includes steps such as (a) identifying potential geographic locations where poverty is concentrated with the aid secondary data, (b) identifying poor and vulnerable together with constraints that confront their livelihoods, (c) collecting analytical information with the guidance of CAREs overall livelihood model, (d) and selecting the communities that require programme interventions together with identifying indicators which will be monitored (Carney, Drinkwater, Rusinow, Neefjes, Wanmali, & Singh, 1999).

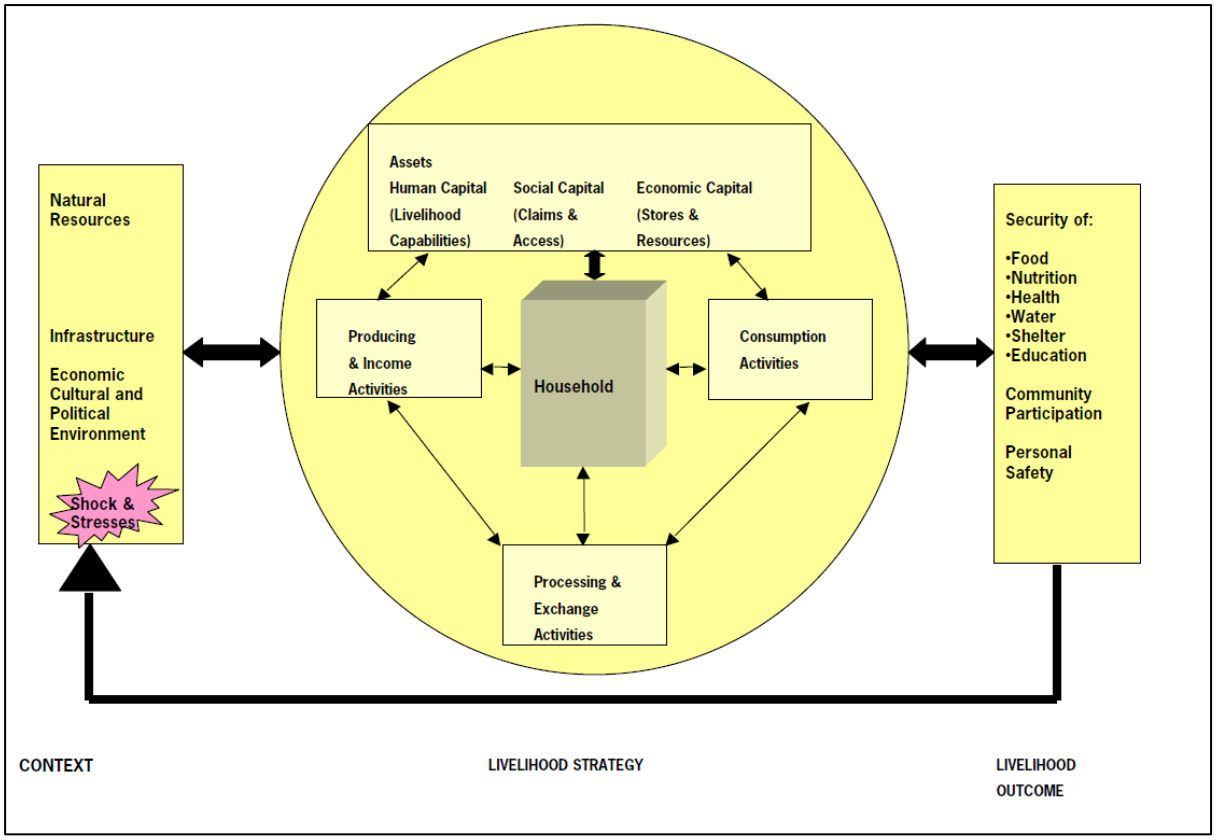


Figure 2.2 CAREs livelihood model Source: (Carney, Drinkwater, Rusinow, Neefjes, Wanmali & Singh, 1999)

In the past years, CARE has used the Rapid and Participatory Livelihood Security Assessments (RLSA) as a tool for data collection and analysis at a community level. The major purpose and reason behind these participatory assessments is the need to understand the type of livelihood strategies employed by different categories of individuals and households (social differentiation), the extent of livelihood security, and the principal opportunities and constraints that should be addressed through programming. This same information is also disaggregated by gender and generation (Frankenberger & Drinkwater, 1999).

As highlighted in the discussion earlier, CARE puts emphasis on mentioned, on consolidating the capabilities of people living in poverty to enable them to take initiatives that allow them to secure their own livelihoods. Consequently, CAREs SLA places emphasis on empowerment as a primary dimension (Frankenberger & Drinkwater, 1999). Two levels of empowerment are identified by CARE which is personal empowerment (refer to improving people's skills and confidence to deal with economic constraints. Personal empowerment may encompass the creation of mutual

support groups aimed at engaging in savings activities, improving income-generating activities or identifying and starting up more lucrative activities. Also, addressing household and community-based gender relations is considered a part of personal empowerment strategy (Drinkwater & Rusinow, 1999). Another form of empowerment critical in the process of securing livelihoods is social empowerment. Social empowerment involves establishing and/or strengthening of existing community based organisations to develop capacity for community, members to properly plan and implement priority development activities which came out of participatory needs assessment and in so doing, to provide communities with the means to develop their own principles and structures of democratic representation and governance (Drinkwater & Rusinow, 1999).

2.2.3.3 DfIDs Sustainable livelihood approach

The DfID's Sustainable Livelihoods Approach (SLA) seem to be the most popular among other approaches that have been published before. According to Mazibuko (2013) DfID's SLA has received the broadest level of acceptance and application, Adoption of the SLA within DfID was a result of publication of the 1997 UK Government White Paper on International Development, which affirmed that the superseding goal of DfID is the eradication of poverty in poorer communities and countries (DfID,2000). One of the three objectives formulated specifically achieve this aim is a commitment to promote policies and actions which promote sustainable livelihoods' (Carney *et al.,* 1999). To understand the gist of DfID's SLA, it is key to first understand their definition of sustainable livelihoods. According to DfID, a livelihood comprises of the capabilities, assets (including both material and social resources), and activities required for a means of living (DfID, 2000b). DfID also described a livelihood as sustainable when it is able to recover and cope with stresses and shocks as well as enhancing its capabilities and assets for the present and the future whilst preserving the natural resources base (Carr, 2013). It is the objective of DfID's SLA to increase the agency's effectiveness in reducing poverty by seeking to a mainstream set of core principles and a holistic perspective in the programming of support activities to ensure that these correspond to issues or areas of direct relevance for improving poor people's livelihoods.

2.2.4 Core principles of DfID's SLA

There are six principles that drive the DfID's mandate for sustainable development. The first one is that poverty-focused development activities should be people-centred. This entails eliminating poverty through making sure that external support pays attention to what matters to the people involved and also take note of variations between groups of people. In addition, development agencies should work with people in ways that are congruent with their present capacity to adapt, social environment and livelihood strategies (Carr, 2013).

Furthermore, the other principle states that poverty centred development should be responsive and participatory. This entails making sure that poor people themselves are actively involved identifying and addressing issues they regard as livelihood priorities. To that end, it is advised that outsiders should be equipped with mechanisms that enable them to effectively respond and listen to poor people (Carney, 2000).

The third principle outlines that poverty elimination should be carried out at multiple levels thus ensuring that policy development is informed by the activities at the micro level. In addition, macro-level processes and structure will in turn support people in their efforts to build livelihoods based on their strengths (Carney, 2000).

Fourthly, DfID stresses that development and poverty eradication should be conducted in partnership with the private and public sector. Furthermore, the fifth principle outlines that development should be sustainable. Four key dimensions of sustainability are identified. These are social, economic, environmental and institutional sustainability. The four dimensions are important and should be maintained in a balanced way (Ashley & Carney, 1999).

Lastly, DfID maintains that development for the poor should be dynamic. The means that support from the outside should know the dynamic nature of people's livelihood strategies, be able to flexibly respond to changes poor people's situation as well as to develop long term commitments (Ashley & Carney, 1999).

The DfID's SLA explores numerous aspects of the sustainable livelihoods concept and provide a realistically comprehensive approach (Carney, 2002). The framework contains three key interactive contextual elements. These elements are namely: structures and process, vulnerabilities and assets. The interaction amongst these

contextual elements culminates into a fourth element known as livelihood strategies that tailored to deliver change where change is needed. Lastly, the fifth element of the approach is known as the livelihood outcomes, referring to changes that come as a result of adopting selected strategies (Scoones, 2009). A graphical illustration of these key elements is shown in Figure 2.3.

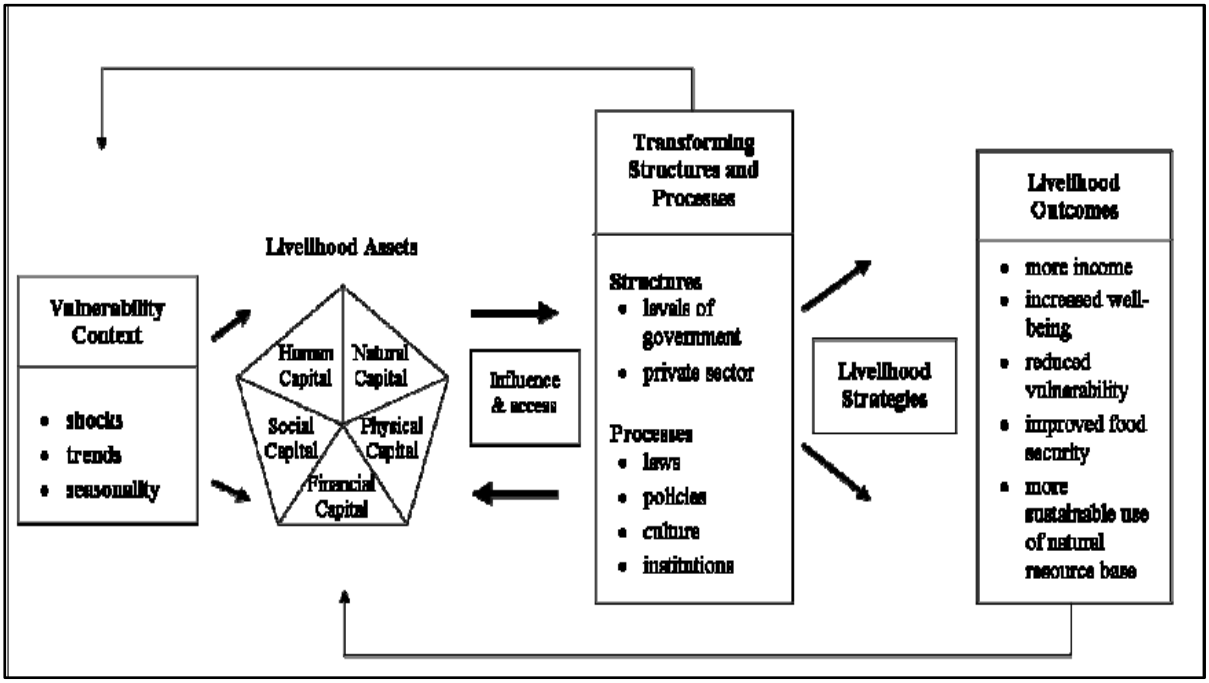


Figure 2.3 DfIDs Sustainable livelihood approach Source: (DfID, 1999)

Figure 2.3 shows how livelihoods assets, vulnerabilities, structures and processes, livelihood strategies and livelihood outcomes interact. These elements are discussed in detail below.

2.2.4.1 Vulnerabilities

The vulnerability perspective of the SLA comprises of influences related to such trends as the economy, population, governance and technology; seasonality such as prices, productivity and employment opportunities and shocks such natural conditions, health and conflicts (DfID, 1999). Factors affecting vulnerability can be either negative or positive. For instance, the seasonality of employment opportunities negatives where labour is not required and positive where labour is required. People are considered prone to vulnerabilities to shocks based on interrelationships between three influences which are namely exposure, sensitivity and adaptive capacity (Marshall, 2010; Zou and Wei, 2010; Tang, Sean, Bennett, Xu & Li, 2013). Vulnerability increases when

sensitivity and exposure increase and then adaptive capacity diminish. As a result, diverse households experience the same stress in different ways.

The capability to recover and withstand shocks while sustaining household assets and natural resource base is a key characteristic of sustainable livelihoods (Scoones, 1998). Typically, people with a lesser capacity to withstand and recover from shocks inevitably experience more difficulties in sustaining their assets. Consequently, shocks will repeatedly create a process where the most vulnerable move in and out poverty (Krishna, Lumonya, Markiewicz, Mugumya, Kafuko & Wegoye, 2006). Muyanga, Burke & Jayne, 2013; Porter, 2012; De Weerdt, 2010). Also, some people are kept in poverty when they are denied opportunities to recover or withstand shock due inequalities emanating from demographic characteristics (van der Berg, 2014; Hickey, 2010; International Fund for Agricultural Development -IFAD, 2010; Jones, 2009). To successfully reduce poverty, these issues should be addressed at the same time as issues of capabilities and assets. In addition, shocks such as environmental conditions and events, debt or illness can be sudden and may have long-term impacts. These shocks can significantly affect those with less capacity to negative changes in conditions.

Shocks of great magnitude such death of a spouse and long term duration shocks such as climate change may necessitate broader livelihood adjustments (Mubaya, Njuki, Mutsvangwa, Mugabe & Nanja, 2012; Porter, 2012; Bunce *et al*, 2010; de Weerdt, 2010; Assan, Caminade & Obeng, 2009; Assan and Kumar, 2009). The capacity to adapt to shocks influences people's livelihood decision-making process and an investigation of the numerous strategies and approaches they implement.

2.2.4.2 Assets

Assets belonging to an individual or household constitute the building blocks upon which people can attain their own personal goals of the type and quality of life they desire. These assets are classified into five categories which are, namely, (a)human assets (comprising of personal characteristics such as health, knowledge, education and the capacity to adapt; (b) natural assets (comprising of environmental resources such as water land, ecosystem services, crop production and biodiversity; (c) social assets (comprising of the characteristics of connections with others which includes informal and formal groups, networks, formal and informal groups, opportunities for

participation and understood rules (d) financial assets(comprising of economic characteristics such as pensions wages, savings and debts and, (e) physical assets (comprising of infrastructure and technologies such as communications tools, energy and roads (Serrat, 2008; DfID, 1999).

Households own these assets at differing extents. This is because these assets are not equitably available more especially for the poor (Mazibuko, 2013; Jones, 2009). This reality represents a major challenge to the implementation of the SLA since addressing issues of access to assert is considered a long-term process (Hussein, 2002). It is, however, worth noting that synergies do exist among these assets such that building one can result in the increase of the value of another asset. For example, land ownership as collateral provides access to financial resources such as loans. Importantly, the opposite can also be true. (De Sherbinin, 2008; Carter & Barrett, 2006).

The physical, natural and financial assets along with the effects related to the extent of their presence in a household and community are widely understood and addressed in the sustainable livelihood interventions (Martin, Rutagarama, Gray, M., Asuma, Bana, Basabose & Mwine, 2011; Lepper and Goebel, 2010; Brandolini, Magri & Smeeding, 2010; Haque, Deb & Medeiros, 2009). However, the physical assets tend to be less commonly considered in sustainable livelihood interventions that try to achieve the multiple objectives conservation and development (Chambers & Conway, 1992). Sustainable livelihood interventions often attempt to have a measurable and direct impact on the potential of human assets, particularly in cases where the levels of training and skills impact employment opportunities. As a result, development initiatives often embrace capacity building and training activities (Lapeyre; 2010).

Social assets appear to be complex and have attracted substantial discussion in the literature. Social asserts connect the extent of people's social interactions with relations and institutions within communities (Floress, Prokopy & Allred, 2011; Dale and Newman, 2010; Vermaak, 2009; Bebbington, 2004).

Thus social structures and organisations act as resources upon which individuals and households can efficiently and effectively address the daily challenges of their lives (Hickey, 2010; Ibrahim, 2006). Social assets depend on cooperation and the capacity to readily work together which require four imperative qualities which are namely

norms and rules, trust, connectedness and reciprocity (Carney, 1999; Clopton & Finch, 2011). Social assets also play a significant role in the resiliency of social-environmental systems when characteristics such as trust, social networks, social memory, capacity for learning, and adaptability are present or developed (Watson, Dudley, Segan & Hockings, 2014). Put together, the five categories of assets provide the foundation upon which sustainable livelihood is maintained or developed. However, because households do not exist independently the assets they possess are influenced by the structures and processes of the community and society of which the household is a part.

2.2.4.3 Structures and processes

The five categories of assets discussed above that are found within the SLA have conjoint influencing relations with structures and processes in which a household exist (Nkala, Mango, Corbeels, Veld wisch & Huising, 2011). Laws and policies together with the decision-making processes that are utilised in the implementation of programmes determine the extent to which people can access assets which they rely on to make a livelihood improvement or change. Also, the cultural institutional perspective in the communities interact household assets to strengthen, direct or lime the process of livelihood change Gaillard, Maceda, Stasiak, Le Berre & Espald, 2009). It is through certain practices and policies that informal and formal institutions can provide opportunities or barriers with regards to such issues as participation in economic activities and credit access (Scoones, 1998).

A lot of shortcomings in the present day understanding of socio-cultural dimensions of community development are connected to the propensity to generalise individual situations, opinions, traits value the entire community. Existing literature show that many authors are of the view that structures and processes can be more effective if people are widely involved in the processes (Williamson, 2011; Bowen, 2008). Thus, there is a need to gain more insights into the expectations, motivations and individual capacities in determining the participation of people in various processes (Southgate, 2006).

Although there is no consensus on the importance of participation, there have been numerous efforts to investigate the underpinnings of the role of participating in attaining community benefit (Tosun, 2000). The connection between structures and

processes and household assets is dynamic. The asset level in a household is impacted upon by institutional processes and structures just and in turn, households influence processes and structures.

2.2.4.4 Strategies

Individuals and households have limited access asset are prone to shocks and therefore develop risk-mitigating strategies to shield themselves from the short term effects of such occurrences (Daskon & Binns, 2009). Risk aversion is attributed to wealth, economic participation and to some extend to an individual's personality however March (1988) contrasts this assertion arguing that risk aversion is connected to people's aspiration as opposed to individual traits.

A key and notable risk reduction strategy among poor people is diversification. In the context of SLA, diversification refers to undertaking various activities to enhance one's chances of improving survival chances, standards of living and building up an asset base (Mazibuko, 2013; Porter, 2012; Assan and Kumar, 2009). For instance, the inconsistency of rainfall and its effect on harvests levels can be offset in the short term if the casual labourer is used to earn compensating income. However, unless such employment has the potential to replace agriculture as the primary income, it may not be a long term solution to harvest levels that continue to diminish through climatic changes. Long term changes require a second strategy replacement (Dorward, 2009; Ellis, 2007; Frost, Campbell, Luckert, Mutamba, Mandondo, & Kozanayi, 2007). Using the same example this would involve giving up agriculture altogether and taking up full-time paid employment.

Emerging patterns seem to suggest that diversification is more resilient sustainable livelihood strategy (~~De~~ Sherbinin *et al*, 2008; Ellis, 2007). Although diversification is widely considered on the most effective strategies, evidence has emerged which show that results of economic diversification with families can be negative (Neihof, 2004; Batterbury, 2001).

Replacement is also identified as a strategy that can be utilised to offset the effects of shocks. An example of where people use the replacement strategy is when people shift from subsistence farming to cash-based economic activities which are fuelled by perceived urban opportunities and the scourge of climate change (Masters, Djurfeldt, Haan, Hazell, Jayne, Jirström, & Reardon, 2013; Lindberg, 2012; Mendola, 2012;

Zoomers, 2012; Assan and Kumar, 2009). Climate change influences are significant and continue to put increasing stress on rural African farmers threatening the agricultural economy as variability becomes more the norm in an activity which depends on predictability (Porter, 2012; Meijer and Van Beek, 2011; Assan *et al*, 2009; Cooper *et al*, 2008; Paavola, 2008; Yaro, 2006). Owing to the use of the replacement and diversification strategies, migration increases as people try to diversify their income. Migration has led to the division of households thus weakening their ability to respond or adapt to shocks (Zoomers, 2011).

2.2.4.5 Outcomes

The last element of the SLA recognises outcomes that households intend to attain when they employ particular coping strategies. However, it should be noted that not all strategies and their respective outcomes are applicable to all circumstances that people find themselves in (Goodrich, 2001). Predictably, people with few assets and limited capacity to withstand and recover from shocks are bound to more active in searching for outcomes because even a slight change requires a response (Freeman & Ellis, 2005). This is why the SLA put emphasis on catering for the needs of people living in poverty. Five major outcomes that are outlined in the SLA have increased income, increased wellbeing, decreased vulnerability, improved food security and increased sustainable use of natural resources (DfID, 1999).

2.2.5 Evaluation of the SLA

Just like any other theoretical approach, the SLA has got its own strength and weaknesses. The SLA has been utilised in a wide variety of applications which included contributions to the formulation of various poverty reduction strategy papers that profile community-based planning and vulnerable groups. Its strength lies in its ability to analyse and organise information around certain key principles (Hinshelwood, 2003). As a result, numerous development agencies and organisations have adopted the framework to suit their needs building on the core principles with special attention being given to everyday realities faced by poor people (De Stagé, Holloway, Mullins, Nchabeleng & Ward, 2002). The value of the SLA is also seen in its ability to build better understanding concerning livelihood issues and providing poor people with an opportunity to be involved in the processes that contribute to the betterment of their situations. The direct engagement with the poor builds capabilities to be responsive to

such situations (Carney, 2003).

The SLA also recognises the need for a shift from a narrow sectoral context and these stresses that there should be linkages amongst sectors. The strength of the SLA is that it provides that basis gain more insights into the evolving combination of livelihoods in a changing historical context (Kollmair & Gamper, 2002).

Concerns have been raised with respect influences in process of sustainable livelihood decision-making processes. According to Scoones (2009), some influences in the process of sustainable livelihood decision making ought to be given greater attention and significance. Governance, rights and power are an example of such influences. In addition, while the SLA tries to people focused in seeking the sustainable elimination of poverty, several authors are of the view that without addressing the inequitable power dynamics and relations in the society, key decisions will continue without considering the inputs of poor people (Carney, 2003; Conway *et al,* 2002).

Connected to this concern is that assertion that gender to be given greater significance through identifying specific roles challenges and needs (Carney, 2009). Engagement of civil and private society sectors who are involved in pro-poor livelihood programmes is another influence that has been recommended for greater recognition and prominence in the SLA. This is because the public sector cannot be the only to attain change (Carney, 2002). Related concepts such as cooperatives and community-based enterprises offer expanded opportunities to engage local residents in sustainable livelihood enterprises (Peredo & Chrisman, 2006).

A further area of influence proposed for increased prominence in the process of achieving sustainable livelihoods is that of political processes and context (Scoones, 2009). This is because the link between disadvantaged groups and the institutional structures within communities and beyond often leads to disempowerment and disengagement.

Another concern/weakness of the SLA identified by critics of the approach is that the approach has many components to address, making it impossible to go into depth of the components (De Haan, 2012). Having too many components makes the framework to be too superficial and broad to analyse or design anything (Clark & Carney, 2008). Regardless of this weakness proponent of the SLA advance that the framework is meant to be a holistic overview of factors which might be of benefit if

included in any development activity (Krantz, 2001).

Other shortcomings of the SLA are that it trends such as macroeconomic and conflict which are a key factor in the vulnerability context. It also downplays the fact that improving the livelihoods of one group can lead to the undermining of the other groups' state of livelihoods (De Haan, 2012).

2.3 Empirical literature review

This section reviews literature from published reports, journals, books and other credible sources of scientific information related to the topic under study. The empirical review will cover the following topics. Overview of poverty, policy considerations sustainable farmer livelihoods, the contribution of agriculture to sustainable food security and the role played by the government in enhancing food security in South Africa.

2.3.1 An overview of poverty in South Africa

Although it has been heralded that much progress against global poverty has been made through the Millennium Development Goals, it has emerged that a lot still needs to be done since a substantial number of the world population is still live in abject poverty (Masuku, Selepe & Ngcobo, 2017). The fall in the extreme poverty levels has been credited to the efforts that have been put by various governments and international development agencies which has enhanced food security and income generations activities. Although there has been a decrease in extreme poverty globally, there has been a rise in poverty in other countries due to factors such as climate change and other natural disasters. In the rest of the world, extreme poverty fell by just 28%, from 1.1bn to 790mn.

In the context of South Africa, poverty is concentrated in rural areas. Available statistics show that 75% of the people living in poverty reside in rural areas. In addition, 81% of the ultra-poor are rural inhabitants; lack of adequate resources and low income is a notable feature in the rural poverty (Ncube & Kang'ethe, 2015). For the poor, livelihoods are made up of components which are dependent on natural resources such as firewood, water and farming activities such as animal husbandry and crop cultivation. It is therefore imperative that, in the quest to end poverty and ensure food security, care is taken to understand the environmental and social dynamics of rural areas in order to develop strategies and mechanisms for sustainable poverty

reduction. Sustainable and profitable farming is tipped to be a weapon of ensuring food security, however, with wrong policies, poverty can actually be executed resulting in long term damage to the natural resource at both community and national level (Timmer, 2017).

The level of poverty varies from province to province. By evidence from many indicators, the Eastern Cape is the province which the highest prevalence rate of poverty. The Eastern Cape is characterised with the lowest mean monthly household expenditure. The Eastern Cape is currently one of the poorest provinces in South Africa, with 70.7% of its 6.2 million inhabitants classified as poor. It also shows the highest unemployment rate, 48.5% (Makiwane, 2010). As a result, a large number of households rely on pensions (40%) or remittances (23%) (at the national level, pensions represent 23% of the income of poor households compared to 5% for the non-poor; May 1998). Wages represent 23% of household income, while farming represents only 4% on average. Poverty in this province is deeply entrenched with 27% of households earning less than R400 per month, and only 11% earning more than R1500 per month1.

The province accommodates 3.7 million non-urban inhabitants, while the population of both former homelands is also 3.7 million. Even though not superimposed, those two figures greatly overlap (Statistics South Africa, 2013). Poverty trends in Eastern Cape are connected to the historically discriminatory policies of the apartheid government which were crafted to benefit only one race (National Development Agency, 2012). The Eastern Cape was affected by the policies which led to migration and limited access to key resources such as land; however, it has benefit to major policy changes that were effected in1994.

2.3.2 Sustainable Livelihoods

In developing the notion of ‘sustainable livelihoods’, Chambers and Conway (1991) define sustainability as “a function of how assets and capabilities are utilized, maintained and enhanced so as to preserve livelihoods” (Chambers & Conway, 1991:9). Another definition by Scoones (1998) outlines that sustainable livelihoods comprise of capabilities, assets (social and material) and activities that are required in generation of means of living.

Of essence to the livelihoods perspective are twin self-sufficiency and of self-reliance

(Morse & McNamara, 2013). A livelihood is regarded as sustainable if it is capable of maintaining natural resources for the long-term and enduring in overcoming challenges without requiring external support at the same time not weakening other livelihoods (Scoones, 2009). While only a few livelihoods can be considered sustainable environmentally, economically, institutionally and socially, it is a critical moral goal. This is because sustainable development should improve people's well-being and livelihoods for the long-term (UK Department for International Development, 1999).

Expectedly, the trade-off between economic livelihood outcomes and sustainability is a major challenge. Previous research has noted that conflicts arise between people's immediate priorities and values, between environmental considerations (for example, land degradation) and requirements improved livelihoods security, between maximising profits and safeguarding against long-term problems and between attaining household livelihood goals and not weakening other people's livelihoods opportunities (for example restricting access to water) (Department for International Development, 1999). While conflicts like these are not overcome easily, research studies can facilitate effective knowledge development on factors contributing to sustainable livelihoods. Hence, the need to understand factors that contribute to sustainable farmer livelihoods.

Hall (2007) identified five dimensions critical to sustainable livelihoods as comprising of human capital, social capital, natural capital, financial capital and physical capital These dimensions of livelihood are critical factors that influence the capacity of a household to access food and utilise it for nutrition. Noteworthy is the fact that capabilities, assets (social and material The lack of these capabilities, assets (material and social) and activities required to generate a means of living is usually associated with poverty that translates into food and nutrition insecurity for most households.

2.3.3 Food security

The concept of food security was first introduced into the discourse on hunger and poverty during the 1960s and 1970s (OECD, 2010). Since then, the concept has been amended, redefined and expanded many times to focus on changing priorities in different contexts. Given the various roles that food play in human society, adequate definitions of food security should capture the wide range of symbolic, nutritional,

economic, cultural, social and political roles of food, and cover these roles as they relate to the production, distribution and consumption of food in society (Bureau for Food and Agricultural Policy (BFAP, 2013).

In addition, food security can be analysed at various levels which include individual, community, national, regional and global. Furthermore, focus should be put on any or all of the following five dimensions: stability (at all times), universality (food for all people), quantity (enough to meet basic needs); dignity (psychological, social and cultural acceptability) and quality (safe and nutritious, to support health and wellbeing) (Frayne, McCormack & Shilomoleni, 2014).

The Food and Agriculture Organisation defines food security as "a condition which exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life" (FAO, 2012:2). This definition was arrived at through consensus at the 1996 World Food Summit.

From a South African perspective, food security is defined by the Integrated Food Security Strategy for South Africa as a ‘physical, social and economic access to sufficient, safe and nutritious food for all South Africans at all times to meet dietary [needs] and food preferences for an active and healthy life' (Department of Agriculture, 2002: 15). This definition broadly mirrors the definition that was adopted at the World Food Security at the World Food Summit in 1996, and later on endorsed by the United Nations, the World Health Organisation and 183 countries that are members of the United Nations (World Food Summit, 1996). It meets the criteria for an adequate definition of food security to guide analysis and action at all levels (Battersby, 2014).

Food security exists in four dimensions which are namely; access availability, stability and utilisation and stability as (Food & Agriculture Organisation, 2006). Food availability refers to the procurement and production of adequate and sufficient quantities of food that are available on a consistent basis. However, food availability on its own does no translate to or ensure food security because food surpluses can exist alongside malnutrition and hunger.

Food access refers to the presence of adequate resources to that are necessary for obtaining appropriate foods for a nutritious diet. This, therefore, is related to the promotion of sustainable farming practices, creating an environment that enables

access to land for agricultural activities and employment for generating income. In addition, it is also related to the promotion of farming by small scale farmers as well implementation of social protection to shield the vulnerable and poor population groups (Food & Agriculture Organisation, 2006).

Food utilisation refers to the correct and suitable use of food resources based on knowledge of care and basic nutrition, together with adequate sanitation and water. All interventions tailored to child health and maternal programmes meant to improve infant feeding (nutrition) and health care for the treatment of diseases and prevention contribute enhanced food utilisation. Lastly, the stability of access and availability of food refer to constant access to nutritious food notwithstanding suffering shocks which include conflicts, drought, or deaths or unemployment at an individual or household level (Food & Agriculture Organisation, 2006).

It is worth noting that, although these food security dimensions are interrelated, they can also exist in isolation as food security is one dimension does not indicate the same for all other three dimensions (Alemu, 2015). It is argued that if any of the dimensions are weakened, food insecurity occurs. The concept of food security borrows from the work of Sen (1981) who coined the broader concept of food security that does not only put the focus on the availability of food supplies but also on an individual's ability to access food. Sen concentrated on capabilities to ensure access to food. This was further developed by Chambers (1989) and others in respect of the sustainable livelihoods framework.

Devereaux (2006) advances that food insecurity should be studied as a continuum comprising of transitory food insecurity and chronic food insecurity at both ends together with cyclical food security in the middle. Chronic food insecurity refers to long-lasting and persistent food insecurity is linked to such structural factors as inequality, unemployment, poverty, underemployment and lack or limited access to assets. Transitory food insecurity refers to abrupt and temporary periods of extreme poverty and food scarcity. These occur because of natural and other disasters which include conflicts, economic crisis and displacement. A third dimension or a sub-dimension of transitory food insecurity is seasonal or cyclical, where hunger is experienced recurring generally prior to harvest and lasts about 2-3 months. During periods of cyclical or transitory food insecurity, poor and vulnerable households may consume

accumulated assets thereby depleting them and this could lead households into a situation of chronic poverty into the future (FAO, 2012).

2.3.4 Food security in South Africa

Food security is enshrined in the South African Constitution of (1996) article 27 and 28, which states that every South African citizen has a right to sufficient water, food and social security. As A result, food security has been one of the key priorities of all post-apartheid administrations since 1994 and was aligned to South Africa's Millennium Development Goal of halving the number of people who are hungry in South Africa between 1990 and 2015 (Timmer, 2017). The South African government has committed to halving poverty between 2004 and 2014 and achieving household food security is a critical component in meeting that objective (RSA, 2010). In keeping with internationally accepted definitions of food security, South Africa recognises the three dimensions of food security namely availability, access and utilisation as elaborated above (DAFF, 2011).

The strategic framework for action to address food security was outlined in the Reconstruction and Development Plan for South Africa (RDP, 1994) in which food security was identified as a basic need. The framework recognises the difference between national food security and household level food security and gave priority to achieving household food security. The development of an Integrated Food Security Strategy for South Africa was informed by the conflicting conceptual interpretations and definitions of food security in South Africa among key stakeholders including government, researchers, the international community and the civil society (DoA, 2002).

The South African food security policy adopts fully the FAO definition: "the right to have access to and control over physical, social and economic means to ensure sufficient, safe and nutritious food at all times to meet the dietary food intake requirements for a healthy life by all South Africans" (DoA, 2002 :15). The policy further elaborates that food security has the following components: (a) ability to be self-sufficient in food production through own production, (a) accessibility to markets and ability to purchase food, (c) Utilisation and consumption of safe and nutritious food, (d) equitable provision of food to points of demand at the right time and place.

At a national level, South Africa is regarded as food secure. This is because the

country has the capacity to produce sufficient staple foods and import foods to meet the required nutritional needs of the South African population (Du Toit, 2011). However, the evidence available, also shows that at the household level there are many households who are experiencing food insecurity in South Africa although the extent is not known. The extent is not known because there is little or no good quality data together with the lack of an acceptable measure of food security in South Africa (Altman, Hart & Jacobs, 2009). As a result of the existence of food insecurity in other households, malnutrition continues to affect the lives of millions of women and children in South Africa. Lack of balanced diets has manifested as undernutrition becoming a major concern in the country. Most rural households consume diets that have very limited variety and are typically insufficient in vegetables and fruits (Dodd & Nyabvudzi, 2014). This has led not only to macro-nutrient deficiencies but micronutrient deficiencies such as iodine, zinc, iron and vitamin. Sustainable and successful farming can assist in addressing this problem.

2.3.5 Antipoverty interventions and their impact on sustainable livelihoods

In order to reduce poverty, the South African government has instituted a number of policies and institutions to address the challenge of poverty and food insecurity. According to the SLA, structures, laws and policies together with the decision making processes that are utilised in the implementation of poverty alleviation programmes determine the extent to which people can access assets which they rely on to make a livelihood improvement or change. This is because it is through certain practices and policies that informal and formal institutions can provide opportunities or barriers with regards to such issues as participation in economic activities and credit access (Scoones, 1998).

To enhance the livelihood of South Africans, the South African government has crafted a number of laws (including the constitution itself) and policies such as the Reconstruction and Development Programme (RDP), Rural Development Programme, Urban Development Programme (UDF), Integrated Development Plan (IDP) and Provincial Growth and Development Programme (PGDP).

2.3.5.1 The Constitution of the Republic of South Africa (1996)

The South African Constitution of 1996 gives the national cabinet a mandate and responsibility to oversee and preside over the implementation of the constitutional

provisions. The second chapter of the constitution contains the bill of rights which guarantee certain rights which were specifically crafted to improve and empower the poor populace of South Africa. The rights include the rights to a clean environment, health care, housing, property, social security and water. The current constitution of South Africa considered the cornerstone the present day democracy because it preserves the rights of all every South African and stresses the democratic values of freedom, equality and human dignity. Furthermore, the bill of rights protects the fundamental human rights of all South African citizens. Chapter two also comprise of social and economic rights which are outlined in the sections 7-39. These rights are permanent and enforceable through the courts of law.

Also, the South African constitution gives the national government a platform on which to formulate legislative framework and policies that give effect to these rights. Provision of these rights is important, however, it depends on the resources available to the government of South Africa. To quote directly from the constitution, “the government must take reasonable legislative and other measures, with its available resources, to achieve the progressive realisation of each of these rights differently” (Seekings, 2007:3). Successive post-apartheid governments have integrated poverty reduction and eradication as central pillars of their development policies the making poverty eradication a constitutional concern in Morden day South (Labadarios, Steyn & Nel, 2011:106).

The Constitution gives several responsibilities to various spheres of government. There are three levels of government in South Africa which are namely national government, provincial and local government. Each sphere is allocated a certain degree of autonomy. Some functions are exclusive and to a certain government level whilst some exist concurrently across the three government levels.

(a) National government

This level of government is responsible for making laws and policies tailored towards poverty reduction and ensuring food security. One key responsibility for the national government is to collect revenue through taxes which is then used as the major source of funding for various government programs and functions which include poverty alleviation and ensuring sustainable livelihoods to South African citizens.

To carry out its mandate, the national government utilises several institutions which

include national treasury, public works, home affairs, rural development, public service and administration, water affairs and forestry and minerals and energy departments. The national departments' functions directly impact on the provincial and local government spheres and how they deliver basic services. For example, the Rural Development and Land Reform is responsible for land reform which can improve people's access to land which is an asset that is critical in the creations of livelihoods amongst South African citizens

(b) Provincial government

The provincial governments have specific duties and rights given to them by the national constitution of South Africa on Chapter 6 section (104) (South Africa, 1996). Whilst each provincial government is given the right to have its own constitution, their constitution cannot be in contradiction to the Constitution of the Republic of South Africa. The provinces also have powers to approve provincial budgets and laws. For instance, in implementing basic free services and policies, provincial governments are required to provide human resources, financial and technical support to local governments and ensuring compliance with the national policy. The provincial sphere is also charged with developing enabling legislation, coordinating regional planning and monitoring progress.

Although the provincial governments are required to carry out programmes that are in line with the national government, they have the freedom to prioritise according to the need of their province. In the Eastern Cape, priority has been given to poverty alleviation, service delivery and economic development. The provincial governments are required to maintain good acceptable levels of accountability and good governance in order to ensure that citizens get critical services in the most economical ways. Having said this, it is imperative to note that there are certain departments within the provincial government that plays a direct role in poverty alleviation and these includes departments of education, health, human settlements and agriculture whereas other departments such as public works, roads and economic development play an important role in creating employment and SMME opportunities resulting in the improvement of people's livelihoods

(c) Local government

The South African Constitution of 1996, Section 152 and subsections (1) and (2))

places local governments at the forefront of the national efforts to address social and economic wrongs instigated by the apartheid (South Africa, 1996, p.84). As the level of government is closer the people and are better informed about their poverty situation (Department of Provincial and Local Government. 2000, p.5). Local governments are required to provide quality service delivery to communities which fall under their jurisdiction and to support reduction and reduction. As an independent authority, local governments and their municipalities get fiscal shares directly from the national treasury. In addition, local governments are directly responsible for programme planning, service delivery policies and the actual execution. The services delivery portfolios are designed as follows: provision of free basic services such as sanitation, water, electricity and refuse removal.

In addition, municipalities are required to keep registers and records of people living in poverty of poor people and should update them from time to time given the fact that changes in an individual's and households poverty situation can lead to migration or the situation can improve when a member of the household gets a social grant and employment. The indigent policy is a South Africans government's policy that targets poverty in municipal through giving special attention to both individuals and households who have limited or no access to basic service.

2.3.5.2 Poverty alleviation policies and programmes

This section provides a discussion of policies and programmes aimed at fighting various forms of poverty and implemented by the Republic of South African government since 1994. These programmes include the Reconstruction and Development Programme (RDP), Rural Development Programme, Urban Development Programme (UDF), Integrated Development Plan (IDP) and the Provincial Growth and Development Programme (PGDP).

2.3.5.2.1 Reconstruction and Development Programme (RDP)

The reconstruction and development programme was a social and economic policy that is a brainchild of the African Nation Congress and its alliance partners (South Africa. Office of the Presidency, 1994). The main objective of this programmes was to holistically reduce poverty and this was the first economic policy formulated by the ANC with the aim of fighting poverty, unemployment and inequalities (Bucknell, *et al.,* 2002:1). The RDP recognised that there would be no successful democracy that would

survive with the majority of people wallowing in poverty, having limited access to basic services and land deprivation (Office of the Presidency, 1994).

The RDP regarded poverty alleviation as being equal to providing of basic infrastructure (for example, housing, electrification, water and sanitation), equitable distribution of resources, public investments to guarantee economic security, correct and proper resource co-ordination and the need for development programmes aimed at addressing deprivation (South Africa Office of the Presidency, 1994, p.8). The seriousness to its commitments to address past inequalities and poverty is embedded in the targets of the programme. According to Chicane (2003) the RDP undertook to create 2.5m jobs in 10 years' time, electrifying 2.5 million homes by 2000, providing running water and sewer system to a million households, redistributing farming land to 30% of upcoming black farmers, free health care and compulsory free education for all South African children as well as restructuring of public institutions by 1997 to mirror the broader class, gender and racial composition of the South African society (Chicane, 2003). The RDP covered all the key outcomes recommended in the DfIDs SLA, which outlines that all efforts to reduce poverty should yield five outcomes which are: increased income, increased wellbeing, decreased vulnerability, improved food security and increased sustainable use of natural resources (DfID, 1999).

2.3.5.2.2 The Rural Development Programme

The notion of rural development was initially included in the RDP as an official policy proposal in the RDP White Paper of 1994. The government considered rural development as an all-inclusive and major programme in the state's efforts to reduce poverty. It suggested the use of an approach, where rural people themselves were to set the rural development agenda and priorities. This approach is consistent with a core principle of the SLA which argues that sustainable development should involve the input of people to whom the programmes are targeted to. Due to the diverse nature of the target sectors and programmes for rural development e.g. infrastructure, water, sanitation, health, electrification, housing etc., multi-sector institutions were to be established to enhance state support to rural initiatives (ANC, 1995).

Rural development recognises the basic Constitutional Rights which include the right to adequate water, access to food security, and shelter (Luyt, 2008, p.3). The Rural Development Programme provides a robust economic foundation for focused

infrastructure investments as the primary catalyst for the effective provision of basic social services such as health care, water and sanitation, schools and transport. The infrastructure investments under the Rural Development Programme further aimed to extend access to services through increasing farm and nonfarm production in poor rural areas which include the rural areas in the Eastern Cape.

The impact of the infrastructure investment saw improvements in incomes of the poor rural households. The primary goals were the formalisation of planning, resources mobilisation; improving access to resource ownership through protected tenure, restitution and reform programmes, extension services targeting farmers, extension of rights, changes to the Water Act, appropriate policy development, product diversification, local production and fighting rural crime. Furthermore, the Rural Development Programme aimed to improve financial access which is critical in the production of livelihood means (Department of Rural Development and Land Reform, 2010). To sustain and entrench rural development strategy, the South African government proposed the establishment of local structures for coordination.

As a result, President Thabo Mbeki introduced the Integrated Sustainable Rural Development Programme (ISRDP) in 2001 with a lifespan of ten years (Department of Provincial and Local Government, 2001). It focused on coordinating all the governments' investments and programmes tailored towards poverty alleviation, eradication and enhancing livelihoods of rural inhabitants. It was meant to be implemented in recognised district municipalities across the country which were known as the ISRDP nodes and target rural communities with special attention to youth, women and the disabled to shield them from poverty.

The ISRDP was crafted not to operate in isolation hence it had no additional funding. Instead, funds were channelled to the three spheres of government and other partners (private sector, non-governmental organisations; state-owned enterprises etc.). It focused on existing programmes of government and aimed to improve coordination; creating viable institutions; and addressing governance needs in municipal rural areas.

2.3.5.2.3 Integrated Development Plan (IDP)

The IDP was a government programme that was designed to be spearhead development and growth at district and local governments' level. It was identified in the RDP (1994) and the National Constitution of 1996 as a plan that depicts a common

vision across all spheres and levels of government. The IDP is clearly outlined in Chapter 5 of the Municipal Systems Act, No. 32 of 2000 (South Africa. Department of Provincial and Local Government. 2000, p. 36). It is defined as a primary instrument that informs and direct municipal management, budgeting and making of decisions concerned with development and service delivery (Department of Provincial and Local Government 2000, 2000, pp.30, 32, 38). It was later sanctioned by the Development and Facilitation Commission (1999) as an institution responsible coordination of all government planning across different levels of government.

Unlike the rest of other government plans, the new IDP is legislated and therefore enforceable in courts of law. The IDP empowers local communities to dictate should be funded and where funding is implemented. The IDP utilises the term local agenda which refer to a process where communities define their poverty-related challenges and identify solutions in conjunction with municipal officials and councillors (Department of Provincial and Local Government, 2000, p.5).

2.3.5.2.4 Provincial Growth and Development Programme (PGDP)

The PGDD was born out of a suggestion made in the RDP White paper which underscored the need for each province to have its own unique development and growth strategy aimed at reducing the poverty gap and to attain social prosperity and economic growth. On its inception, the PGDP was introduced as a strategy to be implemented of a period of ten years spanning from (2004-2014). The PGDP provides a deliberate social and economic agenda, sector-specific plans and programmes to promote change and improvements in people's livelihoods.

The PGDP affords provinces with an opportunity for long term streamlining plans that are created to address social and economic structural discrepancies. The PGD further sets provincial for employment creation, economic growth, income redistribution and poverty eradication (PGDP, 2004).

2.3.5.2.5 The national policy on food and nutrition security for the Republic of South Africa

The national policy on food and nutrition for the Republic of South Africa is rooted in the South African constitution of 1996. The Bill of Rights guarantees every South African citizen "the right to have access to sufficient food and water" and that ".the State must take reasonable legislative and other measures, within its available

resources, to achieve the progressive realisation of each of these rights." (Constitution, 1996: 12).

This Food and Nutrition Security Policy was enacted in 2014 as a framework that provides guidance to the local, provincial and national government in their efforts to address poverty, food security and nutrition concerns. The Food and Nutrition Security Policy is also embedded in the Vision 2030 also known as the National Development Plan. The Vision 2030 is a pro-development blueprint which acknowledges the need to tackle the challenge of poverty, unemployment and inequality. The Vision 2030 is a roadmap to attain a South Africa where everyone will have access to water, sanitation, electricity, environment, social protection enough nutrition and education (National Development Plan, 2012). The National Development Plan (NDP) sets out various methods and targets to eradicate poverty, reduce unemployment and eliminate inequality by 2030. It identifies Food and Nutrition Security as a key element of both poverty and inequality: it is both a consequence of poverty and inequality as well as a cause. As a result, the NDP makes reference to a number of steps that will improve food security, including the expanded use of irrigation, security of land tenure, especially for women, and the promotion of nutrition education (National Development Plan, 2012).

The National Food and Nutrition Security Policy strategic goals are ensuring availability, affordability and accessibility of safe and nutritious food for the nation and all households. South Africa has approximately 13.8 million individuals who are experiencing insufficient access to food (STATS-SA, 2011). The Food and Nutrition Security Policy aims is to reduce this number and by so doing contributing towards poverty reduction and eradication. The crux of this Policy is to build on existing initiatives and systems and to put in place mechanisms that ensure stricter alignment, better coordination, and stronger oversight.

The Policy therefore provides a platform for various strategies which will include: Increased and better targeted public spending in social programmes which impact on food security; efforts to increase food production and distribution, including increased access to production inputs for the emerging agricultural sector; leveraging Government food procurement to support community-based food production initiatives and smallholders; and the strategic use of market interventions and trade measures

which will promote food security.

This can be attained through the implementation of the following five pillars, which constitute the foundations of the Food and Nutrition Security Policy, and which allow for multi-sectoral initiatives and programmes under each of the pillars and they are discussed next:

(a). The availability of improved nutritional safety nets, including government-run and supported nutrition and feeding programmes, emergency food relief, as well as private sector, CBO and NGO interventions. Improved nutrition education, including District level nutrition services to assist households and communities monitoring nutritional indices, providing consumer literacy and assisting with better food management and improved meal planning (STATS-SA, 2011).

(b). The alignment of investment in agriculture towards local economic development, particularly in rural areas. This includes the provision or subsidisation of inputs and support services for increased food production, as well as more effective food storage and distribution networks, involving both government and private agencies, to eliminate waste and ensure better access to food for all.

(c). Improved market participation of the emerging agricultural sector through public-private partnerships, including off-take and other agreements, a government food purchase programme that supports smallholder farmers, as well as through the implementation of the Agri-BEE Charter, which requires agro-processing industries to broaden their supply bases to include the emerging agricultural sector(STATS-SA, 2011).

(d). Food and Nutrition Security Risk Management, including increased investment in research and technology to respond to the production challenges currently facing the country, such as climate change and bioenergy. It would also include the protection of prime agricultural land, and limitations on its alienation for other activities, including mining, game farming, and property development. Improved food security information management systems would also be required, with periodic scientific reviews of the state of food security in the country (STATS-SA, 2011).

2.3.6 Agriculture and food security

The agriculture contributes 2.5% to overall South Africa's GDP (Quantec, 2017). The

sector plays a very significant role in relation to employment creation t, income generation and ensuring adequate staple food supply in the country. Although agriculture in South Africa has been affected by the 2015/16 droughts the sector experienced a rebound in the year 2017. However, the Eastern Cape still face challenges in relation to rainfall patterns. Growing population across the world are major concerns for authorities that are tasked with ensuring food security especially in developing countries (Relx Group, 2016). It is anticipated that as the population grows threats to food security will also increase (Frayne, Battersby-Lennard, Fincham, & Haysom, 2009; Battersby, 2011). Therefore, a major focus should be placed upon the food system to work, particularly for the poor. As a result, agriculture has been seen as a means of achieving sustainable food security. This is because agriculture enables farmers to earn income and also improve their diet. For instance, many people living in rural areas are employed and generate their income in the agricultural sector. At a global scale, agriculture is considered a means of livelihood by about 40% of the world's population (Relx Group, 2016).

The relationship between agriculture and food security has been identified in previous years and it plays a key role in the fight against poverty, malnutrition through the provision of access to fresh, quality and nutritional food at affordable prices (United Nations, 2015). This provision and production of food should, however, be carried out without compromising the environment and other social aspects. Crop diversity and utilisation of advanced farming practices have the potential to improve nutritious levels of diet as well as increasing the degree of social protection (Grant, 2012). In addition, agriculture can enhance livelihoods on those involved and make them more resilient, as well as encourage sustainable farming's systems (Relx Group, 2016). Rural farming goes along with the concept of sustainability, which includes self-reliance, support of the local economy, and reduced environmental harm (Robertson, 2013).

Growing food and livestock rearing do contribute to food security to a greater extent (FAO, 2012). This is because it improves and increases nutrient levels of diets, as well as households, access to food thus strengthening the food security position of households involved in farming. According to Altman, Hart and Jacobs (2009), there has been a noticeable increase in the number of black people who are involved in agriculture 2001 and 2008. It is argued that the increase was driven, mainly, by the need to increase available food needed in feeding a growing number of dependents

in most households. Most of the farming is however done on a small scale. Baiphethi and Jacobs (2009) observed that whilst smallholder farming is critical in ensuring household food security, production by smallholder farmers is low. Low productivity is one of the reasons why both urban and rural households quit farming for non-farming income-generating activities.

Among other reasons, low production by many farmers has been blamed on limited access to hybrid crop varieties that are widely utilised in the developed countries (Jacobs, 2010). It has been recommended that farmers in South Africa should have access to better seeds variety, advanced farming technologies and irrigation infrastructure in order to reduce food shortage risk and inefficiencies in food production (Baiphethi & Jacobs, 2009).

In dominantly rural provinces such as Limpopo and Eastern Cape almost 60% and 52% respectively is occupied by the poorest household in South Africa (StatsSA, 2012), compared to the Western Cape and Gauteng provinces where the wealthiest households are located. Most households in South Africa especially those in rural areas employ a mix of livelihoods strategies including salaries and wages contributing to household income followed by social grants, income from business and pension remittances (StatsSA, 2012). Despite these livelihood strategies, agricultural activities continue to play an important role in providing much-needed sustenance especially in the form of food.

Although the agriculture sector plays an important role in ensuring food security, it faces severe challenges such as lack of proper infrastructure, limited financial support and in some instances, it is negatively impacted upon by droughts (FAO, 2016). Matshe (2009) states that effort has been made to strengthen smallholder farming in Sub-Saharan Africa with little success. Some of the few successful examples highlighted include Zimbabwe in the early 1980s and Malawi in 2000 farming was directly driven by support for emerging farmers. These scenarios provide learning examples for the South African agriculture interventions.

2.3.7 Role of government

Governments play an instrumental role in the process of building sustainable farmer livelihoods (Aliber & Hall, 2012). Without the intervention and role of the government, the quest to attain sustainable farmer livelihoods is bound to face more challenges than when the government is involved. Many of the services that are required to promote sustainable farmer livelihoods are public (May & Nzimande, 2012). Hence, a significant achievement of objectives of sustainable development can only be realised when the government play its part. This section discusses various initiatives that have been undertaken by the South African government in order to improve farmers' livelihoods. These include land reform, agricultural credit, infrastructure, comprehensive farmer support services and other legislation aimed at improving farming across South Africa.

2.3.7.1 Land Reform

Land and land ownership is the most important factor in agricultural activities. Access to arable land is an essential requirement for people living in poverty and for economic growth (Aliber & Hall, 2012). The government of South Africa has made efforts to improve access to arable and productive land since 1995 when the Settlement/Land Acquisition Grant (SLAG) was launched. The justification of this programme was that if aspiring farmers were assisted with financial resources; they would be able to buy land on a willing-seller-willing-buyer thus enabling market forces to play their role. And by doing so, limiting the role of government in the transfer of ownership. However, SLAG did not live up to intended objectives and a new programme known as the Land Redistribution for Agricultural Development (LRAD) was introduced around 2000. This new programme is considered a success compared to the SLAG because it saw number people getting access to productive land which is a key fact in the process of achieving food security at the household level (Deininger & May 2000). Although LRAD has been successful in giving access to productive land to poor people, criticism is levelled against the government for providing the land reform beneficiaries with adequate support services. Available literature indicates that land reform without giving provision of sufficient farmer support services only leads to failure.

2.3.7.2 Agricultural Credit

Most farming activities often face the challenge of lack of financial resources (Nazeer, 2014). It is, therefore, the prerogative of the government to provide farmers to ensure that farmers have access to affordable and sustainable credit lines. Increasing farmers' access to credit lines is regarded as a key faction in raising agricultural productivity in an efficient and sustainable way (Trienekens, 2011). Establishing institutions mandated with channelling credit facilities to established and small scale farmers is considered an effective approach that can be utilised by developing countries to enhance sustainable agricultural development. In the context of South Africa, the Land Bank and the Agricultural credit board were once established to cater to the credit need of South African farmers. The Land Bank was mandated with accommodating farmers who were once excluded from enjoying the services that the bank provided during the apartheid.

Although the Land Bank scored some degree of success in providing more small scale farmers with loans, the larger number of farmers still struggled to access credit facilities. In its 2003 annual report, the Land Bank reported that R2 billion was advanced to some 15 000 black farmers and that the number was increasing by 80 per cent annually. To improve its accessibility to the majority of farmers, the Land Bank increased the number of branches to 80 outlets, including 20 mobile outlets operating in the rural areas (Land Bank, 2003).

After the realisation that the Land Bank was not entirely successful in as far as improving small scale farmers' access to credit triggered the government of South Africa to introduce the Agricultural Credit Scheme. The scheme is mandated to address the need for small scale farmers whilst the Land Bank focuses on giving loans to established commercial farmers (May & Nzimande, 2012).

2.3.7.3 Provision of infrastructure

Lack of appropriate and adequate infrastructure has been identified as a major challenge that confronts farmers not only in South Africa but Africa at large. An analysis of the experience of any country that has successfully developed its agriculture will always identify the provision of good infrastructure as a requirement for achieving higher levels of agricultural productivity and profitability (Specht, Siebert, Hartmann, Freisinger, Sawicka, Werner & Dierich, 2013). In addition, a closer look at

Asia's green revolution shows that the availability of key physical infrastructure such as (roads, storage and irrigation) played a key role in making the revolution a success (Rocha Burlandy & Maluf, 2012). As such it is imperative that a government of the day channel resources towards infrastructure development since it has an impact on the development of sustainable agriculture (May & Nzimande, 2012).

Inadequacies of infrastructure in rural areas, chiefly in the former homelands, remain a major impediment to small scale farming and sustainable livelihoods agricultural growth in South Africa (Neves & Du Toit, 2012). Regardless of various government initiatives to improve the quantity and quality of infrastructure rural areas through such programmes as the Community Based Public Works Programme, Poverty Relief and Infrastructure Investment Fund, Consolidated Municipal Infrastructure Programme the impact on people live rural lives has been limited (Everatt & Zulu, 2001). In addition, South Africa has heavily invested in small scale irrigation schemes which have improved agricultural production to the beneficiaries.

2.3.7.4 Comprehensive Farmer Support Services

Farming can never be improved or sustainable in the without comprehensive farmer support services. International experience has proved that, with sufficient government sponsored access to farmer support services, farmer livelihoods are bound to become more sustainable (FAO, 2016). An example of how farmer support services can positively impact farmer livelihoods can be drawn from Zimbabwe where maize production by small scale farmers double as a result of the provision of extension, financial and marketing support services (Rukuni & Eicher, 1994).

In the case of South Africa, the Comprehensive Agricultural Support Programme was introduced to tackle the problem of a lack of support services. This programme provides a wide range of simultaneous service instead of focusing on one element of progressive and sustainable agricultural development. This programme addresses the challenges faced by farmers resulting from lack of farmer support services thereby improving their productivity.

2.3.7.5 Legislation promoting sustainability

The government also influences farmers' sustainable livelihoods through legislation. An example of legislation that is enforceable by the government of South Africa is the

Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983). The Act provides for the control over the utilization of the natural agricultural resources of South Africa in order to promote the conservation of the soil, the water sources and the vegetation and the combating of weeds and invader plants. This legislation has an environmental impact by promoting sustainable use of natural resources in order to ensure long-term productivity of the plant production sector (South Africa Constitution, 1996).

2.4 APPROACHES TO FOOD SECURITY

2.4.1 Capability Approach

Sen (2009) argued that welfarism exhibits both ‘valuational neglect’ and ‘physical condition neglect’. First, although welfarism is centrally concerned with how people feel about their lives, it is only concerned with psychological states, not with people’s reflective valuations (Arneson, 2010). Second, because it is concerned only with feelings it neglects information about physical health, though this would seem obviously relevant to assessing well-being. Not only does subjective welfare not reliably track people’s actual interests or even their urgent needs, it is also vulnerable to what Sen calls ‘adaptive preferences’. People can become so normalized to their conditions of material deprivation and social injustice that they may claim to be entirely satisfied.

Sen’s (2009) criticism of John Rawls’(1999) influential account of the fair distribution of primary goods stands in for a criticism of resourcist approaches in general (Arneson, 2010). Sen’s central argument is that resources should not be the exclusive focus of concern for a fairness-based theory of justice, even if, like Rawls’s primary goods, they are deliberately chosen for their general usefulness to a good life.

The reason is that this focus excludes consideration of the variability in individuals' actual abilities to convert resources into valuable outcomes (Basu, Lopez-Calva, 2011). In other words, two people with the same vision of the good life and the same bundle of resources may not be equally able to achieve that life, and so resourcists' neutrality about the use of resources is not as far as they believe it is.

More specifically, Sen (2009) disputes Rawls’ argument that the principles of justice

should be worked out first for the ‘normal’ case, in terms of a social contract conceived as a rational scheme for mutually advantageous cooperation between people equally able to contribute to society, and only later extended to ‘hard' cases, such as of disability (Basu, Lopez-Calva, 2011). Sen (2009) believes such cases are far from abnormal and excluding them at the beginning risks building a structure that excludes them permanently. The general problem is that such accounts ‘fetishize' resources as the embodiment of advantage, rather than focusing on the relationship between resources and people. Nevertheless, Sen (2009) acknowledges that although the distribution of resources should not be the direct concern in evaluating how well people are doing, it is very relevant to considerations of procedural fairness (Sen, 2009).

When evaluating well-being, Sen (2009) argues, that the most important thing is to consider what people are actually able to be and do. The commodities or wealth people have or their mental reactions (utility) are an inappropriate focus because they provide only limited or indirect information about how well life is going (Sen, 2009). The Capability Approach focuses directly on the quality of life that individuals are actually able to achieve. This quality of life is analyzed in terms of the core concepts of ‘functionings' and ‘capability'.

Functioning's are states of ‘being and doing' such as being well-nourished, having shelter. They should be distinguished from the commodities employed to achieve them (as ‘bicycling' is distinguishable from ‘possessing a bike') (Vallentyne, 2005). Capability refers to the set of valuable functioning's that a person has effective access to. Thus, a person's capability represents the effective freedom of an individual to choose between different functioning combinations – between different kinds of life – that she has reason to value (Venkatapuram, 2011). (In later work, Sen refers to ‘capabilities' in the plural (or even ‘freedoms') instead of a single capability set, and this is also common in the wider capability literature. This allows analysis to focus on sets of functioning related to particular aspects of life, for example, the capabilities of literacy, health, or political freedom.

Sen argues that the correct focus for evaluating how well off people are is their capability to live a life we have reason to value, not their resource wealth or subjective well-being (Schokkaert, 2009). But in order to begin to evaluate how people are performing in terms of capability, we first need to determine which functioning’s matter

for the good life and how much, or at least we need to specify a valuation procedure for determining this. One-way of addressing the problem is to specify a list of the constituents of the flourishing life and do this on philosophical grounds.

Sen (2004) rejects this approach because he argues that it denies the relevance of the values people may come to have and the role of democracy (Sen, 2004). Philosophers and social scientists may provide helpful ideas and arguments, but the legitimate source of decisions about the nature of the life we have reason to value must be the people concerned. Sen, therefore, proposes a social choice exercise requiring both public reasoning and democratic procedures of decision-making.

An important part of Sen's argument for the Capability Approach relates to his critique of alternative philosophical and economics accounts (Alkire, 2002). In particular, he argues that, whatever their particular strengths, none of them provide an analysis of well-being that is suitable as a general concept; they are all focused on the wrong particular things (whether utility, liberty, commodities, or primary goods), and they are too narrowly focused because they exclude too many important aspects from evaluation (Alkire, 2002). Sen's criticisms of economic utilitarianism and John Rawls' (1999) primary goods are particularly important in the evolution of his account and its reception.

2.4.2 Human Development Approach

The human development approach was mainly influenced by the work of Sen. Sen (2009) states that early development and economics theory focused too much on economics and economic development. By doing so, they ignored one important aspect of development (Sen, 2017). This is the impact of economic growth and development on human development especially in their standard of living. Hence, economic growth should result in improving the welfare of poor people. Economic growth does not automatically translate to development, the central component of development are people not mere figures and statistics showing economic growth (Sen, 2005).

Hence at the heart of human development is the notion of improving the livelihoods of people. The human development theory consists of the following six pillars. Equity,

which focuses on treating every individual within society equally and fairly (Miletzki & Bronnen, 2017). This entails fair and equal access to services like education and health. The notion of sustainability, which emphasizes the sustainability of scarce resources. The concept of productivity which focuses on the sufficient involvement of people in income generation. Empowerment which includes the capacity of people to have autonomy in terms of influencing development and decisions that affect them (Sen, 2000). The idea of cooperation in which people and communities must cooperate to improve their standards of living. Lastly, the concept of security which focus offers development opportunities, freedom and safety for the future. Human development is a process of enlarging people's choices (Arrow, Sen & Suzumura, 2010). The most critical ones are to lead a long and healthy life, to be educated and to enjoy a decent standard of living. Additional choices include political freedom, guaranteed human rights and self-respect' (Alkire, 2002). The Human Development approach insists that the fundamental aim of development policy should be to expand the opportunities that people have to lead meaningful lives.

Economic growth is a means towards this end, not an end in itself. As an overarching objective, the approach gained prominence with the publication of UNDP's first Human Development Report in 1990 (Robeyns, 2005). The approach developed as a response to the almost exclusive emphasis development policymakers had given to economic growth and stabilization. It came out of a long sequence of proposals reacting to the social ills resulting from this emphasis, which included high levels of poverty, deficient education and health services, high inequality and unemployment (Grusky, Kanbur & Sen, 2006). Human development was the most effective (belated) response to economist Dudley Seers' cry to ‘dethrone' GNP. It built, in particular, on the Basic Needs approach, which prioritizes the satisfaction of fundamental necessities for living, and Amartya's Sen's capability approach, which focuses on peoples' freedom to advance valued goals.

2.5 THE FOUR PILLARS OF FOOD SECURITY IN SOUTH AFRICA

2.5.1 Food availability

According to the National Development Agency (2013:3), food availability refers to the production and procurement of adequate quantities of food available on a continuous basis. The Integrated Food Security Strategy, 2002, views food availability as the

effective and continuous supply of food at both nationally and in households. Food availability is affected by market conditions and the production activities in the agricultural sector (Douxchamps, Van Wijk & Silvestri, 2015). The Department of Agriculture, Forestry and Fisheries (DAFF) is the lead department in terms of ensuring the availability of food in South Africa. According to Statistics South Africa (2015:41), 18.3% of the households in South Africa participate in agricultural activities. 77.5 % of the population who engage in agricultural activities, rely on agriculture as an extra source of food, 5.1% utilise agricultural activities as an extra source of income, 1.9% of households engage in agricultural activities as the main source of income and 9.6% of households in South Africa undertake agricultural activities as a central food source (Statistics South Africa, 2015:41).

Nationally, South Africa is able to produce sufficient food and is able to import food that cannot be produced within the country in order to provide enough food to its citizens. The National Self-sufficiency index indicates that South Africa is self-sufficient in maize, sugar, citrus, fruit, vegetables, milk and chicken (Du Toit, 2011:8). The importance of the agricultural sector to food security is evident in that participation in agricultural activities assists households with extra sources of income and agriculture is significant to decrease the impacts of poverty and hunger. The agricultural sector, through the DAFF, is one of the sectors that have a significant role in addressing the food availability pillar of food security.

2.5.2 Food access

Food access refers to the accessibility of adequate resources to obtain appropriate foods for a nutritious diet and food distribution relates to the provision of food at the right time to places where the food is needed. According to the Food and Agriculture Organisation (2013:20), economic access to food is determined by the income that households and individuals have at their disposal, the fluctuations in the prices of food and the way in which individuals and households have access to social assistance. Economic access to food is also determined by people's power to procure food. Physical access is determined by the infrastructure that is available in terms of roads, railways and ports of entry. In 2014, 11.4% of households were vulnerable to hunger and 13.1% of individuals in South Africa experienced vulnerability to hunger, 22.5% of households experienced complex food access and 26.2% of individuals experienced

complex food access (Statistics South Africa, 2015:59).

South Africa faces a challenge at the household level, where there are some households that do not have access to adequate food. Food access is one of the pillars of food security and therefore the inability to access adequate food is a challenge to household food security. The challenge of food security in South Africa exists at the household level where 5.9% of the total household population suffered from severe access to food, and 16.6% of households, experienced inadequate food access. 77.6% of households have adequate access to food (Statistics South Africa 2015:60). Social protection is important for hunger reduction in different ways; protection for the most vulnerable and contribution to more rapid economic growth and to strengthen the ability of the poor to access food. Hunger and malnutrition reduction require short and long-term interventions.

The Department of Social Development (DSD) provides nutritious meals through the Early Childhood Development Centres, and through food distribution centres, food parcels are provided to vulnerable individuals (Social Development 2013:2). The Programme for Social Relief and Distress implemented by the DSD is one of the key programmes in ensuring economic access to food, this programme along with the Expanded Public Works Programme and the Community Works Development Programme implemented by the Departments of Public Works and the Department of Cooperative Governance and Traditional Affairs (COGTA) respectively, are aimed at assisting households and individuals with income to procure food.

2.5.3 Food utilization

Food utilization can be defined as how food is finally used by households and individuals. It is vital for households to utilize food for their nutritional wellbeing and the preparation of food must provide the maximum nutrients (Tibesigwa and Visser,2016). There are two aspects that are vital which determines food utilization, dietary diversity and food preservation and utilization (Smart, Nel & Bins,2016). The National Policy on Food and Nutrition Security states that diversity of diet is fundamental to attain food and nutrition security. The results include increased levels of micro-nutrient deficiency induced diseases in South Africa (Battersby, 2016). Usually consequences of lacking Vitamin A and Zinc. The Department of Health established the Food fortification of maize meal and wheat flour with the purposes of resolving deficiencies of micro-

nutrients, these include iron, zinc, Vitamin A, folic acid, thiamin and riboflavin.

The responsibility of introducing micro-nutrient sprinkles falls under the Department of Health. It is vital to acknowledge the importance of nutrition education in relation to food utilization. The importance of nutrition education stems from the fact that individuals should be educated about preparing a healthy meal (Musemwa, *et al*, 2015). They should be able to interpret the nutritional indices and the information on the proper preparation of food. Department of Health and the Department of Basic Education have the responsibility of nutrition education in South Africa. The Department of Basic Education is responsible for implementing the National School Nutrition Programme which consists of nutritional education.

2.5.4 Stability of Food supply

The fourth pillar of food security in South Africa is the stability of food supply, this pillar is usually affected and influenced by the natural market, political and economic conditions (Perreira & Drimie, 2016). The various pillars of food security need and multidimensional multisectoral approach to policy implementation as each pillar of food security are resolved by numerous government programmes which consist of school feeding. Programmes meant for social relief and distress, support for smallholder and subsistence farmers, Community Works Development Programmes and Expanded Public Works Programmes (Warren, Hawkesworth & Knai, 2015). The multisectoral and multidimensional nature of food security is clear in the numerous programmes whose aim is to address each of the four pillars.

2.6 INSTITUTIONAL ARRANGEMENTS FOR FOOD SECURITY IN SOUTH AFRICA

Institutional arrangements for food security in South Africa have always recognized the need for a multisectoral approach in addressing problems related to food security. This is reflected in the institutional arrangements for food security found in Reconstruction and Development Programmes (1994), the Integrated Food Security Strategy (2002), outcome 7(2010), the Household Strategy on Food and Nutrition Security (2013), Fetsa Tlala Production Plan (2013) and the National Policy on Food and Nutritional Security (2013).

2.6.1 The National Policy on Food and Nutritional Security

The National Policy on Food and Nutrition recognizes a National Food and Nutrition Security Advisory Committee consist of arranged agriculture, food security and consumer bodies and representatives of organized committees chaired by the Deputy President. The National Policy on Food and Nutrition identifies that the similar committees will be created in the provinces and municipalities, however, the policy does not reflect the manner in which these structures will be created. There are no specific arrangements that should be followed by the civil society and private sector, especially how these sectors will be immersed concerning the implementation of the National Policy on Food and Nutrition Security.

2.6.2 The Household Food and Nutrition Security Strategy

The government of South Africa approved 3 vital guiding strategies in 2013 that were approved by the cabinet. These strategies include the Fetsa Tlala Production Plan and the Household Food and Nutrition Security Strategy including the National Policy of Food and Nutrition Policy. The approved Household Food and Nutrition Security Strategy also reflect a multisectoral approach to food and Nutrition Security also identifies a multisectoral approach to food security through including the various sectors of departments included in various pillars of food security in South Africa. The following arrangements are included in this strategy. The need for a Ministerial Household Food Security advisory committee and the significance of the role of the Department of Rural Development and Land Reform, Department of Water Affairs and the Department of Science and Technology.

2.6.3 Fetsa Tlala Production Plan

The Fetsa Tlala Production Plan recognize the subsequent institutional arrangements for a task team to establish the Production initiatives, DAFF, DRDLR, DWA, DTD, DSD, DPW, NT and PDAs. The Fetsa Tlala Production Plan also identifies a multisectoral approach to food production as a key strategy for food security in South Africa.

2.6.4 The rural development framework (1997)

The main aim of the rural development was to correct the marginalization that had occurred in the previous political and economic order. A key element of the previous

political order was the marginalization and deliberate dispossession of land from the natives through numerous legislative frameworks like the 1913 Natives Land Act (Poulsen, *et al*, 2015). This dispossessed non-white group from their land and thus economically marginalizing them since the land was a key economic asset (Skinner & Haysom, 2016). Besides being dispossessed of their land, the natives also lost their livestock, crops. Hence their only option was being either marginalized farmers or exploited as labour in white farms and industries. Hence the rural development framework intends to change the rural economy and rural agricultural through land reform programmes.

2.6.5 Integrated Sustainable Rural Development Strategy

This policy was introduced in 2001, its focus was on the 15 poorest rural districts, for instance, four of them were in Eastern Cape situated in OR Tambo, Alfred Nzo, Chris Hani and UKhahlamba Districts. The main approach of the ISRDS was mainly to change rural South Africa into economically viable and socially stable and pleasant sectors that would fundamentally contribute to the country `s GDP (Crush, 2016). The goal of the ISRDS was to ensure socially organized and stable communities with active institutions, sustainable economies. At the core of this strategy was ensuring rural development was prioritized (Haysom, 2015). The argument was that rural development was multifaceted and broader than poverty alleviation through social programmes. In this context, it is based on the conviction that for rural development to take place, numerous essentials, must be available.

2.6.6 Comprehensive Rural Development Programme

The comprehensive Rural Development Programmes was conceptualized and developed in 2009. The programme was initially adopted at 21 sites nationally, the target was on 160 sites by 2014 (Rudolph & Kroll, 2016). The main aim of the CRDP was ensuring an integrated programme that would foster rural development, land reform and agrarian change as fundamental strategic pillars emphasizing on social cohesion and development. Through the CRDP, the rural development pillar focus on enhancing economic, cultural and social infrastructure, public amenities and facilities and information and communications. The programmes prioritize empowering rural communities with the objective of improving their livelihoods. The priority is empowering rural communities and enhancing their livelihoods through rural

development and land reform (Rogerson, 2018). The focus of CRDP was mainly on three phases, initially, it emphasized on meeting basic human needs. Secondly, it aimed at advocating for large-scale infrastructure development and additionally to promote emerging rural industries, especially small, micro and medium enterprises.

The CRDP emphasize the fact that underdevelopment should be resolved through a multistakeholder approach (Noble & Wright, 2013). This is mainly based on a comprehensive approach that consists of diverse stakeholder's partnerships between public agencies, Non-Profit organizations, the private sector and concerned communities (Ruhliga, 2013). The endeavour is stimulating active, equitable and sustainable rural communities that have access to food. At the forefront of this policy is ensuring that rural development is prioritized for rural communities through creating employment, improving households, sanitation (Goldman, *et al*, 2015). The focus of the CRDP is not merely on agricultural activities but other non-agricultural activities. For instance, access to social and human capital, decentralizing decision making procedures.

It relies mainly on the following three approaches, transforming agriculture, rural development and land reform (Bvenura & Afoloyan, 2015). Transforming agriculture intends to resolve farm-related bottlenecks. The rural development strategy focusses on the optimal use and management of natural resources. This should be obtained through strategic investment in economic and social infrastructure (Malan,2018). Lastly, land reform whose focus is on reviewing restitution, redistribution and tenure programmes introduced in 1994.

2.6.7 The Integrated Food Security Strategy

The initial plan to put food security at the forefront of South African policies commenced with the Reconstruction and Development Programme of1994 (Ramikson, 2017). It recognized food security as a priority since it was a basic human need. Since poverty and food security were linked to the legacy of the previous political and economic order, it was identified that a framework for food security was necessary (Laurie, *et al.* ,2015). In this context, RDP food security was included in vital policy frameworks like the Agriculture White Paper (1995), BATAT and the Agricultural Policy Discussion Document. These policies were later combined into the Integrated Rural Development Programme, which was a vital policy for rural food security (Walsh and

Van Rooyen, 2015).

Later in 2000, the South African government adopted another strategy that would be inclusive of the current food security needs (Tesfmariam, *et al,* 2015). This was through streamlining, combining and integrating different food security sub-programmes in South Africa into the Integrated Food Security Strategy. Due to the complex nature of food security issues, this strategy required the effort of various stakeholders and players from diverse sectors (Nalley*, et al,* 2008). In this context, the South African government combined the effort and contribution of various stakeholders from the following sectors, private, public, Non-Profit Organizations, community-based associations. Nonetheless, the Ministry of Agriculture and Land Affairs was at the forefront of organizing the strategy.

In a similar manner, the IFFS was also combined with other government programmes, especially those that came in the aftermath of the first democratic elections in 1994 when the focus of the government was on enhancing the food security conditions for those that had been previously marginalized (Ceasar & Crush, 2015). This policy consideration resulted in more public funds being spent on government social programmes. For instance, school feeding schemes, child support grants, community public works programmes, free health services for children between 0-6. Production loans support scheme for small farmers, infrastructure grant for small scale farmers and the Presidential Tractor Mechanization (Govender, *et al*, 2016). Due to its role as a regional political and economic power.

South Africa`s food security policy is situated within a wider regional and international context. South Africa combines with Southern African Development Community (SADC) countries to obtain food security. SADC policies emphasize national, household and individual food security.

2.7 Strategies adopted by Individual Rural Households to address Food Insecurity and Poverty

Since coming up with a pathway to address food security and poverty needs a multidimensional approach, the literature has identified four pathways which were utilized by households as a way to solve their food insecurity and poverty (Sibhatu and Qaim, 2017). These consist of the agricultural path, multiple activity paths and assistance and an exit path, additionally a fifth path has also been recognized which

is the micro-enterprise path. The agricultural path includes utilizing agricultural production, especially by those rural households who have access to land and other farming resources (Chagomoka & Unger, 2016). Nonetheless, the main challenge in this strategy is that usually these small scale farmers are marginalized by the nature of modern-day agriculture which is bias towards commercial farmers whose capacity is assisted by their use of technology, complex market systems (Alam, 2011). This strategy consists of emphasizing on integrated rural development interventions for rural households.

The multiple activity paths comprise rural households utilizing off-farm income source as their main means of livelihood and agricultural production as an auxiliary strategy. These households commonly utilize off-farm income as a way to finance their farming activities (Graef, *et al*, 2017). They are usually challenged by two restricted income sources, whereas these households have access to land, strategically their production is not suited for modern day marketing since their off-farm employment opportunities are limited, the most appropriate way is to utilize their off-farm income (Gibbs, 2018).

The literature has also identified assistance path. This pathway includes those extremely lower-income rural households, whose income mainly comes from remittance from families working in urban areas (Harris, *et al,* 2015). It also comprises of those households who do not have other resources as income, hence utilizes remittance as their main source of income and other households who do not immediately rely on remittances by use it due to unforeseen circumstances that compel them to do so (Deveraux, 2016). These households adopt this pathway as a way to avoid a situation where they can lose their assets, hence degenerating from their transient poverty to perpetual poverty.

2.7.1 Improving rural infrastructure

Other policies adopted as a way to enhance food security in rural areas, included improving rural infrastructure. The argument behind improving rural infrastructure is that it will contribute to the accessibility of services or facilities that ameliorate the productivity of private rural capital (Leza & Kuma, 2015). Since damaged roads can be an obstacle to delivering farm products to the market, eventually increasing the cost of rural farmers (Kline, *et al*, 2015). In the same manner, an irrigation system might increase the productivity of farmland, whilst a telephone system might improve

communication system, in particular for information that is vital for instance, agricultural marketing and will eventually enhance efficiencies through providing rural farmers enhanced access to prices information (Holden & Gebru, 2016). Whilst investment by the public to rural infrastructure is vital for food security, so is the providing systems and finance that will ensure that prevailing infrastructure is maintained.

2.7.2 Building human capital for the rural sector

Human capital improvement is also an important aspect of improving food security, improving human capital is usually disregarded in strategies meant to improve food security in rural areas (Kassie, *et al,* 2015). Nonetheless, literature reflects that improving human capital usually contribute to enhanced productivity of agricultural land and labour. Due to the fact that specific areas meant for farming and forestry are likely to depreciate, policies that will enhance rural human capital are a priority. Building human capital is usually done by providing universal education and health services. Interventions in this context include the provision of training facilities and programs that will broaden the training to those rural villages that are usually marginalized (Beene, Headey, Haddad & Von Bremer, 2015). Training might include providing better information relating to the improved understanding of sustainable farming methods. However, criticism of such interventions is that they are usually top-down approach and might require some form of drastic interventions.

2.7.3 Direct Government Interventions

Governments usually engage directly in rural food security; this might be through public agencies that are established for such purposes. Government roles in this context include participating in the provision of agricultural input supply, providing rural credit, and in marketing agricultural production (Schindler, Graef, Konig & Mchau, 2017). Nonetheless, questions should be raised in relation to the sustainability of such policies, especially concerning whether government agencies are efficient and effective in attaining food security (Silvestri, Sabine & Patti, 2015). In this context, some governments are privatizing these agencies with the belief that private agencies are better positioned to enhance production in rural households and thus food security. However, despite this assertion being justified there are specific cases where there is a need for public agencies are necessary (Shisanya & Mafongonya, 2015).

2.7.4 The role of Agricultural Extension

The literature has also emphasized the role of agricultural extension in rural food security. Agricultural extension can be defined as an institution within the private and public sector. That might consist farmer associations, private firms whose role is to facilitating farmers and other rural actors' access to knowledge, information and technologies and their interactions with other actors, and help with them to develop their own technical, organizational and management skills and practices, with the aim of improving their livelihoods and wellbeing (Pye-Smith, 2012). The literature reflects on the changes that have occurred concerning the role of AES, the traditional role of the agricultural extension was mainly focused on providing services that enhance production, transferring technology (Terblanche & Koch, 2012). They also emphasized on wider development objectives, that including enhancing rural-livelihoods, with the aid of a demand-led, and market-oriented approach.

Agricultural extension also plays a key role in enhancing nutrition outcomes, which encompass improving the food and nutritional security of household members and ensuring a sustainable food system (Sulaiman & Davis, 2012). The literature reflects on the changes that have occurred with regards to the role of AES, the traditional role of the agricultural extension was mainly focused on providing services that enhance production, transferring technology. They also emphasized on wider development objectives, that including enhancing rural-livelihoods, with the aid of a demand-led and market-oriented approach (GFRAS, 2012).

Agricultural extension also plays a key role in enhancing nutrition outcomes, which encompass improving the food and nutritional security of household members and ensuring a sustainable food system that encourage healthy diets. Regardless of their sector, public or private and non-profit one can assert that agricultural extension services play a key role in determining the nature of production and consumption decisions of farming households (Fanzo, *et al*, 2015). They have been also a recognition by agricultural extension services that specific issues like gender inequalities should be also addressed. In this context, agricultural extensions are also trying to bridge the gender gap, through focusing one specific gender constraints and unequal access to services and technology.

2.8 FOOD SECURITY CHALLENGES IN SOUTH AFRICA

2.8.1 Institutional location challenges

Generally, there is bias in the context of food security; there is historical bias towards agricultural production as the strategy for food security. In this context, the Department of Agriculture has been at the forefront of agricultural production in relation to food security in South Africa (Chiweza, 2016). However, the department does not have the capacity to address food security issues. This is because the department lacks institutional capacity. It does not have the actual ability to compel other directorates. Let alone other government departments, to fall into line with the strategy. However, it has been suggested that the new food security policy should be hosted within the National Planning Commission, the advisory body responsible for devising the country`s development plans and policies. Another related challenge is the lack of powerful structures that can identify and devise food security policy.

2.8.2 Human Capital Challenges

The genesis of South Africa `s skills policy framework is associated with its past as an apartheid state. This period left a significant mark in relation to skills. The main aim of the 1994 government was to address these challenges, especially their effect on education and skills development. In the same manner, South Africa`s highly isolationist geopolitical and economic policies were significantly changed in the democratic era, which forced firms to be more competitive and export-oriented, and same trends in the agricultural sector.

This usually leads to re-arranging the forms and techniques of production and this has an impact on skills. The existing economic recession does have numerous complications, particular with regards to ensuring that the country remains an economic powerhouse in the region and continent. Regardless of the fact that resolving the skills deficit is a priority being one of the goals of food security strategies, especially the IFSS. Such arrangements require an organized approach to make optimum utilization of the prevailing training opportunities. The need to enhance skills in the agricultural sector is based on the significant element of the human capacity building.

2.8.3 Land Reform Challenges

At the heart of food security is the issue of land reform, since land is a key asset that is utilized for food production. In this context, a large amount of public financial resources for agricultural supported has been devoted to land reform. The Land Reform Programme consists of three main areas (Hall & Kepe, 2017). Restitution of land unjustly acquired from people and communities. Land redistribution and land tenure reform. The aim of the land redistribution programmes is to transfer a third of agricultural land from white owners to previously disadvantaged individuals. Land redistribution aims to provide people with access to land for either settlement on agricultural purposes (Rakodi, 2017). The purposes among other aspects are settling small and emerging farmers in viable farming operations within the commercial farming areas.

Land reform is different from land restitution, the land redistribution programmes have performed below targets since insufficient institutional capacity, and absent agricultural support services and coordination (Musakwa, Tshesane & Kangethe, 2017). The land reform programmes, provide grants to previously marginalized groups to obtain land for other forms of on-farm activities. Those who benefit can acquire numerous grants; these depend mainly on the amount of their contribution to labour or cash (Cousins, 2017). Land restitution is well advanced, consisting of more than 60% of the claims settled and more than 900,000 hectares of agricultural land restored to their previous owners. Some 35% of beneficiaries opted for compensation in cash, which contributed to poverty alleviation (Greenberg, 2015).

The government has sacrificed about US$200 million towards this course. The need to redress the inequitable land allocation that emerged from the apartheid past is mainly influencing land reform in South Africa (Derman & Hellun, 2015). There is a broad consensus that consistent efforts are required as a matter of urgency to address the land issue. In the same manner, there is a debate about the suitable manner of conducting land reform (McCusker, Woseley & Ramunditsela, 2015). The main challenge includes establishing key players responsible for the implementation strategy and enhances the procedures of land acquisition and resettlement. Identifying achievable objectives and meticulous sequencing of activities are key for success (Cousins, Cousins & Walker, 2015). Land reform should result in productive farms, not the opposite, which usually occurs. Usually, those who benefit from land reform are ill prepared for commercial farming. Which usually comprise of a high-risk environment,

lack the capacity to raise sufficient capital for commercial production.

Regardless of the key role played by agricultural development in resolving poverty and inequalities, it is evident that the capacity of agriculture and agricultural land reform itself to reduce poverty is limited. The sustainable solution of reducing poverty should include a larger proportion of the rural poor in economic activities that generate sufficient income.

2.8.4 Lack of Support from the private sector

The IFSS is based on a multi-sectoral approach stemming from a realization of the complexity of food-security issues. This approach requires cooperation from all spheres of government, and the active participation of the private sector and civil society (Boatemaa, Drimie, & Pereira, 2018). To this end, several important players from national and provincial governments, public agencies, universities, non-governmental organizations (NGOs) and community-based associations were involved in developing the IFSS, with the Ministry of Agriculture and Land Affairs (MALA) taking the lead. The absence of the corporate sector from the policy's development is striking (Sonandi, 2018).

The intention was to involve a range of sectors, including agricultural production and imports to achieve food supply at various levels; production and marketing to make food available; education linked to production and marketing, and to good food choices. All of these were consolidated by a range of government programmes designed to improve access to, and the availability of, food at different scales (Drimie & Garrett, 2009).

In general, few organizations or governments have successfully developed and managed all the elements required to implement a multi-sectoral programme. However, the complex and multidimensional nature of food security makes it clear that a multi-sectoral approach remains valid (Battersby & Mashaki, 2016). The reality is that, even if policies and strategies are conceived as multi-sectoral, operationally, programmes must be run by vertically structured institutions or at least along sectoral lines (Sinyolo & Mudhara, 2017). Despite the commitment in spirit to a consultative process, the IFSS does not provide a clear framework for the required approach; this is left largely to different tiers of government to decide. It is a notable challenge when each department reverts to its line function and budget reporting. This spurs confusion

about how systematic integration— leading to cooperative goal definition, planning and action—will emerge. There are deep institutional barriers to successfully managing the actions from policy to implementation, a situation that is exacerbated by the weak links between the government, the private sector and civil society (HSRC, 2009).

2.8.5 Conceptual Challenges

The complex nature of the food security problem in South Africa results in various policy challenges related to the many players and perspectives involved. The people involved see things very differently, and perspectives can become polarized, making it difficult to find solutions to the challenges of food security (Termeer, Drimie, Ingram, Pereira & Whittingham, 2018). People not only think differently about the causes of the problem but also about the level at which to resolve it.

Views range from seeing aspects of the national and international systems, such as unfair trade practices, as causes of food insecurity, to problems at the individual or household level, or problems with South Africa's food and agricultural system, from production to marketing and processing (Drimie & Garrett, 2009). These gaps in understanding prevent policymakers from effectively addressing food insecurity and from identifying appropriate interventions to different situations and different needs (HSRC, 2009).

The conceptual challenges are even more evident when one review and analyses the origins of the country's food-security policy framework. Following the election of the democratic government in 1994, the new ruling party, the African National Congress (ANC), embarked on a period of addressing inequalities created during apartheid, including actions in the field of rural development and food security (Kole, 2005). This led to the creation of the Rural Development Programme (RDP), which interestingly also addresses urban economic development. The process resulted in a broadly supported understanding that rural development had to become part of the general development agenda. Ultimately, the RDP sought to overcome the overall service-delivery imbalances created by apartheid.

2.8.6 Strategies for policy development

It is the writer’s idea that a number of ideas need to be part of the proposal as follows:

The government should ensure:

- Agricultural food security and nutritional objectives are integrated into broader national development policies and plans.
- Increasing the food and feed value of staple crops of the poor
- Enhancing food security, agricultural productivity, and income generation
- Improving access to production resources like land, finance, agricultural inputs, and information to a broader section of the population
- Reducing post-harvest losses
- Developing policies that are geared toward avoiding destabilizing food prices
- Developing programmes aimed at facilitating market access for small-holder and emerging farmers
- Developing programmes aimed at providing poor people with opportunities for generating income.

2.9 CONCLUSION

The chapter explored theoretical and empirical literature informing this study. The sustainable livelihood was unpacked in light of its origins, versions, its core principles and evaluation. Furthermore, the chapter reviewed empirical literature on food security, poverty, the role of government in promoting sustainable farmer livelihoods. The chapter also reviewed the literature on how agriculture impact food as well as how various policy interventions by the government have impacted food security. Government programmes discussed include the Reconstruction and Development Programme (RDP), Rural Development Programme, Integrated Development Plan (IDP) and Provincial Growth and Development Programme (PGDP) and Food and Nutrition Security Policy Food and Nutrition Security Policy. The next chapter outlines the methodology and design followed in carrying out this study.

CHAPTER 3: METHODS OF THE STUDY

3.1 INTRODUCTION

The previous chapter discussed the empirical literature concerning the focus of this study. Further, the previous chapter also presented the theoretical framework that informed this study. The current chapter presents and provides justification for the methodology used in this study. According to Wiiid and Diggines (2009), all research studies follow particular research methods, approaches and designs, which are appropriate for the development of knowledge in a given study. This chapter is structured as follows, the first section outlines research paradigms available for researchers to choose from, and these include positivist, post-positivist and interpretivist paradigm. In addition, a justification for the paradigm is also provided. The next section after that discusses the research approaches as well as presenting the rationale behind the use of a qualitative research approach. Furthermore, this chapter also discusses, in the following order: the research design, research population, sampling, research instrument, data analysis and ethical considerations which guided this research study.

3.2 RESEARCH PARADIGM

Research paradigm refers to a conceptual framework shared by a community of scientists, which provide them with a convenient model for examining problems and finding solutions (Smith & Albaum, 2012). Lancaster (2011) added that a research paradigm refers to an all-encompassing system of interrelated practices and thinking that are defined along three main dimensions, which are positivist, post-positivist and interpretivist paradigms.

3.2.1 The positivist paradigm

The positivist research paradigm of understanding reality is centred on the philosophical concepts put forward by August Comte, a French philosopher, who underscored the importance of reason and observations as a way to understand human behaviour and actions. Over the past years, positivists inclined thinkers have adopted his scientific methods as a means for knowledge creation and generation. Babbie & Mouton (2005) corroborated the same research method when they postulated that positivism accepts that social phenomena are based investigated through natural sciences.

Aliyu, Bello, Kasim & Martin (2014) described the positivist paradigm as a ‘research strategy and approach that is rooted in the ontological principle and doctrine which says that truth and reality are independent of the viewer and observers influence'. A significant number of intellectuals and researchers who are into this philosophy of research and investigation agree with the above definition (Denscombe, 2010). The view that the truth should be independent, self-governing and objective is exhibited in the meaning and definition of positivism in the following articles (Lee, 2000; Reason & Rowan, 2001; Mouton & Marais, 2003; Goetz & LeCompte, 2004; Gough, 2005; Griffin, 2006; Hollis, 2004; Polgar & Thomas, 2005). Sekaran and Bougie (2016) advance that positivism is a concept that excludes everything from consideration save for natural phenomena together with their interrelationships. At the centre of positivism is the principle of verifiability, which outlines that something is only meaningful when it is measurable and observable by human senses.

Denscombe (2010) stated that the positivist paradigm consists of beliefs based on rends (patterns), methods, generalisations, cause-effect issues and procedures that are relevant to the social sciences. This interpretation of positivism sustains that, humans, as the object of social science, are appropriate for the application of scientific methods. In that regard, positivism may be interpreted as a strategy to social science research that aims to utilise the natural science methods of research as a point of departure on studies of the social phenomenon (Denscombe, 2010).

Muijs (2011) noted that a positivistic inquirer/researcher prefers to work with measurable and observable social reality because it produces findings that are generalisable same as the ones produced by a natural scientist. Babbie & Mouton (2008) alludes that positivism accepts that there is an objective reality that exists beyond personal experiences and has its own cause-effect relationship.

Furthermore, a positivist view sustains that it is possible to assume a detached, distant, non-interactive and neutral position in social science inquiry (Aliyu, Bello, Kasim & Martin, 2014). Such a position allows a researcher to be an objective analyst who makes detached interpretations of data that would have been collected. As a result, positivists are biased toward analytical interpretations, quantitative and quantifiable data.

The positivist paradigm rejects the view that invisible things such as people’s attitudes

and thoughts can be accepted as valid knowledge or evidence. However, positivists accept that scientific and objective knowledge can only be realised through the building a base of verified facts. Such facts are usually referred to as laws relevant to a particular field. Denscombe (2014) alludes that scientific models viewed by positivist researchers as providing hypotheses that are then empirically tested. Logically, this encompasses formulation of a particular theory to describe the laws in a specific field. Consequently, hypotheses are thus formulated to allow research to expose the hypotheses to empirical examination before accepting or rejecting the proposed hypotheses (Dawson, 2010).

Positivists put more emphasis on reliability as the most characteristic of scientific methods of research (Hasan, 2016). It is argued that research methods used in any piece of research should be able to be repeated by other researchers in order to verify and check its scientific accuracy (Rorty, 2007). In addition, positivists regard to research methods that produce quantitative data as more reliable than other methods because they are normally organized in standardised and systematic ways (Smith & Albaum, 2012).

The positivist research enables variables to be investigated independently without the control or influence of the researcher. Concepts and thoughts are guided strictly by assumptions and theories when a positivist paradigm is followed in carrying out a research study (Creswell, 2014). This ensures there is no relationship between the researcher and the intended objectives of the research study. Data collection through quantitative methods entails carrying out investigations on a large sample thus making the results to the entire population.

3.2.2 The Post-Positivist paradigm

Post-positivism is a shift away from positivism. In fact, Dawson (2014) refers to it as a wholesale rejection of the central tenets of positivism in the same way Creswell (2003: 7) calls it “the thinking after positivism”. Thus, post-positivism is a knowledge claim that challenges the absolute truth and recognizes that one cannot be “positive” about claims of knowledge when studying the behaviours and actions of humans because humans are all biased and all of our observations are affected (Ryan, 2006).

Creswell and Poth (2017) argue that in post-positivism, the knower and the known cannot be separated as is the case in positivism; and that, although human beings

cannot perfectly understand reality, researchers can approach it with rigorous data collection and analysis. Hence, the post-positivistic approach to research opens the door to multiple methods and different worldviews as well as to different forms of data collection and analysis so as to provide and justify that rigour in the process of carrying out the research. The post-positivist paradigm emphasizes the importance of multiple measures and observations, each of which may possess different types of error, and the need to use triangulation across these multiple errorful sources to try to get a better lead on what is happening in reality (Barnham, 2015). Hence, the use of both quantitative and qualitative means of data collection in the same study is encouraged.

Post-positivist works from the assumption that any piece of research is influenced by a number of well-developed theories apart from, and as well as, the one which is being tested (Babbie, 2010). Nieuwenhuis (2007) theorises that researchers working within a post-positivist paradigm follow critical realist ontology. Realism concerns multiple perceptions about a single, mind-independent reality. Rather than being supposedly value-free, as in positive research, or value-laden as in interpretive research, realism is instead value cognizant; conscious of the values of human systems and of researchers (Krauss, 2005).

Realism recognizes that perceptions have certain plasticity and that there are differences between reality and people's perceptions of reality (Bordens & Abbott, 2002). Ary, Jacobs, Irvine and Walker (2013) contends that the critical realist agrees that our knowledge of reality is a result of social conditioning and, thus, cannot be understood independently of the social actors involved in the knowledge derivation process. Within a critical realism framework, both qualitative and quantitative methodologies are seen as appropriate for researching the underlying mechanisms that drive actions and events (Katz, 2015).

Nieuwenhuis (2007), concedes that post-positivism is a useful paradigm for researchers who maintain an interest in some aspects of positivism such as quantification, yet wish to incorporate interpretivist concern around subjectivity and meaning, and who are interested in the pragmatic combination of qualitative and quantitative methods. In pragmatism, the concern is "what works" best for understanding a particular research problem. Instead of "methods" being important as is the case in the positivism knowledge claims, pragmatism views the "problem" as the

most important part, hence researchers should use all approaches to understand the problem (Creswell, 2003). That is, what works is what is useful and should be used regardless of any philosophical assumptions, or any other type of assumptions (Johnson & Turner, 2003).

According to Patton (2005), a pragmatic position implies the choice of a method considering what will work best in a given situation to meet practical issues faced in an inquiry and thereby answer the research question. This is to say, the research question dictates the methods and not the paradigm or method. Hence, data collection and analysis methods are chosen because they are most likely to provide insights into the problem with no philosophical loyalty to an alternative paradigm. Pragmatism, just like realism and post-positivism, opens the door to multiple worldviews and different assumptions as well as to different forms of data collection and analysis methods.

Yeung (1997) cited in Nieuwenhuis (2007) holds the opinion that objectivity in post-positivism is recognised as an ideal that can never be achieved, and research is conducted with greater awareness of subjectivity. O'Leary (2004:6) concedes that post-positivism aligns in some sense with the constructivist paradigm claiming that post- positivists see the world as ambiguous, variable and multiple in its realities; "what might be the truth for one person or cultural group may not be the "truth" for another. This view of multiple realities is shared by Creswell (2003) and Maree (2007) who allege that post-positivism approaches assume that reality is multiple, subjective and mentally constructed by the individuals. In a way, different people view the truth differently or can understand things from a different perspective. Their understanding can be influenced by their different backgrounds such as culture.

3.2.3 Interpretivist paradigm

The paradigm advances that the best way to understand people's reality is by investigating people experiences and behaviours. This resonates with the study at hand. According to Babbie and Mouton (2008) the interpretivist paradigm, also referred to as the phenomenological approach, is a research philosophy that advocates for an understanding of human beings and their behaviours. This paradigm can be linked to postulations made by Dilthey (1833) and Webber (1864-1920). Dilthey (1833) pointed out that there are two primary but different types of sciences, which are namely human, and natural sciences. Natural sciences are centred on abstract

explanation whilst human sciences are based on an understanding of human beings and their experiences (Neuman, Baron, Einarsen, Hoel, Zapf & Cooper, 2011). As noted by Babbie and Mouton (2008), all humans are constantly trying to understand their worlds. As a result, it is accepted that human beings incessantly create, interpret, give meaning and rationalize their daily actions as well as behaviours (Rubin & Babbie, 2010).

The interpretivist research paradigm is thus, aimed at gaining insights and interpreting daily events, social structures, experiences and values that human beings attach to such phenomena (Rubin & Babbie, 2010). This makes the interpretivist paradigm the most suitable to guide this study to achieve its main objective of investigating anti-poverty policies and how they impact on sustainable farmer livelihoods and food security in South Africa. To add more interpretivists are of the view that social reality is nuanced and subjective since it is moulded by perceptions of research participants together with the aims and values of the research (Robson & McCartan, 2016). To that end, an intepretivist researcher/inquirer advances that there is no universal truth. Furthermore, an interpretivist researcher comprehends, understands and interprets human action from his or her own point of reference and orientation (Babbie & Mouton 2008). An interpretivist researcher holds the view that uncommitted and indifferent impartiality is impracticable and realism or practicality of framework and background is imperative.

Interpretivists accept that the subject matter of social science differs fundamentally from that of natural sciences (Rubin & Babbie, 2010). Subsequently, a different research methodology is needed to reach an interpretive explanation and understanding that would allow research to appreciate the subjective means of social actions (Packard, 2017). The methods commonly used by researchers and scholars who follow interpretivism include exploratory analysis, qualitative analysis, and field experiments (Rovai, Baker & Ponton, 2013).

The interpretivist paradigm is also a paradigm whose main objective is to identify and understand a person's social behaviour (Mcneill & Chapman, 2005). The interpretivist paradigm accepts that facts and values are not distinct and findings are inevitably influenced by the researchers' perspective and values, therefore making it impossible to conduct objective research, although he can declare and be transparent about his

or her assumptions (Tracy, 2013). It should be noted that the methods of natural science are not appropriate because the social world is not governed by law-like regularities but is mediated through meaning and human agency; consequently, the social researcher is concerned to explore and understand the social world using both the participants and researchers understanding (Mcneill & Chapman, 2005). It, therefore, means that the researcher and the social world impact on each other.

Given the scope of the study, the researcher utilised a positivist paradigm using statistics to deduce respondents' views. Owing to the above, it, therefore, means that, if one wants to explain social actions, there is a need to understand them in the way that the participants do. In the case of this study, key tenets of the positivist research paradigm guide the researcher to achieve the main objective of the study which are-:

- To carry out a demographic analysis of Mbhashe Municipality.
- To analyse the understanding and experiences of using sustainable farming practices by smallholder farmers in the Mbhashe Municipality.
- To determine the contributions of farm characteristics towards encouraging sustainable livelihoods in Mbhashe Municipality.
- To assess the role of household food security in building sustainable livelihoods in Mbhashe Municipality.
- To assess factors influencing farm household decision making process in utilising sustainable farming practices in Mbhashe Municipality.
- To determine if whether sustainable agricultural practices improve farmer livelihoods and food security for smallholder farmers in Mbhashe Municipality.
- To determine the food security status of the farm households in the Mbhashe Municipality and the coping strategies employed by these households in order to mitigate food insecurity; and
- To propose a model based on the current research to sustain livelihoods in Mbhashe community in Eastern Cape.

These objectives were achieved through the collection of quantitative data by harnessing the experiences of farmers with various government programs aimed at ensuring sustainability, reducing poverty and ensuring food security.

3.3 RESEARCH APPROACH

Concerning research approaches, there is a persistent paradigm war where a researcher either belongs to interpretivism, positivism or post-positivism (Rahman, 2017). Research approaches help to present the findings and conclusions of the research (Saunders, Lewis, & Thornhill, 2012). There are three main research approach which are namely mixed methods, quantitative and qualitative approaches

3.3.1 Mixed methods

Creswell (2005) defines mixed methods as a procedure for collecting, analysing and "mixing" both quantitative and qualitative data at some stage of the research process within a single study to understand a research problem more completely. Ivankova, Creswell and Clark (2007) assert that in this approach, a researcher collects both numeric information (e.g. scores on the survey instrument or ratings) and the text information (e.g. open-ended interviews or observation) to answer the study research questions.

The term "mixing" implies that the data or the findings are integrated or connected at one or several points within the study. Mixed methods approach is relatively new and builds on both quantitative and qualitative approaches. It is supported by post-positivistic as well as pragmatic and realism ideals as they advocate the use of multiple measures and observations, each of which may possess different types of error, and therefore need to use triangulation across these multiple errorful sources to try to get a better lead on what is happening in reality (Sekaran & Bougie, 2016).

The strength of this approach is that findings from one method can be checked against findings from another and allow for a more complete analysis of the research problem through comparing data produced by different methods (Denscombe, 2010; Maree, 2007; Robson, 2005). It can use both qualitative and quantitative methods to answer research questions in a single study (Mertens, 2005).

According to Creswell (2003), there are six mixed methods designs: sequential exploratory design, sequential exploratory model, sequential transformative design, concurrent triangulation design, concurrent nested design and concurrent transformative design. Ivankova *et al.* (2007) concede that the most commonly used designs are: the explanatory design, the exploratory design, the triangulation design and the embedded design. Maree (2007) noted that the concurrent triangulation

design is probably the most familiar of the six major mixed method designs. It can be selected as the design to confirm, cross-validate, or corroborate findings within a single study.

Therefore, the collection of data in a mixed method approach can either be sequential or concurrent. Sequential procedures imply that the researcher collects both the quantitative and qualitative data in phases (sequentially) while concurrent procedures mean that the researcher will collect both quantitative and qualitative data at the same time (concurrently) (Salkind, 2010). When the data are collected in phases, either the qualitative or quantitative data can come first depending on the initial intent of the researcher. However, concurrent procedures are less time-consuming than the sequential procedures (Vogt, 2007).

Integration of the two types of data can occur at several stages in the process of research, that is, the data collection (combining open ended questions in a survey with closed ended questions); the data analysis and interpretation (transforming qualitative themes or codes into quantitative numbers and comparing that information with quantitative results); or some combination of places (both during data collection and analysis) (Williams, 2011).

It is, therefore, noteworthy that researchers interested in the use of mixed methods approach are cautioned to be mindful that the approach calls for extensive data collection; it is time intensive in terms of analyzing both text and numerical data; and the researcher needs to be familiar with both quantitative and qualitative forms of research (Creswell, 2003).

3.3.2 Qualitative Research

Qualitative research involves the use of techniques that attempt to gain an understanding of the existence of attitudes and opinions (Bradely, 2013). Qualitative research is all about exploring issues, understanding underlying reasons and motivations (Wiid & Diggines, 2013). Qualitative research studies do not measure a number of emotions or opinions but may help in giving the indication of the dominant feelings (Bradely, 2013). The majority of qualitative studies involves a language of cases and contexts, examine social processes and cases in their social context and study interpretations or meanings in specific socio-cultural settings (Neuman, 2011). Neuman (2011) further indicates that qualitative studies are built on assumptions that

certain areas of social life are intrinsically qualitative, and because of this notion, qualitative research is not imprecise and deficient but very meaningful. Qualitative data sometimes seems to be soft and intangible, but this does not mean that data cannot be captured (Neuman, 2011). Polgar and Thomas (2005) state that during early development stages, any science relies on qualitative data.

3.3.3 Quantitative research approach

According to Brannen (2017), the quantitative approach underlies the natural scientific method in human behavioural research and holds that research must be limited to what can be observed and measured objectively. Quantitative research is about asking people for their opinions in a structured way so that hard facts and statistics can be produced to guide the research (Patten, 2017). The quantitative research aim is to determine the relationship between one thing known as an independent variable and another known as the dependent variable in a population by means of statistical, mathematical or computational techniques (Wiid & Diggines, 2013).

Therefore, based on the objectives set forth the researcher utilised a quantitative research approach. The major advantage with this approach is that it allows the researcher to find a relationship between variables under study, in the process deduce proper findings.

3.4 RESEARCH DESIGN

The research design is seen as a strategy or blueprint of how the researcher intends to conduct the research (Babbie & Mouton, 2011). The research design helps the study to design a study and develop strategies to guide the researcher through the research process (Neuman, 2011). Research designs which are mainly used by researchers are exploratory, descriptive and causal (Cant *et al.,* 2012).

3.4.1 Descriptive Research

Descriptive studies are statistical methods used to identify patterns or trends in a situation (Wiid & Diggines, 2013). Descriptive research presents a picture of the specific details of a situation, social setting or relationship (Neuman, 2011). Descriptive research is usually necessary when the knowledge of a particular aspect is vague and is used to answer questions like who, what, when, where and why (Wiid

& Diggines, 2013). The objective of descriptive research is to describe the research domain accurately and thoroughly (Wiid & Diggines, 2013).

3.4.2 Causal Research

This research is conducted to reveal cause and effect between the dependent and independent variables and examines whether one variable causes or determines the value of another variable (Cant *et al.,* 2012). This can be conducted by means of laboratory or field experiments and can also be linked to predictive studies (Wiid & Diggines, 2013). This research design was not appropriate for the study as it only caters for experiments which were not utilised in this study.

3.4.3 Exploratory

In the exploratory approach, the researcher first begins with the qualitative research phase and explores the views of participants (Creswell, 2014). In other words, exploratory studies are intended to explore a relatively unknown area (Wiid & Diggines, 2013). Challenges which can be faced by exploratory research approach pertain to the selection of the sample for the research (Creswell, 2014). Exploratory research is necessary when more information is required about a problem or phenomenon and to collect data that can contribute to more meaningful research questions (Wiid & Diggines, 2013). The ultimate objective of exploratory research is to acquire insight and develop understanding rather than to collect accurate replicable data; therefore, this type of study often involves conducting in-depth interviews, analysing case studies and using sources (Wiid & Diggines, 2013).

It was mentioned earlier that the research followed the quantitative research design. The purpose was not only to find the reasons but also to understand participant views, thoughts, opinions and their personal experiences on various anti-poverty interventions which have impacted food security and sustainable farmer livelihoods in in the study area. Hence, the researcher found it appropriate to use a descriptive research design.

3.5 THE POPULATION AND SAMPLE

The population is the total number of possible units or elements that are included in the study Katz (2015) posits that a population is an identifiable set of interests to the researcher and related to the phenomena under study. It entails the specification of

the survey group under investigation. The specifications define the elements that belong to the target group and those that are not to be included (Flick, 2013). The population of the study was composed of smallholder farmers in Mbhashe municipality. In selecting participants, the researcher used the purposive sampling method, which was seen to be suitable for the study as the researcher targeted respondents conveniently accessible to him (Mouton & Marais, 2003).

3.6 SAMPLING

Sampling is a process whereby a group of individuals, households or companies are selected from the population to take part in research whose results maybe generalised to the entire population (Creswell, 2014). Sampling is important in research because it makes it possible for a researcher to study only a portion of the population, which is affordable and time effective because only a portion of the target population is studied (Patton, 2005). In addition, studying a sample requires fewer resources as opposed to a census. The results which are generalized using inferential statistics. There are two sampling methods or designs, which are namely probability and non-probability sampling (Cant *et al*., 2007).

3.6.1 Sampling Methods

There are two broader sampling methods which are probability and non-probability sampling method (Wiid & Diggines, 2013). The sampling methods can be divided into two that is, probability and non-probability sampling.

3.6.1.1 Probability Sampling

This type of sampling implies that each population element has a known non-zero chance of being included in the sample; it is of paramount importance that the probabilities of selection be equal (Lacobucci & Churchill, 2010). Probability sampling is a controlled procedure that ensures that each population element of the chosen population has a known chance of being selected (Berndt & Petzer, 2011). Examples of probability sampling techniques include simple random sampling, systematic sampling and stratified sampling.

3.6.1.2 Non-probability sampling

Non-probability sampling is seen as an arbitrary and subjective sampling method (Berndt & Petzer, 2011)**.** When a researcher uses this type of sampling, not everyone

in the population will have the chance to be selected (Flick, 2011). Examples of non-probability sampling include quota sampling, snowball sampling and purposive sampling. However, this study adopted the purposive sampling and it will be briefly discussed below.

3.6.1.3 Purposive sampling

For the purpose of this study, the researcher utilised purposive sampling for the following reasons. Purposive sampling is based entirely on the judgement of the researcher to choose samples that contain the most relevant characteristics or typical attributes of the population (Flick, 2011). The advantage of purposive sampling is that it increases the likelihood of variability common in any social phenomena to be presented in the data (Creswell, 2003). Therefore, this will imply consistency in collected data and a reduction in bias. The disadvantage of the purposive sampling is that bias might be present but the researcher could always work out a plan to avoid or minimise biasness. The sample size entails the number of respondents from the whole population, the researcher focused on the population of the study when drawing a sample. The study population was 2100 smallholder farmer. The selected members or part of the population is called the sample (Patton, 2005).

3.6.2 Sample size

The question of the appropriate sample size or a number of respondents is a complex issue (Collis & Hussey, 2009). Semi structured questionnaires were distributed to the 130 targeted farmers with the use of three trainees. The five villages were clustered and a sampling frame was drawn from the clusters as shown in Table 3.1.

Table 3.1: Sampling clusters

Clusters	Population	Percent of sample	Sample
Cluster 1 (Emadakeni)	200	10%	20
Cluster 2 (Emnqaneni)	400	10%	40
Cluster 3 (KwaDungata)	550	5%	28

Cluster 4 (KuBhula)	600	5%	30
Cluster 5 (Xeni)	230	5%	12
Total	2100	35%	130

3.7 Data collection

This study collected both secondary and primary data. Secondary data was collected through a review of published literature, which formed the basis of this investigation. Primary data was collected through the questionnaires.

3.7.1 Secondary Data

Secondary data are data collected by people who are not related to research but rather collected the data for other purposes (Zikmund, 2010). The secondary data assisted in developing questions which were posed to the farmer who took part in this study. Secondary data assisted in comparing studies which have been done previously with this study, especially those ones which dealt with sustainability farmer livelihoods and food security.

3.7.2 Primary data

This is the type of data that was gathered specifically for the present research project; its advantage is that it deals with the requirements of the research in question (Kinear & Tailor, 2013).

3.8 STUDY AREA

Source: municipalities.co.za

Figure 3:1 Mbhashe Municipality location

Mbhashe Municipality falls under the Amathole District Municipality and consists of 32 wards and 63 councillors (IDP, 2017). The municipality is located in the Southern Eastern part of the Eastern Cape Province and is bordered by King Sabata Dalinyebo (East), Engcobo (West), Mnquma (South) and Intsika Yethu (South-West) municipalities. In terms of geographic size, the area covers approximately 3200 km square (IDP, 2017). The municipality falls under the Transkei homeland area, with a scattered settlement pattern that reflects a rural area.

3.8.1 Demographic characteristics

According to 2016 statistics, Mbhashe Local Municipality houses 0.5% (269000) of the South Africa population and 63800 households with a 4.24 household size. Meanwhile, it accounts for about 31% of the total population in Amatole District Municipality (ECSECC, 2016). The population is projected to a growth of 0.7% in between 2016-2021. Yet, the annual population growth for the Amathole District Municipality in the Eastern Cape is projected to grow by 0.5%. In terms of population distribution, in 2016 the working age group 20-34 was 24 % of the population, and it is projected to decrease over time. There are 53 % females compared to males. Whilst

in the Amathole District Municipality the female population is 52 % female. In total, 99% of the population black African with whites, coloured and Asians contributing 1%. At least 94% of the population speaks IsiXhosa, English (1.54%), others (3.21%).

Table 3.2 Population distribution in the study area

	Mbhashe	Amatole	Eastern Cape	National Total	Mbhashe as % of district municipality	Mbhashe as % of province	Mbhashe as % of national
2016	269,000	862,000	7,010,000	55,700,000	31.2%	3.8%	0.48%
2017	271,000	866,000	7,080,000	56,500,000	31.3%	3.8%	0.48%
2018	273,000	870,000	7,160,000	57,400,000	31.4%	3.8%	0.48%
2019	275,000	875,000	7,240,000	58,100,000	31.5%	3.8%	0.47%
2020	277,000	880,000	7,310,000	58,900,000	31.5%	3.8%	0.47%
2021	280,000	886,000	7,380,000	59,600,000	31.6%	3.8%	0.47%
Average Annual growth							
2016-2021	0.75%	0.54%	1.05%	1.37%			

Source: ECSECC (2016)

According to the Mbhashe-IDP (2017), the municipality has the highest number (60%) of illiterate populations in the Eastern Cape Province. Only 0.6% of the population has university degrees. As revealed by the 2011 Stats SA Census, over 93% of employable people are unemployed. This translates to about 5 %employed in the formal sector and 1% in the informal sector (IDP, 2017). This means that the active labour force (34%) must support 64% of the population. This situation has led to the over dependence on the working class and social grants. Stats SA (2011) estimated that over 21% of the population aged 20 years has no form of schooling. This is very alarming given that low literacy level contributes to poor economic performance. The gender analysis of employment reveals that it is well balanced at 46:54 for male and females.

The poverty levels are high in Mbhase, 39% of households have a monthly income equal or higher than R3000, yet 47% survive on income less than R8000 per month. This translate to 14% with no income, equating to 61% of households living with poverty (IDP, 2017). At least 66% of the population lives in traditional dwellings with 21.4% on concrete or brick blocks. The male to female ratio is 46: 54, this is way

balanced compared to the national population distribution of 42:58. Suggesting that most households are female headed in the area.

In 2016, the municipality contributed 14.86% to the Amatole district municipality GDP of R27.9 billion. That is a 1.23% contribution to the Eastern Cape GDP (ECCS, 2017). Meanwhile, the growth rate was 0.69% in 2016, way below the Eastern Cape Province GDP growth of 0.25%. The municipality is expected to grow by 1.23 % from 2016-2021. The negative growth of the municipality implies that its economy has been on recession for a number of years.

The subsistence agriculture sector is the major contributing sector in the economy of Mbhashe. Most households rely on subsistence farming for food and survival. Maize and vegetable are the two major crops farmed in the area. Only 4000 hectares of the available 12000 hectares is utilised for maize production and it is used as their staple food.

Most areas are under communal land tenure system. The municipality is predominately rural with an estimated 97% of land falling under the jurisdiction of Traditional Authorities (IDP, 2017). However, StatsSA (2015) claimed that Mbhashe has the richest land for livestock in the Amathole district. Over 250000 sheep were recorded in Mbhashe (StatsSA, 2015).

3.8.2 Conceptual framework and economic strategy

In face of variability in climate change, farmers usually resort to various agricultural sustainable techniques. These techniques are meant to protect or shield their farming yields from natural hazards.

This study opts for the probit econometric technique, where a binary model estimates the influence of a set of explanatory variables on each chosen practice while allowing the unobserved factors to be freely related (Cheteni, 2017). The major reason for using such an approach is that univariate approaches do not solve biasness and inefficient estimates. Greene (2008) pointed out that the failure to capture interrelationship and the unobserved factor is among practices that leads to bias and inefficient estimates.

Therefore, using the random utility approach one can consider the following scenario. Given that the i[th] farm household (i=1…..N) faces a decision your whether or not to adopt an SAP on farm f (f=1….F). Let U_0 represents the benefits to the farmer from traditional management practises, and let U_j represent the benefits of adopting j[th] SAP:(j=F, M, V), where F denotes inorganic fertilizers, M demotes Manure and V demotes improve varieties. The farmer decides to adopt the j[th] SAP if $Y_{izp} = U_j - U_o > 0$. The net benefit J_z that the farmers derive from j[th] SAP is a latent variable determined by observed household, demographic and location characteristics (X_{iz}) and unobserved characteristics (e_{iz}), where:

$Y_{izj} = X'_{iz}\beta_j + e_{iz}$ (j=F, M, V)

The unobserved preferences in equation (1) are changed into observed binary outcomes as follows:

$$Y_j = \begin{cases} 1 & if \ \ Y_{izj} > 0 \\ 0 & Otherwise \end{cases} \qquad \text{(j=F, M, V)}$$

3.9 DEPENDENT VARIABLES

The dependent variable is a binary outcome showing whether a farmer adopts a sustainable practice, taking the values 0 and 1. A probit model is applied and each model was specified as follows:

Pr (y = 1x) = Φ($x\beta$) (1)

where y is a binary variable representing a household's choice of sustainable farmer livelihoods, and x is a set of explanatory variables. Φ(xβ) is the cumulative distribution function. The variable descriptions are shown in Table 3.3.

Table 3.3 Sustainable agricultural practice regression variables

Variable	Description	Category	Signs
Dependent			
Sustainable agricultural practice (FS3)	Yes=1,No =0	dummy	+/-

Independent Variables			
Gender	Female=0, Male=1	dummy	+/-
Age	Years	continuous	+/-
Education	Years	continuous	+/-
Marital status			+/-
Household size	Number of household members	Continuous	+/-
Member of association	Yes=1,No =0	Dummy	+/-
Location	Original from Mbhashe Yes=0, No=1	Dummy	+/-
Employment	categorical	Categorical	+/-
Extension	Number of visits by extension officers	Continuous	+/-
Perceptions	Perceptions of farmers on sustainable practices	Category	+/-

3.10 VARIABLES DESCRIPTION

This forthcoming section provides a synopsis of variables that were utilised to run regressions in the study.

3.10.1 Institutional or farm characteristics

Institutional or farming characteristics are factors beyond the control of a household. These factors include access to agricultural information; credit access, membership or affiliation or organisations; land owner and land access (tenure systems and market access). The availability of agricultural inputs is dependent on various factors, which include the pricing policies, technology to name a few. Titus & Adefisayo (2012) stated that a lack of access to extension services is one constraining factor to the adoption of particular farming practices.

Likewise, Cheteni, Mushunje and Taruvinga (2014) found that inadequate extension service has a negative influence in the adoption of farming practices. On the other hand, access to farming information is likely to increase or promote the use of artificial

practices such as fertiliser usage and improved seed varieties (Pender and Gebremedhin, 2007). Therefore, the adoption of sustainable agriculture practices is expected to be influenced by belonging to a farmer organisation or group (Cheteni, 2016; Silvestre *et al.,* 2012; Deressa *et al*., 2011). Meanwhile, Rogers (1995) noted that extension service provides farmers with useful information about improved farming practices and new technologies.

On the other hand, a household participating in a local organisation leads to better access to information about farming. Cheteni (2016) pointed out that membership in association increased the farmers' awareness of new technologies and farming practices leading to possible high returns on yields. Pender and Gebremedhin (2007) claimed that it leads to higher returns from market accessibility. Likewise, increased access to markets is considered a very important factor that can improve smallholder profitability (Mokhele & Cheteni, 2018). Improved infrastructure such as road promotes the production of quality crops and promotes the uses of agricultural inputs (Titus and Adefisayo, 2012; Pender & Gebremedhin, 2007). In addition, better roads and market access are linked to off- farm work opportunities, which increase a household's income potential.

Meanwhile, land tenure, which is defined as the pattern under which households own and access production resources such as water and land, is very important because it allows the defragmentation of land into small plots that can impracticable (Titus & Adefisayo, 2012). Secure land tenure has been widely recognised to play a critical role in influencing farmers' willingness to adopt Saps (Teshome, Graaff, Ritsema & Kassie, 2014). Numerous studies on land tenure security recognise that there is a positive relation between secure land tenure and investment (Jacoby & Minten, 2007). Grimm and Klasen (2014) pointed out that secure land tenure provides a guarantee for farmers to invest both short and long term on soil management practices. Kassie *et al*., (2013) confirmed that rural communities in Tanzania adopted SAPs on owned land than on borrowed land. In addition, farmers preferred to use fertilisers on rented land than their own. Suggesting that land tenure was a driving factor in influencing SAPs adopted by farmers.

3.10.2 Household Farmer factors

These factors are in direct control from a household. They include demographic characteristics of a household, physio- social characteristics and household economy characteristic. Psychosocial factors include norms, attitude and perceptions. An individual's behaviour is influenced or affected by beliefs, values and attitudes. FAO (2000) claimed that psychosocial factors affect household choices or preference for consumption and food, hence it also influences the types of livestock or crops that a household is willing to raise. Meanwhile, Theocharopoulos *et al.,* (2012) raised that these factors influence household risk assessments and farming practices.

On the other hand, household's factors that affect farming choices include gender, farming experience, household size and education to name a few, It is argued in literature that household which is larger is likely to utilise physical labour compared to smaller households in its farming (Boru, *et al.,* 2015; Cheteni *et al.,* 2014; Swai et al., 2012). Silvestri *et al.,* (2012) claimed that the household size could influence the likelihood of perceiving climate change as a threat and it influences the adaptation measures to be chosen.

Similarly, a household with more experience in farming accumulate more wealth and increases its chances to be successful in farming (Bogale & Shimelis, 2009). Therefore, through experience, farmers are more concerned about sustainable land development. Consequently, it is expected that the adoption of sustainable land practices increases with years of experience in farming.

Yet the education level contributes to the interpretation and transmission of information, and it influences individual decision making towards farming. As claimed by Edward-Jones (2006), better education influences the decision making process in particular on farming practices. Silvestri *et al.,* (2012) and Cheteni (2016) pointed out that education plays an important role in the adoption of new agricultural practices or technology.

The gender of the household head is also associated with different forms of farming practises in numerous countries. For example, women household heads usually have poor access to productive practices and have fewer assets compared to their male counterparts. Meanwhile, the age of the household head has been found to negatively

influence the adoption of SAPs in various studies (Kassie *et al.,* 2013; Mugwe *et al*., 2007), while in some studies like N'gombe (2014) and Cheteni *et al.,* (2014) it was found to have a positive influence. However, in other studies it was found to be insignificant, this, therefore, means that literature is inconclusive on the age effect on the adoption of SAPs.

3.10.3 Household economy

Household economy factors include income earnings, ownership of assets and farm size. As pointed out by Hassan and Nhemachena (2008) household in possession of large farm size practice multiple cropping or mixed farming. Doss (2006) posited that farm is often a prerequisite for obtaining credit, for instance, in Ethiopia; farmers must possess at least 0.5 hectares of maize farmed land in order to be considered for credit scheme for maize. Kassie *et al* 2009 concluded that farm size and livestock assets influence the adoption of sustainable agricultural practices positive. Meanwhile, Willy and Holm-Muller (2013) argued that farm size negatively influences soil conversation adaptation measures.

Similarly, households earning diverse income are associated with a variety of farming practices. This is mainly caused by the availability of credit services, market information and access to funding (Pender & Gebremedhin, 2007). Meanwhile off farm activities may affect the overall household income. A household with large heads of cattle can generate more income by using oxen as animal power for farming. Yet access to better lands increases the purchasing power of a household by allowing purchasing different inputs for production and asset ownership. Wealthier households usually have more liquidity to purchase inputs yet poor farmers rely on more informal and formal sources of credit or government subsidies (Kassie *et. al.,* 2015).

3.11 DEPENDABILITY

Dependability refers to the stability of research findings over a period of time (Bryman, 2015). It allows the involvement of respondents in evaluating the findings and the interpretation and recommendations of the study to make sure that they are all supported by the data received from the informants of the study (Bryman, & Bell, 2011). Dependability was maintained due to the replicability of the study findings and the availability of data.

3.12 CREDIBILITY

Credibility is mostly used to evaluate non-numeric data and refers to the objective and subjective components of the believability of a source or message (Babbie & Mouton, 2005). Credibility has become an important quality dimension as it is difficult to directly judge accuracy; hence some additional information is needed to judge the raw data (Albaum & Smith, 2012) In this study credibility was ensured through explaining to the respondents that what is expected of them is their personal experience as farmers rather than what they think to be a social response. The study ensured credibility by collecting relevant data for the problem under study.

3.13 TRANSFERABILITY

This refers to the degree to which the results of qualitative research can be transferred to other respondents as an interpretive equivalent of generalizability (Creswell, 2003). In this study, transferability was determined by presenting sufficient descriptive data to allow comparison.

3.14 CONFIRMABILITY

According to Creswell and Poth (2017), confirmability refers to the degree to which the results of an inquiry could be confirmed or corroborated by other researchers. What confirmability is concerned about is that the data and interpretations of the findings are not figments of the inquirer's imagination but clearly derived from the data (Dawson, 2010). In this study confirmability of the study was determined by comparing the research findings with previous studies.

3.15 ETHICAL CONSIDERATIONS

In research, ethical considerations are of paramount importance. Dawson (2014) referred to ethics as the appropriateness of behaviour to get the permission to use information provided by the respondents. According to the Helsinki Declaration of 1972, it is imperative to obtain clearance from an ethics committee when human or animal subjects are involved in any kind of research of an empirical nature (Maree, 2010). The research complied with the regulations stipulated by the Research Ethics Committee. In following the procedures stipulated by the University Research Ethics Committee (UREC) the researcher is assuring the society that he takes seriously their obligation to act ethically (Denscombe, 2010). There are three major ethical issues which have been raised by scholars which the study should take into considerations

these are informed consent, right of respondents, confidentiality and anonymity.

3.15.1 Informed consent

Informed consent is the major ethical issue in conducting research and cannot be overemphasised (Denscombe, 2014). According to Armiger (1997), a person should participate in a research knowingly, voluntarily and intelligently. Whenever human subjects participate in a research study, they need to be given enough information to provide a truly voluntary and informed consent, the purpose of the study, benefits of the research to the society and length of time the respondent is expected to participate (Denzin & Lincoln, 2010).

3.15.2 Confidentiality and anonymity

The issue of confidentiality and anonymity is closely connected with the rights of beneficence and respect for dignity (Katz, 2015). Confidentiality pertains to the treatment of information that an individual has disclosed in a relationship of trust and with the expectation that it will not be divulged to others in ways that are inconsistent with the understanding of the original disclosure without permission (World Health Organisation, 2013). According to the British Educational Research Association (2004), the main way that researchers seek to protect research respondents from the accidental breaking of confidentiality is through the process of anonymization.

3.15.3 Right of respondents

The researcher allowed the respondents to take part in the research voluntarily and informed them of their right not to participate in the research whenever they felt that these righhts were being violated. The respondent has a right not to participate in the research where he/she feels that his/her rights are being violated (Mcneill & Chapman, 2005)

The researcher in conducting this research carefully handled out all the above-mentioned ethical considerations so as to make it a point that the respondents were not affected by the information they had supplied for the study. The data collected from the respondents was handled carefully and kept confidentially. Respondents were allowed to pull out from participating in the research at any point.

3.16 Conclusion

The chapter presented the research design and methodology of conducting this study. The chapter has highlighted the methodology which was used in conducting the research. The chapter on the research methodology touched on several aspects on how the researcher came up with the sample which was used in the study. The chapter also laid out ethical issues which were followed in conducting the data. In the next chapter, the researcher presents an analysis of the research findings. The next chapter discusses the demography of the study area.

CHAPTER 4: DEMOGRAPHIC ANALYSIS OF THE STUDY AREA

4.1. Introduction

The previous chapter discussed and covered research methodology and design that was used in collecting data and analysing it. The current chapter presents result and analyses data collected in the study. This chapter presents result of data collected regarding the demography characteristics of households that were investigated in the research.

As indicated in the previous chapter, data was collected using a questionnaire and responses given by respondents are presented using frequencies and percentages to show the significant message and facilitate easy interpretation. The data were analysed using Microsoft Excel. Tables will be used to present and analyse data since they are effective in terms of presenting percentages and frequencies.

4.2 DEMOGRAPHIC RESULTS

This section presents results of data collected on biographical characteristics of the respondents

4.2.1 Gender of respondents

Table 4.1 Gender of respondents

Gender		Frequency	Percent
	Female	77	59,2
	Male	53	40,8
	Total	130	100%

Table 4.1 shows that a majority 59.2% (77) of the respondents indicated that they were females, whilst a minority 39.2% (51) of the respondents indicated that they were males. This shows that more females took part in this research than males.

4.2.2 Origins of the respondents

The questionnaire asked respondents to indicate whether they are from Mbhashe Municipality or not. The respondents were required to respond to this question with a “Yes” or a “No”. Results of data gathered on this question are shown in Table 4.2.

Table 4.2 Origins of respondents

Response		Frequency	Percent
	Yes	125	96,9
	No	5	3,1
	Total	130	100

Table 4.2 illustrates that a majority 96.9% (125) of the respondents indicated that they are from Mbhashe Municipality, whilst a minority 3.1% (4) indicated that they were not from Mbhashe Municipality. This shows that an overwhelming majority of respondents who took part in this study were from Mbhashe Municipality.

4.2.3 Age of respondents

Table 4.3 Age of respondents

Age		Frequency	Percent
	19-25	2	1,5
	26-34	8	6,2
	35-40	10	7,7
	41-45	17	13,1
	46-50	31	23,8
	51-60	31	23,8
	Above 60	31	23,8
	Total	130	100

Table 4.3 shows that 23.8% (31) of the respondents indicated that their actual age falls in the age range 46-50 years whilst the other 23.8% (31) indicated that their actual age falls in the age range of 51-60 years. On the other hand, 23.1% (30) of the respondents indicated that they were aged above 60 years. Meanwhile, 13.1% (17) of the respondents indicated that their actual age fell in the age range of 41-45 years, whilst 7.7% (10) of the respondents indicated that they were aged between 35 and 40. At least 6.2% (8) of the respondents indicated that their actual age falls into the age range of 26-34 years, whilst 1.5% (2) of the respondents indicated that they were aged

between 19-25 years. One person did not respond to this question.

4.2.4 Marital status

Table 4.4 Marital status of respondents

Marital status		Frequency	Percent
	Single, never married	20	15,4
	Married or domestic partner	65	50,0
	Widowed	22	16,9
	Divorced	10	7,7
	Separated	10	7,7
	Prefer not to answer	3	1,5
	Total	130	100

Table 4.4 reveals that a majority 50% (65) of the respondents indicated that they were married, 15.4% (20) of the respondents indicated that they were single/never married. In addition, 16.9% (22) indicated that they were widowed, 7.7 %(10) indicated that they were divorced whilst the other 7.7% (10) indicated that they were separated, 1.5% (3) indicated that they preferred not to answer the question. Only 1 person did not answer the question.

4.2.5 Educational qualifications of the respondents

Table 4.5 Educational qualifications of the respondents

Educational qualifications		Frequency	Percent
	No schooling completed	34	26,2
	Primary school	45	34,6
	Some secondary / high school, no diploma	38	29,2
	High school graduate, diploma	5	3,8
	Some college or university credit, no degree	4	3,1
	Trade / technician / vocational training	2	1,5

	Tertiary education (University or Technikon)	2	,8
	Total	130	100

Table 4.5 indicates that 34.6% (45) of the respondents indicated that they have primary school education, 29.2% (38) of the respondents completed secondary education, whilst 26.2% (34) indicated that they did not complete any studies, 3.8% (5) of the respondents have a diploma, whilst the other 3.1% (4) indicated that they have “some college/university credit, no degree”. Yet, 1.5% (2) of the respondents indicated that they have a “trade/technician/vocational training” qualification. Only 0.8% (1) of the respondents indicated that they have completed “tertiary education (university or technikon” and 0.8 % (1) of the respondents did not answer the question.

4.2.6 Employment status of the respondents

Table 4.6 Employment status of the respondents

Employment		**Frequency**	**Percent**
	Own business (e.g. shop)	7	5,4
	Salaried employee (e.g. teacher, nurse etc)	5	3,8
	Skilled worker (e.g. technician, mechanical)	3	2,3
	Domestic worker or unskilled labour	8	6,2
	Employed full-time in farming	1	,8
	Unemployed	89	68,5
	Retired	8	6,2
	Unable to work	3	2,3
	Other, please specify	3	2,3
	Prefer not to answer	3	2,3
	Total	130	100

Table 4.6 depicts that the majority 68.5% of the respondents indicated that they were unemployed. This result concurs with published literature that points that the Eastern

Cape is a province characterised by high unemployment. According to Makiwane (2010) unemployment rate for Eastern Cape is 48.5 %. Cheteni (2017) found out that many smallholder farmers relied on subsistence for their livelihoods. As a result, a large number of households rely on pensions (40%) or remittances (23%) (at national level, pensions represent 23% of the income of poor households compared to 5% for the non-poor), 6.2% (8) of the respondents indicated that there were employed as domestic workers or unskilled labour, 5.4% (7) of the respondents indicated that they owned their own business, 3.8% of the respondents indicated that there were salaried employees, and 2.3% (3) of the respondents indicated that they were skilled workers thus, exposing lack of skills and training on the part of the respondents. Only 0.8% (1) of the respondents indicated that they are employed fulltime in farming, 6.2 % (8) of the respondents indicated that they are retired, 2.3% (3) of the respondents indicated that they are unable to work, and other 2.3% (3) indicated that they are employed in others. Only 2.3% (3) of the respondent indicated that they prefer not to answer and 1.5% (2) of the respondents did not answer the question.

4.2.7 Source of income

Table 4.7 Respondents source of income

Source of income	Frequency (f)	Percentage (%)
Fulltime employment	8	6.2
Part-time/casual employment	10	7.6
Contract worker	3	2.3
Family members	7	5.4
Social grants	80	61.5
Farming	20	15.4
Prefer not to answer	2	1.5
Total	130	100

Table 4.7 indicates that a majority 61.5% (80) of the respondents indicated that social grants are their main source of income, whilst 15.4% (20) of the respondents indicated that farming is their source of income. The bulkiness of the respondents who indicated that they depend on social grants reflects heavy reliance on government support as a source of income. According to Cheteni *et al.,* (2014), a large number of households

in the Eastern Cape Province rely on social grants (40%) or remittances (23%). 7.6% (10) of the respondents indicated that part-time/ casual employment is their source of income. 6.2% (8) of the respondents indicated that full-time employment is their source of income, 2.3% (3) of the respondents indicated that being a contract worker is their source of income whilst 5.4 % (7) of the respondents indicated that family members are their source of income. 1.5% (2) of the respondents indicated that they prefer not to answer the question. Results presented in Table 4.7 are contrary to global trends which indicate that people living in rural areas are employed and generate their income in the agriculture sector. At a global scale, agriculture is considered a means of livelihood by about 40% of the world's population (Relx Group, 2016).

4.2.8 Monthly total income including income from farming

Table 4.8 Income from farming

Income		Frequency	Percent
	Less than R300	2	1,8
	Between R301 and R800	21	18,8
	Between R801 and R1200	31	27,7
	Between R1201 and R1600	19	17,0
	Between R1601 and R2000	10	8,9
	Between R2001 and R2500	9	8,0
	Between R2501 and R3000	3	2,7
	More than R3001	3	2,7
	Prefer not to answer	14	12,5
	Total	112	100,0

Table 4.8 depicts that 18.8% (21) of the respondents indicated that they get a total income ranging between R301 and R800, 27.7% (31) of the respondents indicated that they earn a total of between R801 and R1200 whilst 17% (19) of the respondents indicated that they earn income ranging from R1201 and R1600. Meanwhile, 8.9% (10) the respondents get a monthly income ranging from R1601 and R2000, 8% (9) of the respondents indicated that they earn a total monthly income ranging from R2001 and R2500, 2.7% (3) the respondents indicated that they earn a total monthly income ranging from R2501 and R3000 whilst the other 2.7% (3) indicated that they earn a

total monthly income of more than R3001. Only 1.8% (2) indicated that they earn a total monthly income that is less than R300, 12.5% (14) indicated that there preferred not to answer the question and 13.8% (18) of the respondents did not answer the question. The average incomes presented above illustrate a picture of concerning poverty as all the average incomes fall below the poverty datum line. Low incomes are a characteristic of rural South Africa. Available literature shows that 81% of the ultra-poor are rural inhabitants; lack of adequate resources and low income is a notable feature in rural poverty (Ncube & Kang'ethe, 2015).

4.2.9 Money spend on food per week

Table 4.9 Money spent by respondents on food per week

Money		Frequency	Percent
	Up to R100	11	8,5
	Between R101 and R300	40	30,8
	Between R301 and R500	39	30,0
	Between R501 and R700	14	10,8
	Between R701 and R1000	8	6,2
	More than R1001	1	,8
	Prefer not to answer	11	8,5
	Total	124	95,4

Table 4.9 illustrates that 30.8% (40) of the respondents indicated that they spend between R101 and R300 per week. On the other hand, 30% (39) of the respondents indicated that they spent between R301 and R500 on food per week, 10.8% (14) indicated that they spent between R501 and R700 on food per week whilst 6.2 % (8) of the respondents indicated that they spent between R701 and R1000 on food per week and 8.5% (11) indicated that they use up to R100 on food per week. Only 0.8% (1) of the respondents indicated that they spend more than R1001 on food per week. 8.5% (11) of the respondents indicated that preferred not to answer the question, 4.6% (6) of the respondents did not answer this question. These results confirm the assertion that the Eastern Cape is characterised with the lowest mean monthly household expenditure. Poverty in the Eastern Cape Province is deeply entrenched

with 27% of households earning less than R400 per month, and only 11% earning more than R1500 per month (Statistics South Africa, 2016).

4.2.10 People living in respondent's household

Table 4.10 Number of people in a household

Number of people	Frequency	Percent
1-2	6	4,6
3-4	45	34,6
5-6	41	31,5
More than 6	29	22,3
Prefer not to answer	5	3,8
Total	126	96,9

Table 4.10 depicts that 34.6% (45) of the respondents indicated that the number of people living in their households' ranges from 3-4 people, 31.5% (41) of the respondents indicated that the number of people living in their households ranges from 5-6 people and 22.3% of the respondents indicated that more than 6 people live within their households. Meanwhile, 4.6% (6) of the respondents indicated that the number of people living in their households ranges from 1-2 people and 3.8% of the respondents indicated that there preferred not to answer the question. Whilst, 3.1% or (4) of the respondents did not answer the question at all.

4.2.11 Children living within respondents' household

Table 4.11 Number of children living in respondents' household

Number of children	Frequency	Percent
1-2	33	25,4
3-4	53	40,8
5-6	22	16,9
More than 6	10	7,7
Prefer not to answer	5	3,8
Total	123	94,6

Table 4.11 indicated that 40.8% (53) of the respondents indicated that the number of children living in their household's ranges from 3-4 people, 25.4% (33) of the respondent indicated that the number of children living within their household ranges from 1-2 children whilst 16.9% (22) of the respondents indicated that the number of children in their households' ranges from 5-6 children, 7.7% (10) of respondents indicated that they have more than 6 children living in their household. Whilst, 3.8% (5) of the respondents indicated that they preferred not to answer the question and 5.4% (7) of the respondents did not answer the question.

4.2.12 Age group of children living within the household

Table 4.12: Age group of children living within the household

Age group	Frequency(f)	Percentage(%)
Younger than 2 years	9	6.9
Between 3 and 5 years	48	36.9
Between 6 and 13 years	53	40.8
Between 14 and 18 years	36	27.7
Between 19 and 24 years	32	24.6
Older than 24 years	13	10
Preferred not to answer	4	3.1

Table 4.12 shows that 40.8% (53) of the respondents indicated that have children aged between 6 and 13 years in their households, 36.9% (48) indicated that they have children aged between 3 and 5 years old living in their households whilst 27.7% (36) of the respondents indicated that they live with children aged between 14 and 18 years, 24.6% (32) of the respondents indicated that they live with children aged between 19 and 24, 10% (13) of the respondents indicated that they live with children who are older than 24 years. Only 6.9% (9) of the respondents indicated that they live with who are young than 2 years and 3.1 % (4) of the respondents indicated that they preferred not to answer the question.

4.3 CONCLUSION

This chapter provided a summary of the demographic characteristics of the respondents. It was shown that there was gender balance in the sample; meanwhile,

the majority of the respondents were over the youth age of 38 years, mostly surviving on social grants and unemployed.

CHAPTER 5: HOUSEHOLD ECONOMY IN MBHASHE MUNICIPALITY

5.1 INTRODUCTION

This section presents the results of data collected through questions under the household economy section of the questionnaire. The section explores assets and infrastructure owned by the respondent or which the respondent has access to. According to Serrat, (2008), assets belonging to an individual or household constitute the building blocks upon which people can attain their own personal goals of the type and quality of life they desire. Therefore, assets and resources owned by people determine the extent to which they can live sustainable livelihoods as well as cope during times of stress.

5.1.1 Human dwellings as a building structure

Table 5.1 Responses on whether respondents have human dwellings as a building structure

	Frequency	Percent
Yes	123	94,6
No	7	5,4
Total	130	100,0

Table 5.1 shows that a majority 94.6% (123) of the respondents indicated that they have human dwellings as a building structure at their household, whilst a minority 5.4 % (7) did not indicate that they have a human dwelling.

5.1.2 Human dwellings are rented or owned

Table 5.2: Responses on whether the human dwellings are rented or owned

Dwelling type		Frequency	Percent
	Rented	2	1,9
	Owned	101	97,1
	Not rented and not owned	1	1,0
	Total	104	100,0

Table 5.2 depicts that a majority 97.1% (101) of those who indicated that they have human dwelling buildings own those buildings. A minority 1.9% (2) of the respondents indicated that they rent those buildings, 1.0% (1) indicated that they neither rent nor own the human dwelling buildings and 15.4% (19) of those who had indicated that they have human dwellings did not respond to this question.

5.1.3 Number of the room in the human dwellings

Table 5.3 Number of rooms in respondents' human dwelling

	Number of rooms	Frequency	Percent
	1	1	1,0
	2	13	12,6
	3	27	26,2
	4	28	27,2
	5	18	17,5
	6	11	10,7
	7	3	2,9
	8	2	1,9
	Total	103	100,0

Table 5.3 indicated reveals that 27.2% (28) of the respondents indicated that they have human dwellings made with 4 rooms, 26.2% (27) of the respondents indicated that their human dwelling buildings have 3 rooms whilst 17.5% (18) of the respondents indicated that their human dwelling buildings have 5 rooms. Meanwhile, 12.6%(13) of the respondents indicated that their human dwellings have 2 rooms, 10.7% (11) of the respondents indicated that their human dwellings have 6 rooms whilst 2.9 % (3) of the respondents indicated that they have human dwellings with 7 rooms and 1.9% (2) of the respondent indicated that they have human dwelling buildings with 8 rooms. Only 1% (1) indicated that they have a human dwelling with a single room and 16.3% (20) of the respondents who had indicated that they have human dwellings did not answer this question.

5.1.4 Condition of the human dwelling building

Table 5.4 Condition of human dwelling building

		Frequency	Percent
	Poor	15	14,4
	Moderate	67	64,4
	Good	22	21,2
	Total	104	100,0

Table 5.4 show that a majority 64.4% (67) indicated that they rate the condition of their human dwelling as moderate, 21.2% (22) of the respondents indicated that they rate the condition of their human dwelling as good. The other 14.4 % (15) indicated that they rate the condition of their human dwelling as poor.

5.1.5 Main source of energy for lighting

Table 5.5 Main source of energy for lighting

		Frequency	Percent
	Electricity	97	74,6
	Solar	8	6,2
	Gas	1	,8
	Kerosene (wick lamps)	6	4,6
	Candles	11	8,5
	Firewood	1	,8
	Total	124	95,4

Table 5.5 shows that a majority 74.6% (97) of the respondents indicated that they use electricity as their main source of energy for lighting. This highlights the success rural electrification that has been implemented by South African government, 6.2% (8) of the respondents indicated that they use solar as their main source of energy for lighting, 8.5% (11) indicated they use candles for lighting, 4.6% (6) indicated they use

kerosene. In addition, 0.8% (1) of the respondents indicated that they use gas for lighting whilst the other 0.8% (1) indicated that they use firewood as the main source of energy for lighting. Lastly, 4.6% (6) of the respondents did not respond to this question.

5.1.6 Main source of energy for cooking

Table 5.6 Main source of energy for cooking

		Frequency	Percent
	Electricity	87	66,9
	Solar	3	2,3
	Gas (industrial)	2	1,5
	Gas (biogas)	2	1,5
	Kerosene	3	2,3
	Charcoal	3	2,3
	Firewood	24	18,5
	Total	124	95,4

Table 5.6 show that a majority 66.9 % of the respondents indicated that they use electricity as their main source of energy for cooking, 18.5% (24) of the respondents indicated that they use firewood as their main source of energy for cooking purposes. Yet, 2.3% (3) of the respondents indicated that they use solar,1.5% (2) of the respondents indicated that they use industrial gas, another 1.5% (2) of the respondents indicated that they use biogas as their main source of energy for cooking. In addition, 2.3% (3) of the respondents indicated that they use kerosene as their main source of energy for cooking, whilst the other 2.3% (3) of the respondents indicated that they use charcoal as a source of energy for cooking. Lastly, 4.6% (6) of the respondents did not answer this question.

5.1.7 Household items owned by respondents during the past 12 months

The research sought information on the household items owned by the respondent's household during the past 12 months. Respondents were required to indicate if they own a given item or not. Information gathered on the items owned by respondent in the past 12 months are shown in Table 5.7.

Table 5.7 Household items owned by respondent during the past 12 months

Name of item	Response	Frequency (f)	Percentage (%)	Mean
Radio	Yes	122	93.8	1.17
	No	8	6.2	
Mobile phone	Yes	120	93.3	2.07
	No	10	7.7	
Bicycle	Yes	14	18.5	1.28
	No	106	81.5	
Motor vehicle	Yes	21	16.2	1.38
	No	109	83.8	
Motorcycle	Yes	11	8.5	1.38
	No	119	91.5	
Television	Yes	95	73.1	1.35
	No	35	26.9	
Bed	Yes	113	86.9	2.78
	No	17	13.1	
Cupboard	Yes	104	80	1.48
	No	26	20	
Normal chair	Yes	98	75.4	2.92
	No	32	24.6	
Furniture suite	Yes	67	51.5	1.81
	No	63	48.5	
Iron	Yes	89	68.5	1.20
	No	41	31.5	
Cooker	Yes	70	53.8	1.22
	No	60	46.2	
Freezer	Yes	75	57.7	1.10
	No	55	42.3	

Information presented in Table 5.7 shows that 93.8% (122) of the respondents indicated that they do have a radio. Only a minority 6.2 % (8) of the respondents indicated that they do not have a radio in their household. The table further depicts

that a majority 92.3% (120) of the respondents indicated that they do own a mobile phone within their household. On the other hand, only 7.7% (10) of the respondents indicated that their household does not own a mobile phone. The table also showed that a majority 81.5% (106) of the respondents indicated that their household does not own a bicycle whilst a minority 18.5% (24) of the respondents indicated that their households do own a bicycle.

Additionally, Table 5.7 showed that a majority 83.8% (109) of the respondents indicated that their household does not own a motor vehicle. The other 16.2% (21) of the respondents indicated that their household does own a vehicle. The table also showed that a majority 91.5 %(119) of the respondents indicated that their household does not own a motorcycle. 8.5 %(11) of the respondents indicated that their household does own a motorcycle. Table 5.7 also showed that a majority 73.1% (95) of the respondents indicated that their household owns a television. The other 26.9% (35) indicated that their household did not own a television.

Concerning ownership of a bed, table 5.7 illustrates that a majority 86.9% (113) of the respondents indicated that their household owns a bed. The other 13.1% (17) of the respondents indicated that their households do not own a bed. Table 5.7 also shows that a majority 80% (104) of the respondents indicated that their household owned a cupboard whilst the other 20% (26) indicated that their household did not own a cupboard. The table (4.19) also show that a majority 75.5% (98) of the respondents indicated that their household owned a normal chair. The other 24.6% (32) of the respondents indicated that their household did not own a normal chair.

Table 5.7 also showed that a majority 51.5% (67) of the respondents indicated that their household owned furniture whilst the other 48.5% (63) of the respondents indicated that they do no own furniture. With regards to ownership of iron, 68.5 % (89) of the respondents indicated that their household owned an iron whilst the other 31.5% (41) of the respondents indicated that their how household did not own an iron. A majority 53.8% (70) of the respondents also indicated that their household owned a cooker whilst the other 46.2% (60) indicated that their household did not own a cooker. Based on the means computed for ownership of household shown in table 4.19, it is concluded that normal chairs with a mean of 2.92 are the household items owned in the highest quantity whilst freezers with a mean of 1.10 were the items owned in the

least quantities.

5.1.8 Ownership of agricultural equipment in the past 12 months

The research also sought information with regards to ownership of agricultural equipment by the respondent's household during the past 12 months. Respondents were required to indicate if they had owned a given agricultural item or not. Ownership of agricultural equipment is critical to the success of farming activities. An analysis of the experience of any country that has successfully developed its agriculture will always identify the provision of good infrastructure and equipment as a requirement for achieving higher levels of agricultural productivity and profitability (Specht, Siebert, Hartmann, Freisinger, Sawicka, Werner & Dierich, 2013). Inadequacies of infrastructure and farming equipment in rural areas, chiefly in the former homelands, remain a major impediment to small-scale farming and sustainable livelihoods agricultural growth in South Africa (Neves & Du Toit, 2012). Thus, this study also investigated the availability of farming equipment amongst the respondents' households. Information gathered on the equipment owned by respondents' household in the past 12 months are shown in Table 5.8.

Table 5.8 Information on ownership of agricultural equipment in the past 12 months

Name of equipment	Response	Frequency	Percentage	Mean
Hoe	Yes	113	86.9	2.34
	No	17	13.1	
Ox-plough	Yes	60	46.2	2.21
	No	70	53.8	
Water-pump	Yes	17	13.1	1.17
	No	113	86.9	
Milling machine	Yes	11	8.5	1.67
	No	119	91.5	
Machete	Yes	41	31.5	2.00
	No	89	68.5	
Other	Yes	1		1.00

(wheelbarrow)				

Table 5.8 show that a majority 86.9% (113) of the respondents indicated that their household owned a hand hole in the past 12 months whilst a minority 13.1% (17) of the respondents indicated that the household did not own a hand hoe.

The table (5.8) also reveal that a majority 53.8 % (70) of the respondents indicated that their household did not own an ox-drawn plough, whilst the other 46.2% of the respondents indicated that their household owned an ox-drawn plough.

Furthermore, the table also depicts that a majority 86.9% (113) of the respondents indicated that their household did now own a water pump in the past 12 months, whilst a minority 13.1% (17) of the respondents indicated that their household owns a water pump in the past 12 months.

Table 5.8 also shows that a majority 91.5% (119) of the respondents indicated that their household did not own a milling machine in the past 12 months, whilst the other 8.5 % (11) of the respondents indicated that their household owned a milling machine in the past 12 months.

The table (5.8) further depicts that a majority 68.5% of the respondents indicated that their household did not own a machete in the past 12 months, whilst a minority past 12 months. Lastly, the table shows that only person revealed they owned a wheelbarrow in the past 12 months.

The means scores for ownership of hoe, ox plough, water pump, milling machine and machete were 2.34, 2.21, 1.7, 1.67, and 2.0 respectively. Based on these means, it is concluded that hand hoes are the agricultural equipment owned in the highest quantity, whilst water pump in the least quantity (excluding wheelbarrow). Results above also show that there is a significant gap in ownership of capital-intensive equipment although there is wide ownership of cheaper equipment such as hoes.

5.2 DISCUSSIONS

This section discusses results presented on Mbhashe Municipality household economy. The main objective of collecting data on household economy was to establish the current state of household economy amongst farming household in the Mbhashe Municipality. The state of a household economy determines how much a

household is able to generate income and food to achieve food security. In this study, household economy was measured in terms of household and agricultural assets owned by a household.

This study discovered that a majority of the farmers had human dwellings. Amongst those with human dwellings, a majority of them owned those houses whilst a minority rented the dwellings. A large chunk of the dwellings had 2 and 3 rooms, with least number of farmers indicating they had singe room dwelling. Provision of housing has been a key thrust of the government in its effort to enhance rural development. Despite government efforts to build houses for rural populace, available literature show that majority of rural homeowners have built the houses themselves (Department of Agriculture, 2017). Ownership of human dwellings is high in rural areas compared to towns due to less cost and restrictions.

Ownership of a kitchen was high amongst the Mbhashe Municipality farmers with 93.8% indicating they had a kitchen, most of which are in a moderate condition. Of major concern was the discovery that an overwhelming majority (97.7%) of the farmers did not have a bathroom. Bathrooms are a critical hygiene structures which are critical for the health well-being of households. Just like many households from rural areas found in developing countries, rural households tend to use makeshift bathrooms.

Electricity emerged as the most used source of energy for lighting by majority of the respondents (74.6%) followed by solar energy, candles, kerosene, gas and the least used was firewood with 0.8%. Wide usage of electricity for lighting purposes can be attributed the success of Eskom in electrifying South African households. In 1991 only 34% of households were electrified compared to 90% by 2017 (Eskom, 2017). This result is supported by recent statistics which show that electricity is main source of energy for most agricultural households. According to Stats SA (2016), in all provinces electricity was the largest main source of energy for lighting in agricultural households. Nationally, 86,5% of agricultural households use electricity as the main source of energy for lighting, followed by those which used candles (9,5%). Areas that have not been electrified have seen households resorting to use of other sources of energy such as fire wood, gas and solar energy (Stats SA, 2016). Other citizens have turned to gas and solar as an alternative power sources because they are renewable and environmentally friendly (Kruger, Lemke, Mars, Pometsi, Hvan't, Riet, Pienaar &

Kotze, 2017).

As in the case of lighting energy source, electricity emerged as the widely used source of energy for cooking followed by firewood with (18.5%), charcoal, solar and biogas. It is not surprising that that a majority 66.9% of the households used electricity as source of energy given that the current statistics show that, at national level, 66,1% and 24,5% of agricultural households use electricity and wood respectively as the main source of energy for cooking (Stats SA, 2016). There is slight difference in the percentage of households that use firewood for cooking at national level and that of the area studied (Mbhashe Municipality) in this study.

In this study is it was established that 18.5% (24) of the respondents indicated that they use firewood as their main source of energy for cooking purposes. Usage of solar and gas energy as source of cooking has been on a slight rise mainly due to campaigns for use of environmentally friendly energy sources. These sources of energy are sustainable and renewable which makes them the most favoured source of energy pro-environment activists (UNIDO, 2013). The cost of using solar energy is still considered a deterrent hindering low income earning rural households from using it (Wye City Group, 2011).

The research also demonstrates that there was high ownership of such household items as radio, mobile phone, television, bed, cupboard, normal chair, furniture suite, iron, cooker and freezer which were owned by 93.8%, 93.3%, 73.1%, 86.9%, 80%, 75.4%, 51.5%, 68.5%, 53.8% and 57.7% respectively. On the other hand, the results illustrate that there was subdued ownership of such items as bicycle, motor vehicle and motorcycle which were owned by 18.5%, 16.5% and 8.5% respectively

The results of the study also illustrate the agricultural equipment ownership trends by Mbhashe Municipality farming households. Ownership of agricultural equipment is critical in the success of farming activities. An analysis of the experience of any country that has successfully developed its agriculture will always identify the provision of good infrastructure and equipment as a requirement for achieving higher levels of agricultural productivity and profitability (Specht, Siebert, Hartmann, Freisinger, Sawicka, Werner & Dierich, 2013). Inadequacies of infrastructure and farming equipment in rural areas, chiefly in the former homelands, remain a major impediment to small-scale farming and sustainable livelihoods agricultural growth in South Africa

(Neves & Du Toit, 2012). In this study, it was established that there was high ownership of traditional farming equipment such as ox-plough, hoes whilst modern equipment such as water pump and milling machines were owned by a minority of the households. This confirms the view in the literature which outlines that small scale/holder farming in developing countries is often characterised by use of cheaper and traditional agricultural equipment (Bundy, 1979; Essa & Nieuwoudt, 2003; Kirsten *et al*., 1998; Lahiff & Cousins, 2005; Thompson, 2000; Hamilton *et al*., 2012; Aliber & Hall, 2012).

5.3. CONCLUSION

The findings pointed that majority of household had owned a dwelling, although the donations of the dwellings were said to be moderate. Electricity was the major source of energy in many households with only a few utilising gas, kerosene, and firewood. Lastly, many households owned various agricultural equipment such as hoes, ox plough, water pump, machete and other equipment.

CHAPTER 6: THE CONTRIBUTIONS OF FARM CHARACTERISTICS TOWARDS ENCOURAGING SUSTAINABLE LIVELIHOODS

6.1 INTRODUCTION

This section presents results of data collected through questions under the farm characteristics section of the questionnaire. The chapter provides the findings based on the farm characteristics and how it has contributed in sustainable livelihoods.

6.1.1 Household owned or had access to any agricultural land in the past 12 months

Respondents were asked to disclose if their household/s had owned or had access to any agricultural land in the past 12 months. Land and land ownership is the most important factor in agricultural activities. Access to arable land is an essential requirement for people living in poverty and for economic growth (Aliber & Hall, 2012). The government of South Africa has made efforts to improve access to arable and productive land since 1995 when the Settlement/Land Acquisition Grant (SLAG) was launched. Results of data collected on whether respondent's household owned or had access to any agricultural land in the past 12 months are presented in Table 6.1.

Table 6.1: Household ownership or access access to any agricultural land in the past 12 months

		Frequency	Percent
	Yes	113	86,9
	No	17	13,1
	Total	130	100,0

Results shown in Table 6.1 show that a majority 86.9% (113) of the respondents indicated that they have owned/ had access to agricultural land in the past 12 months. This shows that a significant number of the respondent had access to farming land. On the other hand, a minority 13.1% (17) of the respondents indicated that they did not own nor had access to agricultural land in the past 12 months.

6.1.2 The total area of land owned by respondent's household

A follow-up question was posed to the 113 respondents who had indicated that they

owned or had access to agricultural land. The respondents were asked to provide information on the total area of agricultural land which they had owned or had access to over the past 12 months. Results of data collected on this question are presented in Table 6.2.

Table 6.2 Total area of land owned by respondent's household

Area (hectares)	Frequency	Percentage
Less than 1	4	3.5
1-5	86	76.1
6-10	1	0.9
11-15	1	0.9
16-20	15	13.3
21 and more	6	5.3
Total	113	100

Table 6.2 shows that a significant majority 76.1% (86) of the respondents indicated that they owned or had access to between 1 and 5 hectares of land in the past 12 months. In addition, 13.3% (15) of the respondents indicated that they owned/had access to between 16 and 30 hectares of land. 5.3% (6) of the respondents indicated that they owned/had access to 12 hectares or more of land in the past 12 months. The table also shows that 3.5% (4) of the respondents indicated that owned/had access to less than 1 hectare's land. 0.9% (1) of the respondents indicated that they had access to between 6 and 10 hectares of land whilst the other 0.9% (1) of the respondents indicated that they had access to between 11 and 15 hectares of land in the past 12 months.

6.1.3 Cultivated crops on the owned land

Table 6.3 Responses on whether respondents had cultivated crops on land they own or have access to it

		Frequency	Valid Percent
	No	22	19,5
	Yes	91	80,5
	Total	113	100,0

Information depicted in Table 6.3 shows that a majority 80.5% (91) of the respondents indicated that they had grown crops on land they own or have access to whilst a minority 19.5% (22) of the respondents indicated that they had not grown crops on the land they own or have access to. Crop cultivation is regarded as the bedrock of food security for rural households. As such, Timmer (2017) states that rural livelihoods are made up of components which are dependent on natural resources such as firewood, water and farming activities such as animal husbandry and crop cultivation. The land is the natural resource to which crop cultivation and animal husbandry rely upon.

6.1.4 Livestock reared

The 113 respondents who had indicated that they own or have access to agricultural land were further asked to provide information on whether they have reared/keep livestock on the land that they own or have access to. Growing food and livestock rearing do contribute to food security to a greater extent (FAO.2012). This is because it improves and increases nutrients levels of diets, as well as households, access to food thus strengthening the food security position of households involved in farming. Results of data collected on this question are presented in Table 6.4.

Table 6.4 Land Ownership

		Frequency	Valid Percent
	No	51	45,1
	Yes	62	54,9
	Total	113	100,0

Table 6.4 shows that a majority 54.9% (62) of the respondents indicated that they had reared livestock on the land, which they own or have access to. A slight minority of 45.1% (51) of the respondents indicated they had not reared livestock on the land, which they own or have access to. Although the number of respondents who indicated that they rear livestock is slightly above half, there is some improvement amongst blacks in terms of livestock farming. According to Altman, Hart and Jacobs (2009), there has been a noticeable increase in the number of black people who are involved in agriculture 2001 and 2008. Livestock farming in the Eastern Cape is negatively impacted upon by droughts that have been occurring in the past decade.

6.1.5 Access to communal grazing land

Table 6.5 Access to communal grazing land

		Frequency	Percent
	Yes	104	80,0
	No	26	20,0
	Total	130	100,0

Table 6.5 reveals that a majority 80% (104) of the respondents indicated that they had access to communal grazing land whilst 20% (26) of the respondents indicated they did not have access to communal grazing lands.

6.1.6 Communal grazing land is adequate for the livestock.

A follow-up question was posed to the 104 respondents who had indicated that they had access to communal grazing lands. The respondents were required to respond indicating whether the grazing land they have access to is adequate or inadequate for their livestock. Results obtained from data collected on this question are shown in Table 6.6.

Table 6.6 Available communal land

		Frequency	Percent
	Adequate	64	61,5
	Inadequate	39	37,5
	Total	103	99,0

Table 6.6 reveals that 62.5% (64) of the respondents indicated that the communal grazing land which they have access to is adequate for their livestock. On the other hand, 37.5% of the respondents indicated that the communal land, which they access to, is inadequate for their livestock.

6.1.7 Land Ownership

Table 6.7 Ownership of the land by household head

		Frequency	Percent
	Male head of household	23	22,1
	Female spouse / head of household	28	26,9
	Other	46	44,2
	Total	97	93,3

Table 6.7 show that 26.9% (28) of the respondents indicated that the land they had access to was owned by a female head of the household, 22.1% of the respondents indicated that the grazing land which they had access to was owned male head of the household. Lastly, most 44.2 %(46) of the respondents indicated that the grazing land they have access to was owned by “other”. While, 6.7% (7) of the respondents did not answer the question.

The 44.2% (46) of the respondents who had indicated that the land, which they have access to, is owned by “others" besides female and the male household head was asked to specify the owner of the land. Results of information that emerged from responses provided on this question are shown in Table 6.8.

Table 6.8 Other owners of the land

Owner of land		Frequency	Percent
	Both and village land (grazing)	1	2,2
	Both male and female	1	2,2
	Community	12	26,1
	Village chief	2	4,3
	Village grazing land	3	6,5
	Village head	27	58,7
	Total	46	100,0

Results are shown in Table 6.8 illustrate that a majority 58.7% (27) of the respondents indicated that the communal grazing land which they have access to is owned by the village head. Yet, 26% (12) of the respondents indicated that the land which they have

access to was owned by the community, 6.5% (3) of the respondents indicated that the land is owned by village grazing land. In addition, 4.3% (2) of the respondents indicated that the land which they had access to was owned by the chief. Lastly, 4.3 % (2) of the respondents indicated that the land which they had access to was owned by both male and female.

6.1.8 Sources of income for the past 12 months

Respondents to this study were also asked to provide information with regards to sources of income in the past 12 months. A number of sources which were considered for investigation include self-employment, the salary of a resident member, small scale mining, from elsewhere in South Africa, from other countries, pension pay-outs and renting out equipment. Most households in South Africa especially those in rural areas employ a mix of livelihoods strategies including salaries and wages contributing to household income followed by social grants, income from business and pension remittances (Statistics South Africa, 2012). Results from data collected on this question are shown in Table 6.9.

Table 6.9 Average annual income from different sources in the past 12 months

Source of income	Response	Frequency	Percentage
Self-employment	Yes	63	48.5
	No	67	51.5
Salary of a resident member	Yes	11	8.5
	No	119	91.5
Small scale mining	Yes	2	1.5
	No	128	98.5
From elsewhere in South Africa	Yes	3	2.3
	No	127	97.7
From another country	Yes	0	0
	No	130	100
Pension payouts	Yes	63	48.5
	No	67	51.5
Renting out property/equipment	Yes	1	0.8
	No	129	99.2

Table 6.9 shows that a majority 51.5% (67) of the respondents indicated that they get income from self-employment, whilst the other 48.5% (63) of the respondents indicated that they don't get income from self-employment activities.

With regards to income from the salary of a resident member of the household, it was established that a majority 91.5% of the respondents indicated that they do not get income from the salary of a resident member of the household. Only 8.5% (11) of the respondents indicated that they receive income from the salary of a resident member of the household. This confirms the problem of unemployment in the formal sector.

Concerning small-scale farming, it was established that a majority 98.5% (119) of the respondents indicated that they did not get income from small scale mining activities. Only a minority 1.5% (2) of the respondents indicated that they get income from small scale mining activities.

In addition, it was established that a majority 97.7% (127) of the respondents indicated that they did not receive income from elsewhere in South Africa (relatives). A minority 2.3% (3) of the respondents indicated that their household received income from relatives in South Africa.

Concerning income from other countries, all respondents indicated that they did not receive income from diaspora remittances.

With regards to income from renting out equipment or property, only 0.8 % (1) of the respondents indicated that they get income from renting out property or equipment. On the contrary, a majority 99.2% (129) of the respondents indicated that they did not receive income from renting out equipment or property.

6.1.9 Average annual income from different sources

Respondents were asked to give responses indicating their average annual income for the past 12 months. Results of data collected on this question are shown in Table 6.10**.**

Table 6.10 Average annual income from sources

Sources of income	**Average annual income (Rands)**
Self-employment: petty trading	815.14
Salaries/labour wages of a resident	1721.43

household member	
Small scale farming	7850.00
Charcoal/fuelwood sales	230.56
From elsewhere in South Africa	17033.33
From another country	**0**
Pension payments	1354.73
Renting out / leasing of house, land, equipment etc	**0**
Other income sources	1842.86

Table 6.10 depicts that income from self-employment had a mean of R815.14, income from salaries/ labour wages had a mean of R1721.43 whilst small scale mining contributed a mean income of R7850.00. The table also shows that charcoal/fuelwood sales contributed an annual mean income of R230.56. Income from elsewhere in South Africa contributed an annual mean income of R17033.33. Pensions contributed an annual mean income of R1354.73 whilst other sources of income contributed a mean annual income of R1842.86. Based on data presented in Table 6.10 charcoal sales contributed the least average annual income whilst income from elsewhere in South Africa contributed that the highest average income.

6.1.10 Respondents received any farm inputs from the government during the past 12 months

Respondents were also to provide responses indicating if they had received any farm inputs from the government during the past 12 months. The government of South Africa formulated the National Food and Nutrition Security Policy strategic with the goal of ensuring availability, affordability and accessibility of safe and nutritious food for the nation and all households. South Africa has approximately 13.8 million individuals who are experiencing insufficient access to food (StatsSA, 2011). efforts to increase food production and distribution, including increased access to production inputs for the emerging agricultural sector; leveraging Government food procurement to support community-based food production initiatives and smallholders; and the strategic use of market interventions and trade measures which will promote food security. Results of data collected on whether had respondents received any farm

inputs from the government during the past 12 months are depicted in Table 6.11.

Table 6.11: Received any farm inputs from the government during the past 12 months

		Frequency	Percent
	Yes	67	51,5
	No	63	48,5
	Total	130	100,0

Results presented in Table 6.11 show that a majority 51.5%(67) of the respondents indicated that they had received farm inputs in the past 12 months, whilst 48.5% (63) of the respondents indicated that had not received farm inputs from the government over the past 12 months. This result exposes the need to increase support for small scale farmers through the provision of inputs as only a slight majority disclose that they had received inputs from the government.

6.1.11 Respondents received inputs in time or not

The 67 respondents who had indicated that they had received farm inputs from the government in the past 12 months were further asked to provide responses indicating if they had received the inputs in time. Results of data gathered on this question are depicted in Table 6.12.

Table 6.12 Farm inputs were received in time

		Frequency	Percent
	Yes	67	51,5
	No	63	48,5
	Total	130	100,0

Table 6.12 shows that a majority 51.5 % of the respondents indicated that they had received farm inputs in time from the government whilst 48.5% of the respondents indicated that they had not received the farm inputs in time.

A follow-up question was posed to the respondents pertaining the type of farming inputs received from the government. The majority of respondents (159%) got

vegetables as input from the government. While others were given maize seeds for farming. The inputs given are heavily influenced by geographic conditions existing in the study area.

Table 6.13 Farmers receiving inputs from government

codes	Number of times code applied	% of participants that said yes (n=44)	% of total participants receiving inputs from government (n=67)
Vegetable	70	159,1%	104,5%
Beetroot	7	15,9%	10,4%
Cabbage	20	45,5%	29,9%
Carrots	1	2,3%	1,5%
Green pepper	1	2,3%	1,5%
Onions	6	13,6%	9,0%
Peas	3	6,8%	4,5%
Potatoes	3	6,8%	4,5%
Spinach	16	36,4%	23,9%
Tomatoes	1	2,3%	1,5%
Maize	4	9,1%	6,0%
Pannar	1	2,3%	1,5%
Not specified	13	29,5%	19,4%

For instance, in place with low to medium rainfall, the government gave vegetables as inputs, yet in high rainfall areas, maize seeds were appropriate. This is shown in Table 6.13.

6.1.12 Any member of the house who operates a savings or current account

Respondents were also asked to indicate if there is any member of the house who operates a saving or current account. Savings form part of key assets that are needed for a household to carry out activities that improve their livelihood (United Nations Development Programme, 1990). Information collected on this question is shown in Table 6.14

Table 6.14 Operating a savings or currents account by member of household

		Frequency	Percent
	Yes	40	30,8
	No	90	69,2
	Total	130	100,0

Results shown in Table 6.14 illustrate that a majority 69.2% (90) of the respondents indicated that there is no member in their household who operate a savings or current account. Yet, 30.8% (40) of the respondents indicated that there is a member of their household who operates a savings or current account.

6.1.13 Member of the household taking a bank loan during the last 12 months

The respondents to this study were further asked to give responses indicating if there is any member of the household who had taken a bank loan during the last 12 months. South Africa is concerned with the need to improve small scale farmers access to credit lines. As a result, it introduced the Agricultural Credit Scheme. The scheme is mandated to address the need for small scale farmers whilst the Land Bank focuses on giving loans to established commercial farmers (May & Nzimande, 2012). Results of data collected on this question are shown in Table 6.15.

Table 6.15 Any member of the household who has taken a bank loan during the last 12 months

		Frequency	Percent
	Yes	4	3,1
	No	126	96,9
	Total	130	100,0

As depicted in Table 6.15, an overwhelming majority 96.9% (126) of the respondents indicated that they do not have any family member of the household who had taken a bank loan in the last 12 months. On the other hand, only 3.1% (4) of the respondents indicated that there is a member of their household who had taken a bank loan during the last 12 months.

Table 6.16 Reasons for not taking credit

Codes	Number of times code applied	% of total responses (n=96)	% of participants saying no (n=126)
Can't afford a loan	10	10,4%	7,9%
Don't want debt	10	10,4%	7,9%
Don't qualify for a loan	13	13,5%	10,3%
High interest rates	21	21,9%	16,7%
No knowledge of loans	5	5,2%	4,0%
No need for a loan	33	34,4%	26,2%
Not aware of loans	3	3,1%	2,4%

There were various reasons why many farmers could not take credit as shown in table 6.16. A total of 34.4 % percent stated that they did not need a loan, 21.9% faced high interest rates, 13.5% did not qualify for a loan, and 10.4% could not afford a loan. The conclusion is that over 70% of the respondents had no access to loans. Many scholars hold this findings, for instance, Cheteni (2017) found that smallholder farmers in the Eastern Cape Province struggled to access credit due to a lack of collateral security and high interest rates. Meanwhile, Cheteni *et al*., (2014) also found that smallholder farmers had faced insurmountable challenges in securing loans even in cases were the Land Bank offered any. The Lank Bank is a government owned and specialises in agriculture by helping farmers out in various financial requirements.

6.1.14 Cultivate crops or kept livestock

Respondents were also asked to provide responses indicating whether they cultivated crops or reared livestock. Small-scale farmers practice crop cultivation or animal husbandry or both (Ncube & Kang'ethe, 2015). This question investigated the number of respondents who are into crop cultivation, animal husbandry or both. Results of data collected on this question are shown in Table 6.17.

Table 6.17 Responses to whether respondents cultivate crops or kept livestock

		Frequency	Percent
	Crops	51	39,2
	Livestock	10	7,7
	Both	64	49,2
	Neither	5	3,8
	Total	130	100,0

Table 6.17 reveals that most (49.2% (64)) of the respondents indicated that reared livestock and cultivated crops. Meanwhile, 39.2% (51) of the respondents indicated that they cultivated crops only, whilst 7.7% (10) of the respondents indicated that they reared livestock only. Lastly, 3.8% (5) of the respondents gave responses indicate they did neither of the economic activities.

6.1.16 Years the respondent has been cultivating crops

Respondents were asked to provide responses indicating the number of years they have spent cultivating crops. Results of data collected on this question are shown in Table 6.18.

Table 6.18 Number of years that the respondent has cultivating crops

Number of years	Frequency	Percentage (%)
1-5	32	27.8
6-10	14	12.2
11-15	8	7
16-20	10	8.7
21-25	3	2.6
26 and more	48	41.7
Total	115	100

Table 6.18 shows that 41.7% (48) of the respondents who are into crop cultivation indicated that they have been farming crops for more than 26 years. Yet, 27.8% (32) of the respondents indicated that they have been growing crops for a period of 1-5

years. Furthermore, 12.2 % (14) of the respondents indicated that they have been growing crops for a period of 6-10 years. Yet, 8.7% (10) indicated that they have been cultivating crops for a period of between 16-20 years. In addition, 7% (8) of the respondents indicated that they have been farming crops for 11 to 15 years. 2.6% (3) of the respondents indicated that they have been cultivating for 21 to 25 years.

6.1.17 Whether respondents grow maize

The 115 respondents who practice crop cultivation were asked to provide responses indicating if they grew maize. Results of data collected on this question are presented in Table 6.19.

Table 6.19 Responses to whether respondents grew maize

		Frequency	Percent
	Yes	97	84,3
	No	18	15,7
	Total	115	100,0

Table 6.19 shows that a majority 84.3% (97) of the respondents indicated that they grow maize on their land, whilst the other 15.7% (18) of the respondents indicated that they do not grow maize.

6.1.18 Area that respondents allocate for maize cultivation

The 97 respondents who indicated that they grow maize were further asked to give responses indicating the area of land that they allocate to maize cultivation. Results of data collected on this question are shown in Table 6.20.

Table 6.20 Area under maize cultivation

Area	Frequency	Percentage
Less than a hectare	43	44.4
1-5 hectares	51	52.6
6-10 hectares	1	1
11-15 hectares	1	1

15-20 hectares	1	1
Total	97	100

Table 6.20 shows that a majority 52.6 (51) of the respondents indicated that they grow maize on an area of between 1 and 5 hectares, 44.4% (43) indicated that they cultivated maize crop on an area of less than a hectare. Only 1 %(1) of the respondents indicated that grow maize on an area of between 6 and 10 hectares of land, the other 1%(1) indicated that they grow maize crops on an area of 11 to 15 hectares, lastly, the other 1%(1) indicated that they grow maize on an area of between 15 to 20 hectares.

6.1.19 Area of maize that is under irrigation

Respondents who indicated that they grow maize where further asked to provide responses stating the area of maize grown which is under irrigation. Irrigation has been identified as one solution that is key in the fight against food insecurity. The NDP makes reference to a number of steps that will improve food security and includes irrigation as one of the steps (Department of the Presidency, 2014). Results of responses gathered through this question are shown in Table 6.21.

Table 6.21 Area of maize that is under irrigation

		Frequency	Percent
	.5 Ha	1	1,0
	0	93	95,9
	1 Ha	2	2,1
	Less than Ha	1	1,0
	Total	97	100,0

Results presented in Table 6.21 reveals that an overwhelming majority of 93 (95%) of the respondents indicated they have no area of maize crop that is under irrigation. This shows there is still more that needs to be done in terms of putting more arable land under irrigation. It has been recommended that farmers in South Africa should have access to advanced farming technologies and irrigation infrastructure in order to reduce food shortage risk and inefficiencies in food production (Baiphethi & Jacobs, 2009). Yet, 2.1% (2) of the respondents indicated that they have an area of maize

amounting to 1 hectare that is under irrigation. The other 2.2% (2) of the respondents indicated that the area of maize that is under cultivation is less than a hectare.

6.1.20 Intercropping maize with other crops

Respondents were also asked to disclose the crops they intercrop maize with. Results of data collected on this question are shown in Table 6.22.

Table 6.22 Intercropping

		Frequency	Percent
	Nothing	80	82,5
	Beans	7	7,2
	Yes (not specified)	10	10,3
	Total	97	100,0

As shown in Table 6.22, 82.5% (80) of the respondents indicated that they do not intercrop maize with other crops. Meanwhile, 7.2% (7) of the respondents indicated they intercropped maize with beans. The other 10.3 % (10) of the respondents indicated that they intercrop maize with other crops but did not specify.

6.1.21 Quantity of maize produced

Respondents who cultivate maize indicated that they cultivate maize were also asked to give responses stating the quantity of maize they produced on their land. Results of information gathered on this question are presented in Table 6.23.

Table 6.23 Quantity of maize produced

Quantity of maize produced (tonnes)	Frequency	Percentage
Less than a tonne	61	62.9
1-2 tonnes	18	18.6
3-4 tonnes	16	16.5
5-6 tonnes	1	1
7 +	1	1
Total	97	100

Table 6.23 shows that a majority 62.9% (61) of the respondents indicated that they produced less than a tonne of maize, 18.6% (18) of the respondents indicated that they produced between 1 and 2 tonnes of maize. In addition, 16.5% (16) of the respondents indicated that they produced between 3 and 4 tonnes of maize. Yet, 1% (1) of the respondents indicated that they produced between 5 and 6 tonnes of maize, whilst the other 1 % (1) of the respondents indicated that they produced more than 7 tonnes of maize.

6.1.22 Quantity of maize consumed at home

Respondents were also asked to give responses indicating the quantity of maize that has been consumed at their home. To evaluate what changes are taking place in the livelihood security status of households requires a monitoring focus on the consumption status and asset levels of household members. Results of data collected on this question are shown in Table 6.24.

Table 6.24 Quantity of maize consumed at home

The quantity of maize consumed	Frequency	Percentage
0-500kgs	80	82.5
600-1000kgs	12	12.4
1500-2000kgs	4	4.1
2000+ kgs	1	1
Total	97	100

Results shown in Table 6.24 reveal that a majority 82.5% (80) of the respondents indicated that they consumed maize ranging from 0kgs to 500kgs. However, 12.4% (12) of the respondents indicated that they consumed maize amounting to between 600kgs and 1000kgs at their homes. In addition, 4.1% (4) of the respondents indicated that they consumed maize amounting to between 1500 and 2000 kg. Only 1% (1) of the respondents indicated that they consumed more than 2000kgs at their household.

6.1.23 Quantity of maize sold

The 97 respondents who had indicated that they grow maize were also asked to

indicate to give responses indicating the quantity of maize that was sold by their household. Results of data collected on this question are shown in Table 6.25.

Table 6.24 Quantity of maize sold

Quantity of sold	Frequency	Percentage
0kgs	48	49.5
1-500kgs	35	36.1
600-1000kgs	4	4.1
1500-2000kgs	6	6.2
2000+ kgs	4	4.1
Total	97	100

Results depicted in table 6.25 show that 49.5% (48) of the respondents indicated that they did not sell any quantity of maize. The table also shows that 36.1% (35) of the respondents indicated that they maize amounting between 1kg and 500kgs. 4.1% (4) of the respondents indicated that they sold maize amounting to between 600 and 1000kgs. In addition, 6.2% (6) of the respondents indicated that they sold maize amounting to between 1500 and 2000 kgs. Lastly, 4.1% (4) of the respondents indicated that they sold more than 2000kgs of maize.

6.1.24 Quantity of maize retained for seed

The 97 respondents who indicated that they grow maize were also asked to provide responses indicating the quantity of maize they retained for seed in their household. Results of data collected on this question are presented in Table 6.26.

Table 6.25 Quantity of maize retained for seed

Quantity of maize retained for seed	Frequency	Percentage
Nothing	62	63.9
1-500kgs	27	27.8
600-1000kgs	5	5.2
1500-2000kgs	3	3.1
Total	97	100

Results shown in Table 6.26 show that a majority 63.9% (62) of the respondents indicated that they did not retain any maize for seed. Meanwhile, 27.8 (27) of the respondents indicated they had retained maize amounting to between 1 and 500kgs for maize seed. Yet, 5.2% of the respondents indicated that they retained maize amounting to between 600 and 1000 kg. 3.1% (3) of the respondents indicated that they retained maize amounting to about 1500 kg and 2000 kg.

6.1.25 Difficulties faced when trying to sell crops

The 115 respondents who indicated that they grow crops were asked to provide responses indicating challenges they faced in trying to sell their crops. Challenges considered for investigation include poor transport infrastructure, no formal market, low prices and low demand. Results of data collected on the challenges faced by farmers are shown in Table 6.27.

Table 6.27 Difficulties faced when trying to sell their crops

Challenge faced	Response	Frequency	Percentage
Poor transport infrastructure	Yes	62	53.9
	No	53	46.1
No formal market	Yes	70	60.9
	No	45	39.1
Low prices	Yes	86	73.9
	No	29	25.2
Low demand	Yes	90	78.3
	No	25	21.7

Table 6.27 shows that a majority 53.9% (62) of the respondents indicated that they faced poor transport infrastructure challenge in trying to sell their crops whilst the other 46.1 (53) of the respondents indicated that they did not face poor transport infrastructure difficulties. Efficient and affordable transport is key in the marketing of farm produce. There is, therefore, a need to make sure that the available transport system enables easy marketing of farm products. Concerning the challenge of no formal market, the study established that a majority 60.9% (70) of the respondents indicated that they face difficulties of having no formal market in their efforts to sell

their crops, whilst the other 39.1% (45) of the respondents indicated that did not face the difficulty of formal market. Access to formal market has a positive impact on the development of agriculture amongst small-scale farmer. Example, access to formal market can positively impact farmer livelihoods can be drawn from Zimbabwe where maize production by small scale farmers double as a result of the provision of extension, financial and marketing support services (Rukuni and Eicher, 1994).

Concerning low prices, a majority 73.9 % (86) of the respondents indicated that they faced the challenge of low prices when they were trying to sell their crops whilst a minority 25.2 % (29) of the respondents indicated that did not face the challenge of low prices.

The table also shows that an overwhelming majority 78.3% (90) of the respondents indicated that they faced the challenge of low demand for their crops whilst the other 21.7% (25) of the respondents indicated that they did not face the challenge of low demand when they were trying to sell they produce. Low prices of agricultural products are a challenge for many farmers across the world. To address this challenge, governments usually subsidise the purchase price for the products (Jacobs, 2010).

6.2 LIVESTOCK FARMING

This section presents results of data collected from respondents who indicated that they practice livestock rearing.

6.2.1 Number of years keeping livestock

Respondents were asked to disclose the number of years they have been rearing livestock. Results of data collected on this question are shown in Table 6.28.

Table 6.28 Number of years keeping livestock

		Frequency	Percent
	1 year	2	2,7
	10 years	7	9,5
	12 years	3	4,1
	13 years	1	1,4

	14 years	1	1,4
	15 years	2	2,7
	16 years	2	2,7
	17 years	1	1,4
	2 years	7	9,5
	20 years	2	2,7
	25 years	1	1,4
	3 years	11	14,9
	35 years	1	1,4
	4 years	8	10,8
	45 years	1	1,4
	5 years	9	12,2
	6 years	3	4,1
	7 years	5	6,8
	9 years	1	1,4
	Less than 10	1	1,4
	Not specified	5	6,8
	Total	74	100,0

Table 6.28 depicts the number of years which the respondents have been involved in the raring of livestock. The number of years which were mentioned by the respondents as the number of years which they have been involved in the rearing of livestock ranged from 1 year to 45 years which was the ceiling of years mentioned. From the total number of 74 respondents who took part in the questionnaire 2,7% (2) have been involved in keeping livestock for a year, 9,5% (7) for 10 years, 4.1% (3) for 12 years, 1.4% (1) for 13 years,1.4% (1) for 14 years, 2,7% (2) for 15 years, 2,7% (2) for 16 years, 1,4% (1) for 17 years, 9,5% (7) for 2 years, 2,7% (2) for 20 years, 1,4% (1) for 25 years, 14,9% (11) for 3 years, 1,4% (1) for 45 years, 12,2% (9) for 5 years, 4,1% (3) for 6 years, 6,8% (5) for 7 years, 1.4% (1) for 9 years whilst 6,8% (5) did not specify the number of years they have been involved in the rearing of livestock.

6.2.2 Amount of livestock owned by respondents

Respondents were also asked to give responses indicating if how much of each

livestock type they have. Results of data gathered through this question are shown in Table 6.29. To compare the quantities of livestock owned by respondents, means were computed.

Table 6.29 Mean statistics for livestock amounts

Statistics for livestock amounts											
		calves	heifers	milking	dry cows	bulls	oxen	goats	sheep	donkeys	chickens
N	Valid	32	23	28	22	28	20	36	50	10	52
	Do not own	43	51	46	53	46	54	38	24	64	22
Mean		11.68	11.61	12.61	11.29	3.11	4.20	9.64	28.74	1.80	34.21

From 6.29 above table, chickens had the highest mean of 34, 21. Calves had a mean of 11,68; heifers 11,61; milking cows 12,61; dry cows 11,29; bulls 3.11; oxen 4,20; goats 9,64; sheep 28,74 whilst donkeys had a mean of 1.80. Based on the mean, chicken was owned in the largest amount (highlighted in green) and donkeys the least (highlighted in blue)

6.2.3 Quantity of livestock sold

Respondents were also asked to give responses indicating if how much of each livestock type they sold. Results of data gathered through this question are shown in Table 6.30. To compare the quantities of livestock sold, means were computed

Table 6.30 Statistics on the quantity of livestock sold

		calves sold	heifers sold	milking	dry cows	bulls sold	oxen sold	goats	sheep	donkeys	chickens
N	Valid	32	23	28	22	28	20	36	50	10	52
	Do not own	42	52	47	52	46	54	38	24	64	22
Mean		3.91	2.09	1.15	2.82	.68	1.45	1.11	6.12	0.00	17.23

Table 6.30 above depicts the mean of livestock sold by the farmers. The mean shows chicken having the highest mean of 17, 23 and the lowest being donkeys at 0. Calves had 3,91; heifers had 2,09; milking cows 1,15; dry cows, 2,82; bulls 0,68; oxen 1,45; goats 1,11 and sheep having 6,12.

6.2.4 Quantity of livestock consumed

Respondents were also asked to give responses indicating on how much of each livestock type was consumed. Results of data gathered through this question are shown in Table 6.31. To compare the quantities of livestock consumed, means were computed

Table 6.31 Statistics of quantity consumed by livestock

Statistics for quantity livestock consumed										
		calves	heifers	milking	dry cows	bulls	oxen	goats	sheep	donkey	chickens
N	Valid	32	20	27	22	28	20	36	50		50
	Do not own	42	54	47	52	46	54	38	24		24
Mean		1.91	1.05	1.15	1.05	.93	1.30	1.00	1.72		3.32

Table 6.31 above illustrates the mean of livestock which has been consumed and from the table chickens was the highest consumed livestock with a mean 3.32 whilst bulls had the lowest mean of 0.93. The rest of the livestock their mean as follows: calves 1, 91; heifers 1, 05; milking cows 1.15; dry cows 1.05; oxen 1. 30; goats 1. 00 and sheep 1. 72.

6.2.5 Keep certain types of livestock

Respondents were also asked to give reasons why they keep certain types of livestock. Responses gathered through the question are shown in Table 6.32.

Table 6.32 shows different reasons why respondents decide to keep the livestock they have. The majority 44.4%(24) of respondents responded that they kept a certain type of livestock for making a living by selling. 11%(6) was for farming, 24.1%(13) for household consumption, 5.6%(3) for marketing, 1.9%(1) for pride, 11.1%(11) for quality produce, 16.7%(9) for rituals, 3.7%(2) for paying fees, 7.4% (4) respondent by saying they were in the family already, 3(5,6%) was to save money, 1.9%(1) was for the purpose of fertilization, 5.6% (3) for wool production and 1,9%(1) respondent that they used the livestock for products and offspring.

Table 6.32 Keeping certain types of livestock

Codes	Number of times code applied	% of responses (n=54)	% of livestock farming participants (n=74)
Farming	6	11,1%	8,1%
Household consumption (food security)	13	24,1%	17,6%
Making a living (selling)	24	44,4%	32,4%
Marketing	3	5,6%	4,1%
Pride	1	1,9%	1,4%
Produce quality	6	11,1%	8,1%
Products	1	1,9%	1,4%
Offspring	1	1,9%	1,4%
Rituals	9	16,7%	12,2%
Pay school fees	2	3,7%	2,7%
They were already in the family	4	7,4%	5,4%
Save money	3	5,6%	4,1%
Use manure as crop fertilization	1	1,9%	1,4%
Wool production	3	5,6%	4,1%

6.2.6 Types of problems faced by respondents in livestock production

Respondents were asked to identify the challenges they experience in livestock production. The responses which were gathered are shown in Table 6.33.

From Table 6.33 majority of the respondents, 58 (89,2%) faced challenges of diseases. 1(1,5%) of respondent indicated that blue adder was another challenge they face. 1(1,5%) respondent that they faced cough challenge. 2(3,1%) experienced diarrhea problem; 1(1,5%) heartwater; rabies contributed 8(12,3%), New castle disease contributed 1(1,5%). 1(1,5%) indicated that they faced chicken scab with sheep scab also being indicated by 4(6,2%) respondents. Death was another problem with 2(3, 1%) respondents. 4(6, 2%) indicated that they experienced financial problems whilst 2(3, 1%) respondents indicated the lack of and expensive medicine. Pests was also a major contributor with 19(29, 2%) of the respondents attributing their problems to it. 9(13, 8%) indicated the problem of moles, 6(6, 2%) was a result of ticks and worms contributed 4(6, 2%). 18 (27, 7%) indicated facing problems of poor

pastures. 2(3, 1%) had no market for their livestock, 12(18, 5%) was because of theft. Lastly, 13(20%) respondents indicated that they experienced challenges of weather conditions and drought respectively.

Table 6.33 Main problems experienced in livestock production

Codes	Number of times code applied	% of responses (n=65)
Diseases	58	89,2%
Blue adder	1	1,5%
Cough	1	1,5%
Diarrhoea	2	3,1%
Heart water	1	1,5%
Rabies	8	12,3%
New castle disease	1	1,5%
Chicken scab	1	1,5%
Sheep scab	4	6,2%
Death	2	3,1%
Financial problems	4	6,2%
Medicine (lack of and expensive)	2	3,1%
Pests	19	29,2%
Moles	9	13,8%
Ticks	6	9,2%
Worms	4	6,2%
Poor pastures (shortage of feed)	18	27,7%
No market	2	3,1%
Red meat	1	1,5%
Theft	12	18,5%
Weather conditions	13	20,0%
Drought	13	20,0%

6.2.7 Difficulties faced in trying to sell livestock

The section below tabulates the difficulties farmers face when trying to sell their livestock. From the data collected transport infrastructure was the most frequently selected option.

Table 6.34 Poor transport Infrastructure

Respond	Frequency	Percent
No	34	45,9
Yes	40	54,1
Total	74	100,0

From the Table 6.34 above 40(54, 1%) respondents illustrated that they faced transport infrastructure challenge in trying to sell their livestock whilst 34(45, 9%) did not encounter any challenge. The transport challenge, which is being faced by smallholder farmers, is mainly due to the mere fact they lack the finances.

6.2.8 How respondents addressed poor transport infrastructure

Majority of respondents did not attend to this question, which could be due to the fact that they could not find ways to address the challenges. However, those who answered the questions raised pints such as negotiating price 3(13, 0%), 2(8, 7%) indicated that by improving transport. 1(4, 3%) indicated that they address the difficulties by buying a bakkie, hire transport, ADT and AHT and extension officer respectively. Also, 2(8,7%) highlighted that they would hire transport and also ask for government assistance. 9(39,1%) respondents indicated that they sold their livestock and also in curbing transport cost 8(34,8%) would sell to nearby places. 2(8,7%) showed signs of losing hope as they indicated there was no way of addressing the issues they face. Lastly, 3(13, 0%) respondent by indicated that they did not address the difficulties.

6.2.9 Whether respondents use mineral fertilizers

Respondents were asked if they use mineral fertilizer. The responses gathered with this question are shown in Table 6.35.

Table 6.35 Responses whether respondents use mineral fertilizers

Response	Frequency	Percent
Yes	49	37,7
No	81	62,3
Total	130	100,0

Table 6.35 above depicts the number of respondents who utilise mineral fertilizers and they amounted to 49 (37.7%) responses who indicated that they use mineral fertilizer whilst 81 (62.2%) indicated that they do not use mineral fertilizer.

6.2.10 Source of mineral fertilizer

The question asked respondents on the source of their mineral fertilizer. The responses which were gathered from the question are shown in Table 6.36.

Table 6.36 Source of Mineral fertilizer

Source of mineral fertilisers	Frequency	Percent
Government institutions	17	34,7
Buy from shops	28	57,1
Own farm	1	2,0
Total	46	93,9

Table 6.36 above illustrates the source of mineral fertilizer for the farmers. Government institutions contributed to 17 (34.7%) despite the need for government involvement the numbers are worrying as it is clear the government might not be doing enough to support the sustainability and livelihood of smallholder farmers (May & Nzimande, 2012). 28 (57, 1%) respondents further indicated that they bought the mineral fertilizer from shops whilst only 1 (2.0 %) respondent that they are getting mineral fertilizer from their own farm.

6.2.11: Estimated annual expenditure of the mineral fertilizer

Respondents were asked about their annual expenditure on mineral fertilizer. The responses from the question are represented in the table 6.37.

Table 6.37 Estimated annual expenditure on mineral fertilizer

Estimated annual expenditure on mineral fertilizer	Frequency	Percent
100	2	4,1
350	2	4,1
400	1	2,0
500	1	2,0
2800	1	2,0
3500	1	2,0
Total	8	16,3

The above table 6.37 illustrates the expenditure on mineral fertilizer, however from 41 participants who said yes they use mineral fertilizer, 32 did not answer this question. 2 (4.1%) spend only R100 on mineral fertilizer, there were also 2 (4.1%) respondents who spend R350. The rest of the annual expenditure were as follows; 1 (2.0%) spend R400, 1 (2.0%) spend R500, 1(2.0%) spend R2800 and 1(2, 0%) spend R3500. The less number of respondents willing to spent on mineral fertilizer can be attributed to the shortage of finance amongst smallholder farmers (Nazeer, 2014).

6.2.12 Why respondents do not use mineral fertilizer

Respondents were asked why they do not utilise mineral fertilizer. Most farmers complained about expensive inputs, for instance, the lack of using mineral fertilizer is due to the fact that government is not doing enough in subsidizing smallholder farmers until they find their own footing has affected their production as some lack financial muscle to buy the required inputs and some farmers lack the required skills (May & Nzimande, 2012).

6.2.13 Respondents who use animal manure

Table 6.38 Responses to whether respondent use animal manure

Response	Frequency	Percent
Yes	64	49,2
No	66	50,8
Total	130	100,0

Table 6.38 depicts that 64 (49.2%) respondents utilise animal manure when doing their farming whilst 66 (50.8%) uses manure on their farms. There is a quite a reasonable number of farmers who use animal manure on their farms this could be attributed to the fact that smallholder farmers find it cheap and convenient to use their animal manure as they financial constraints to buy fertilizers (Trienekens, 2011).

6.2.14 Source of the animal manure

Respondents were asked where they get the animal manure and the responses from the question are represented in Table 6.39.

Table 6.39 Source of animal manure

		Frequency	Percent
	Government institutions	5	7,8
	Buy from shops	12	18,8
	Own farm	38	59,4
	Other (my kraal)	1	1,6
	Total	56	87,5

As illustrated by Table 6.39 own farms from respondents contributed more to their animal manure with a total of 38 (59.4%). Meanwhile, 12 (18.8%) respondents bought their animal manure from shops further 5(7.8%) accessed the manure from government institutions whereas 1(1.6%) accessed it from other sources such as their kraal.

6.2.15 Availability of animal manure

Respondents were also asked on the availability of animal manure and the responses

collected from this question are shown in Table 6.40.

Table 6.40 Availability of animal manure

		Frequency	Percent
Valid	Easily obtained	32	24,6
	Obtained with difficulty	9	6,9
	Not available	2	1,5
	Total	43	33,1
Missing	System	87	66,9
Total		130	100,0

Table 6.40 depicts that majority of respondents opted in using animal manure due to the fact that it can easily be obtained this was corroborated by 32(24.6%) respondents. While, 9 (6.9%) respondent stated that they faced difficulties in obtaining animal manure and 2(1.5%) respondents did not use the animal manure due to the fact that it was not available. At least 87 (66.9%) of all the participants did not answer this question.

6.2.16 Use of pesticides

In this question, the respondents were asked if they use pesticides and the responses collected from this question are shown in the Table 6.41.

Table 6.41 Responses on whether respondents use pesticides

		Frequency	Percent
	Yes	51	39,2
	No	79	60,8
	Total	130	100,0

Table 6.41 depicts that less than half of the respondents 51 (39, 2%) used pesticides when farming whilst 79 (60, 8%) revealed that they do not use pesticides. The results indicate that the use of pesticides is not yet something which all farmers are implementing this can be attributed to the lack of financial resources amongst farmers

(Nazeer, 2014).

6.2.17 Source of pesticides

Respondents were asked to answer on the source of pesticides they use. The responses which were gathered are tabulated in the Table 6.42.

Table 6.42 Sources of Pesticides

		Frequency	Percent
	Government institutions	11	21,6
	Buy from shops	30	58,8
	Own farm	1	2,0
	Other	1	2,0
	Total	43	84,3

Table 6.42 illustrate how the government continue to support the farmers as 11 (21, 6%) respondents received assistance from government institutions. 30 (58, 8%) respondents purchased their pesticides from shops, 1(2, 0%) utilised pesticides from their own farm and another 1(2, 0%) respondent sourced their pesticides from other sources. According to Robertson (2013), the government should do more in supporting small scale farmers than what is currently being done as small scale farming can go a long way in alleviating poverty and bring self-reliance in the near future.

6.3 HOUSE HOLD DECISION MAKING (HDM)

6.3.1 Who makes the decision on the crops to cultivate

The question posed to respondents was on who makes the decision on crops to cultivate and the responses are presented in the Table 6.43.

Table 6.43 Crops to cultivate

		Frequency	Percent
	Male spouse	21	16,2
	Female spouse	50	38,5
	Both	30	23,1

	Total	101	77,7
Missing	System	29	22,3

Table 6.43 illustrate that male spouses do not have an active participative role when it comes to deciding which crops to cultivate which is shown by a paltry 21(16,2%) responses whereas the table shows that when it comes to the crops which need to be cultivated female spouses were the highest contributors 50(38,5%). Households with a family who make the decision on what to cultivate on the farm together were represented by 30(23, 1%) respondents. In an African family, the female spouses are considered to be the ones who feed the family hence the high number of female spouses deciding on the crops to be cultivated as they know what is required to feed the family.

6.3.2 Attended farming training

Respondents were asked if they had attended any farm training. The response from the question are shown in Table 6.44.

Table 6.44 Responses of whether respondents attended farm training

		Frequency	Percent
	Male spouse	24	18,5
	Female spouse	31	23,8
	Both	27	20,8
	Total	82	63,1
Missing	System	48	36,9
Total		130	100,0

Table 6.44 depicts that 24(18, 5%) attended farm training with 31(23, 8%) female spouse respondents also indicated that they attended farm training whilst 27(20, 8%) indicated that they both attended the farm training as a household.

6.3.3 Information from government extension

The respondents were also asked if they had received any information from government extension. The responses from the question are tabulated in Table 6.45.

Table 6.45 Responses on whether respondents received information from government extension

		Frequency	Percent
	No	52	40,0
	Yes	78	60,0
	Total	130	100,0

Table 6.45 depicts the number of respondents who did receive information from government extension with the majority of respondents 70(89, 7%) having received information from government extension whilst only 8(10, 3%) indicating they did not receive any information from the government extension.

6.3.4 Information received from government extension on crop production

On this question, the respondents were asked if the information they received from government extension was on crop production. The responses of the question are presented in Table 6.46.

Table 6.46 Responses on whether the information from government extension was on crop production

		Frequency	Percent
	Yes	58	82,9
	No	12	17,1
	Total	70	100,0

Table 6.46 above show that 58(82, 7%) respondents indicated that the information they received from government extension was about to crop production whilst 12(17, 1%) respondents pointed out that it was not about crop production.

6.3.5 Number of visits respondents received per year by government extension

Respondents were also asked the number of types they received visits from government extension. The question on the number of visits received is presented in

Table 6.47.

Table 6.47 The number of times someone from government extension visited the farms in the past 12 months

Number of times		Frequency	Percent
	0	31	44,3
	1	15	21,4
	2	3	4,3
	3	2	2,9
	3/quarter	1	1,4
	4	3	4,3
	5	1	1,4
	6	4	5,7
	7	1	1,4
	8	9	12,9
	Total	70	100,0

From Table 6.47 respondents indicated the number of times government extension officers visited their farms with 31(44,3%) saying for the past 12 months they did not receive anyone from government, 15(21,4%) had one visit, 3(4,3%) got 2 visits, 2(2,9%) had 3 visits. 3(4,3%) respondents received 4 visits, 1(1,4%) had 5 visits, 4(5,7%) got 6 visits, 1(1,4%) had 7 visits and lastly, 9(12,9%) received the highest number of visits which totalled to 8.

6.3.6 Received information from farmer's association

Respondents were also asked if they had received information from farmers associations and their responses from this question are tabulated in Table 6.48.

Table 6.48 Responses whether respondents received information from Farmers association

Table 26 Responses whether respondents received information from Farmers association

		Frequency	Percent
	Yes	42	53,8
	No	36	46,2
	Total	78	100,0

Table 6.48 illustrate that 42(53, 8%) depicted that they got cooperative advice whilst 36(46, 2%) did not get any advice from farmer's association.

6.3.7 Received advice on crop production from farmer's association

The question addressed whether respondents received advice on crop production from farmer's associations and the responses gathered are shown in Table 6.49.

Table 6.49 Responses on whether the advice respondents got was on crop production

	Yes	32	76,2
	No	10	23,8
	Total	42	100,0

As table 6.49 show, 32(76, 6%) received advice on crop production, whilst 10(23, 4%) did not receive any advice on crop production.

6.2.8 Number of visits from farmer's associations

The respondents were also asked on how many times they had received visits from farmer's associations and their responses are shown in Table 6.50.

Table 6.50 Response from respondents on the number of times they had a visit from Farmers associations

		Frequency	Percent
	0	21	50,0
	1	10	23,8
	2	6	14,3
	4	1	2,4
	8	1	2,4
	10	3	7,1
	Total	42	100,0

Table 6.50 above depicts results on the number of times farmers received a visit within a year from farmer's associations. As illustrated on the table 21(50%) did not receive any single visit, 10(23,8%) received only 1 visit, 6(14,3%) received 2 visits, 1(2,4%) received 4 visits, 1(2,4%) received 8 visits whilst 3(7,1%) received 10 visits. The number of visits which is being made by farmer's associations to smallholder farmers is disturbing considering they still need all the support they can get in order to contribute to the food security of the country as opposed to the feeding of one's household only (Altman, Hart & Jacobs, 2009).

6.3.9 Useful is information received from government extension

The question addressed how respondents viewed the information they receive from government extension and its usefulness. Responses to the question are shown in Table 6.51.

Table 6.51 Responses from respondents on how useful the information received from government extension

		Frequency	Percent
	Somehow useful	12	17,1
	Very useful	52	74,3
	Total	64	91,4

Table 6.51 illustrates how respondents viewed the information they got from government extension. Majority of respondents 52(74, 3%) showed that the information they received from government extension was very useful to their cause whilst 12(17, 1%) said it was somehow useful. From the participants who said they had received information from government extension, 6 respondents did not respond to this question. The overwhelming response on how useful was the advice from government extension is a testimony of the effort being made by the government to uplift smallholder farmers to curb food insecurity (Aliber & Hall, 2012).

6.3.10 Accessibility of information from government extension

Respondents were also asked on how accessible is the information received from government extension. The responses from the question are presented in Table 6.52.

Table 6.52 Responses from respondents on how accessible is information from government extension

		Frequency	Percent
	Not accessible	1	1,4
	Somehow accessible	14	20,0
	Very accessible	45	64,3
	Total	60	85,7
Missing	System	10	14,3
Total		70	100,0

Table 6.52 depicts results on the accessibility of information being provided to farmers by government extension. There were only 1(1, 4%) respondents who showed that the information from the government was not accessible, 14(20%) of the respondents illustrated that it was somehow accessible whilst the majority 45(64, 3%) viewed the information to be accessible. Government extension information or advice was deemed to be easily accessible by the respondents as a result of government policy which strives to make information accessible to everyone at no cost (May & Nzimande, 2012).

6.3.11 How useful was information from a non-governmental organisation

Respondents were asked on how useful was the information they received from non-governmental organizations and their responses are tabulated in Table 6.53.

Table 6.53 Responses to how useful was information from a non-governmental organisation

		Frequency	Percent
	Somehow useful	13	35,1
	Very useful	22	59,5
	Total	35	94,6
Missing	System	2	5,4
Total		37	100,0

Table 6.53 above depicts results on the usefulness of the information which was being provided by the non-governmental organisation to the farmers. Meanwhile, 13(35, 1%) respondents found the advice to be somehow useful whilst 22(59, 5%) respondents agreed that the information they got was very useful in their farming activities. From the responses, however it is noted that some respondents who had not indicated receiving information from non-governmental organisations also respondent and also 2 participants who had indicated that they had received information from non-governmental organisation did not respond to this question. The usefulness of the advice being provided by the non-governmental organisation is because the organisations are corroborating government efforts to create improved sustainability when it comes to food security (FAO, 2016).

6.3.12 Whether respondents faced challenges in accessing extension service delivery

Table 6.54 Responses on whether respondents faced challenges in accessing extension service delivery

Codes	Number of times code applied	% of responses (n=82)
Poor infrastructure	21	25,6%
Health	1	1,2%
Transport	30	36,6%
Shortage of extension officers	2	2,4%
Distance	5	6,1%
Finances	10	12,2%
Too busy	6	7,3%
Poor service delivery	23	28,0%
Not always available	9	11,0%
No transparency or communication	15	18,3%

Table 6.54 depicts that the majority of farmers 82(63, 1%) have encountered challenges in extension service delivery whereas 48(36, 9%) had not encountered challenges.

6.4 DISCUSSIONS OF FARM CHARACTERISTICS

The farm characteristics section of the research investigated issues concerning land ownerships, income and farming activities (crop cultivation and livestock rearing). Results presented in this section demonstrate that a majority (86.9%) of the households owned/had access to land except for a few. Although the number of people having access to land is high, it should be noted that the area of land owned by smallholder farmers, who are dominantly blacks is smaller than that is owned by commercial farmers who are dominantly white. This is obviously a result of the segregatory apartheid rule which deprived blacks of their access to arable land (World Bank, 2018). Of those who had access to land, a majority 76.1% of the households between 1 and hectares of land. There was a significant number of which own 16-10 hectares of land. Only 3.5% of the households owned less than a hectare of land. This results were unexpected given the fact that literature which show that majority of small scale farmers farm on a land area of less than a hectare.

As stated by FAO (2015), smallholder families live in farms which in many countries are significantly smaller than 2 hectares. In Asia, farms are very small. For instance, the average size of a smallholder farm in Bangladesh and Viet Nam is 0.24 and 0.32 hectares respectively (FAO, 2015). This shows that majority of landowners who took part in this study own bigger traits of land than those from Bangladesh. In Africa, smallholder farms can be relatively larger, but only marginally. Kenyan smallholders farm 0.47 hectares and in Ethiopia the average small farm size is 0.9 hectares. In Latin American countries, smallholder farms often tend to be over 2 hectares, as in Nicaragua where the average small farm size is 5 hectares. However, this is not always the case.

In the Plurinational State of Bolivia, small farmers cultivate on average, 0.89 hectares (Lowder, Skoet & Singh, 2014). There are however, factors that affect the size of farming land owned which include arability, farming activity and population density. There is a tendency for smallholder farmers to own larger traits of land where there is less arable land. In addition, places which are densely populated tend to have households sharing small pieces of land. Results in this study demonstrates that an overwhelming 80.5% of the households that have access to land in Mbhashe Municipality practice crop cultivation. Crop cultivation is a key activity that has potential to enable a household to become food secure through increased income and food supply.

Furthermore, a majority 54.9% of the households in Mbhashe Municipality reared livestock, in this way, showing that that percentage if livestock farmers for Mbhashe Municipality is higher than the provincial one. According to statistics published by Stats SA (2016), livestock farming in the Eastern Cape accounted for 32,7% of the country's households involved in livestock farming in 2016, as well as 28,4% of households involved in poultry farming. KwaZulu-Natal accounted for 21,6% of all households involved in vegetable farming. However, livestock farming in the Eastern Cape is negatively impacted upon by droughts that have been prevailing.

The results also indicated that majority of the livestock farmers had access to adequate grazing lands although there is also a significant number of people with inadequate access to grazing lands. This might be due to the fact that a majority of the farmers own land that ranges between 1-5 hectares which might not be enough

for farming and grazing.

The study surprisingly indicated that more females (26.9%) owned grazing land than males (22.1%). A lot of available studies show that, in terms land ownership by gender, most of the land is concentrated in the hands males than females (Cousins, 2010). Recent statistics show that, nationally, 72% of the total land in South Africa is owned by males, 13% is owned by females whilst male-female land ownership is 11% of the total land ownership (Ministry of Rural Development and Land Reform, 2018. The other 44.2% of the households revealed that the grazing lands were owned by others, who turned out to be village head, village and both male and female.

Amongst the choices that were provided, the study established that majority of the households got income from self-employment and pension pay outs followed by salary of a resident member (8.5%). The results also show that no household receive any income from outside from South Africa. Other sources of income identified include small scale mining, renting out property and from elsewhere in South Africa. Household income analysis in important because income is a pivotal factor in as far as sustainable livelihoods and food security is concerned. Household income is expected to improve the status of household food security because the ability to purchase food largely relies on household income and asset (wealth) status (Aliber, 2009). Household income, both farm and non-farm (including wages, government social transfers and remittances), contributes to the total household income in rural areas.

There was a slight difference in the amount of households who indicated that they had received any farm inputs (51.5%) versus those who had not received any inputs (48.5%) from the government. Slightly more than half of the households received inputs in time whilst 22.4% of the households did not receive the inputs in time. This shows that there exist areas of improvement in terms of government support to small scale farmers in the form of inputs.

Majority (69.25%) of households surveyed in this study had no member who operates a savings account. This is a cause for concern. Savings are important for a household because they form part of key assets that are needed for a household to carryout activities that improves their livelihood and subsequent food security (United Nations Development Programme, 1990). Only a minority 30.8% of the household had a

member who operated savings accounts. The research showed that there was evident lack access to loans by households. This is seen in that of all the households, 96.9% of the households had taken a loan in the previous 12 months. The research established that a majority (49.2%) of the household practiced both crop and livestock rearing, followed by 39% who exclusively cultivated crops whilst only 7.7% of the households were exclusively livestock farmers.

CHAPTER 7: ROLE OF HOUSEHOLD FOOD SECURITY IN BUILDING SUSTAINABLE LIVELIHOODS IN MBHASHE MUNICIPALITY OF EASTEN CAPE

7.1 INTRODUCTION

Food security has become a challenge in rural villages although this has also been experienced in the urban areas. This chapter presents responses about food security status at a household level. The question which is being addressed in this chapter is how the Mbhashe Municipality can build a sustainable livelihood. In order to respond to this question, respondents were asked different questions to establish the practice of the community in terms of how they handle the food challenge. Some of the questions relate to an observation whether the community had food or not in the past 30 days.

7.2 AVAILABILITY OF FOOD IN THE HOUSEHOLDS

Respondents were asked to indicate their state of worries in the past (30 days) about food availability in the household, and if whether had enough or not. Their responses are indicated in Table 7.1

Table 7.1 Worry about the availability of enough food in the household in the past 30 days

		Frequency	Percent
	Never - it did not happen in the past 30 days	81	62,3
	Rarely - once or twice in the past 30 days	36	27,7
	Sometimes - three or ten times in the past 30 days	10	7,7
	Often - more than ten times in the past 30 days	3	2,3
	Total	130	100,0

Table 7.1 shows the frequency of response on household food security, 62,3% (N=81) of the respondents stipulated that they did not worry about food in the last 30 days. Whilst 27,7% (N=36) stipulated that they rarely worried about it and it occurred once or twice in the past 30 days. In addition, 7,7% (N=10) pointed out that they did sometimes three of ten times in the previous 30 days, lastly 2,3% (N=7) asserted often and that they did worry about food more than ten times in the past 30 days. A FAO

(2017) report on food security states that more than 814 million people in developing countries are undernourished. Approximately 204 million reside in sub-Saharan Africa, including South Africa.

7.3 TYPE OF FOOD CONSUMED DUE TO LACK OF RESOURCES

Respondents were asked whether in the past (30 days), did it happen that they did not eat the kinds of food they would have preferred to eat because of lack of resources. Results of data collected on the question are shown in Table 7.2.

Table 7. 2 Eating limited variety of foods because of lack of resources in the past 30 days

		Frequency	Percent
	Never - it did not happen in the past 30 days	59	45,4
	Rarely - once or twice in the past 30 days	42	32,3
	Sometimes - three or ten times in the past 30 days	26	20,0
	Often - more than ten times in the past 30 days	3	2,3
	Total	130	100,0

Table 7.2 shows the frequency on household food security and lack of resources, 46% (N=60) in past 30 days they never get worried about food because of lack of resources, 32% (N=41) said once or twice In the past 30 days, whilst 21% (N=27) stated three or ten times in the previous 30 days in addition more than ten times in the previous 30 days, whereas 1% (N=1) pointed that more than ten times in the past 30 days. Food security as an umbrella term includes: (i) the availability of food that is nutritious and safe; (ii) an assured ability to procure and acquire food of good quality in a socially acceptable way (e.g. without resorting to emergency food supplies, scavenging, stealing or similar coping strategies).

7. 4 Food access due to lack of resources

Respondents were asked whether in the past 30 days did it happen that they had to eat limited food because of lack of resources. Results of data collected on the question are shown in Table 7.3.

Table 7.3 Food access and lack of resources

		Frequency	Percent
	Never - it did not happen in the past 30 days	63	48,5
	Rarely - once or twice in the past 30 days	32	24,6
	Sometimes - three or ten times in the past 30 days	30	23,1
	Often - more than ten times in the past 30 days	5	3,8
	Total	130	100,0

Table 7.3 reflects the frequency of response on households eating limited variety of because of lack of resources, 45,4% (N=59) of the respondents stated they did never worry about eating limited variety of food because of lack of resources in the previous 30 days. Whilst, 32,3% (N=42) of the respondents said it happen once or twice in the previous 30 days. In addition, 20% (N=26) pointed three or ten times in the previous 30 days, lastly, 2,3% (N=3) stated more than times in the previous 30 days. Studies have shown that households might lack resources to sufficient food; it might be because of inadequate resources like income. Lack of income in this context is linked to unemployment.

7.5 Smaller meal and food access

Respondents were also asked if in the past (30 days) it happen that you or any household member had to eat some foods that you really did not want to eat because of lack of resources. Results of data collected on the question are shown in Table 7.4.

Table 7.4 Smaller meal and food access

		Frequency	Percent
	Never - it did not happen in the past 30 days	70	53,8
	Rarely - once or twice in the past 30 days	34	26,2
	Sometimes - three or ten times in the past 30 days	24	18,5
	Often - more than ten times in the past 30 days	2	1,5
	Total	130	100,0

Table 7.4 shows the frequency of response on households lacking options to food they

desired because of lack of resources. 48,5% (N=63) of the respondents claimed it never happened in the past 30 days, 24,6% (N=32) pointed once or twice in the past 30 days, 23,1% (N=30) stated three or ten times in the previous 30 days whilst 3,8% (N=5) specified more than ten times in the past 30 days.

7.6 Fewer meals in a day and food access

The respondents were asked to disclose if (in the past 30 days) it ever happened that any household member had to eat a smaller meal than needed because there was not enough food. Results of data collected on the question are shown in Table 7.5.

Table 7.5 Fewer meals in a day and food access

	Frequency	Percent
Never - it did not happen in the past 30 days	76	58,5
Rarely - once or twice in the past 30 days	33	25,4
Sometimes - three or ten times in the past 30 days	19	14,6
Often - more than ten times in the past 30 days	2	1,5
Total	130	100,0

Table 7.5 reflects the frequency of response on the question whether household members had eaten smaller meal than desires because of insufficient food. 54% stated never happened in the past 30 days. Yet, 26% specified it happened once or twice in the past 30 days. 18% stated three or more in the past 30 days, whilst 2% specified more than ten times in the past 30 days.

7.7 Fewer meals and enough food

The respondents were also asked to disclose if in (the past 30 days), it happened that any household member had to eat fewer meals in a day because there was not enough food. Results of data collected on the question are shown in Table 7.6.

Table 7.6 reflects on the frequency of response on the question whether household members have eaten few meals because of insufficient food. 58, %% claimed it did not happen in the past 30 days. 25,4% indicated once or twice in the past 30 days. 14,6% specified three or ten times in the past 30 days, whilst 1,5% stated more than ten times in the past 30 days. Literature on food security in South Africa has cited the

following reasons for food insecurity in South Africa. Poor households are characterized by few income-earners, and many dependants (Caesar and Crush, 2016). Many households are often primarily dependent on migrant remittances and social security grants, making them vulnerable to food insecurity. Hunger and malnutrition in South Africa stem from insufficient, unstable food supplies, at the household or intra-household level. The majority of producers in the former homelands are unable to feed their families from their narrow production base. Government assistance is often a major source of income for these households.

Table 7.6 Fewer meals and enough food

		Frequency	Percent
	Never - it did not happen in the past 30 days	76	58,5
	Rarely - once or twice in the past 30 days	33	25,4
	Sometimes - three or ten times in the past 30 days	19	14,6
	Often - more than ten times in the past 30 days	2	1,5
	Total	130	100,0

7.8 No food to eat and lack of resources

The respondents were also asked if in the past 30 days it happened that there was no food to eat of any kind in your house, because of lack of resources to get food. Results of data collected on the question are shown in Table 7.7.

Table 7.7 No food to eat and lack of resources

		Frequency	Percent
	Never - it did not happen in the past 30 days	87	66,9
	Rarely - once or twice in the past 30 days	31	23,8
	Sometimes - three or ten times in the past 30 days	9	6,9
	Often - more than ten times in the past 30 days	3	2,3
	Total	130	100,0

Table 7.7 shows the frequency of response on whether households faced lacked food of any kind because of lack of resources to get food. 66,9% indicated it did not happen

in the past 30 days. 23,8% claimed once or twice in the past 30 days. 6,9% stated three or ten times in the past 30 days, lastly 2,3% claimed more than ten times in the previous 30 days.

7.9 Sleeping hungry because there is no food

The respondents were asked if in the past 30 days it happened that they or any household member went to sleep at night hungry because there was not enough food. Results of data collected on the question are shown in Table 7.8.

Table 7.8 Went to sleep at night hungry in the past 30 days because there was not enough food

Response		Frequency	Percent
	Never - it did not happen in the past 30 days	123	94,6
	Rarely - once or twice in the past 30 days	3	2,3
	Sometimes - three or ten times in the past 30 days	3	2,3
	Often - more than ten times in the past 30 days	1	,8
	Total	130	100,0

Table 7.8 graph shows the frequency of response on the question whether household member went to sleep at night hungry because there was no enough food. 94,6% indicated it did not happen in the past 30 days,2,3% claimed once or twice in the past 30 days, an additional 2,3% also claimed sometimes-three times in the past 30 days, whilst merely 0,8% clarified that more than ten times in the past 30 days. There are many reasons for food insecurity. These include: poverty; lower levels of maternal education (primary school or none); unemployment; larger household size; and households that experience events that place an added demand on their budgets (Dodson & Chiweza, 2016). This could also be related to an unexpected illness with medical expenses or a sudden job loss. Another factor is the increasing trend of people eating more cheap fast foods and less nutritious foods. People cope with food insecurity by decreasing the variety of foods they eat, limiting their portion sizes, and eating cheaper fast foods.

7.10 Whole day and night without enough food

The research also enquired if, in the past 30 days, it happened that there was any

household member who went a whole day and night without eating anything at all because there was not enough food. Results of data collected on the question are shown in Table 7.9.

Table 7.9 Whole day and night without enough food

		Frequency	Percent
	Never - it did not happen in the past 30 days	124	95,4
	Rarely - once or twice in the past 30 days	1	,8
	Sometimes - three or ten times in the past 30 days	2	1,5
	Often - more than ten times in the past 30 days	3	2,3
	Total	130	100,0

Table 7.9 shows the frequency of response on the question whether household members went a whole day and night without eating anything at all because there was not enough food. Yet, 95,4% claimed it did not happen in the past 30 days, only 0,8% specified that it happened once or twice in the past 30 days. 1,5% stated three or ten times in the past 30 days, lastly 2,3% claimed more than ten times in the past 30 days. In recent years particular attention has been paid to access to food and its measurement. This stems from the realization that even when food is available in markets, it may not be accessible to specific households. According to Chakona and Shackleton (2017), a large proportion of South Africans still perceive themselves as lacking enough income to meet all their household needs. “Access” has been defined as a household’s ability to acquire enough food of sufficient quality to have all of its members meet their nutritional requirements and lead productive lives.

7.11 Months where food shortages were serious

The respondents were asked to disclose the months of the year where the food shortage is serious in the household. Results of data collected on the question are shown in Table 7.10.

Table 7.10 shows the frequency of response on the months with serious food shortages in the household. 34,4 % claimed it was June, 24,6% noted July, 18% specified may. In addition, 11,5% stated it was August. Whereas 9,8% noted it was January. 4,9% specified November, December and September. Whilst 3,3% indicated

October, lastly only 1,6 specified February. Since rural households depend on farming for food and income when they sell their surplus to the market. There are likely to face food security problems during the month when harvest for both consumption and selling get finished. In this instance they are likely to depend on remittances from their working relatives, temporary employments, stockvels and getting loans from informal financial institutions.

Table 7.10 Months where food shortages were serious

Codes	Number of times code applied	% of responses (n=27)	% of participants that said yes (n=61)
January	6	22,2%	9,8%
April	1	3,7%	1,6%
May	11	40,7%	18,0%
June	21	77,8%	34,4%
July	15	55,6%	24,6%
August	7	25,9%	11,5%
September	3	11,1%	4,9%
October	2	7,4%	3,3%
November	3	11,1%	4,9%
December	3	11,1%	4,9%

7.12 Causes of food shortages

The respondents were asked to disclose the most important causes of food shortages in the household. Results of data collected on the question are shown in Table 7.11.

Table 7.11 shows the frequency of response on the main cause of food shortages, 21,3% indicated unemployment, 18% claimed lack of finance, 14,8% specified weather conditions. 8,2% claimed high prices, 6,6% stated drought as a cause, 4,9% pointed to floods, 3,3% claimed it was crop and livestock diseases, whilst another 3,3% also claimed lack of inputs. Only 1,6% specified poor pasture. In South Africa the cause of hunger and malnutrition is not due to a shortage of food but rather an inadequate access to food by certain categories of individuals and households in the population (Musemwa, *et al*., 2015). Statistics South Africa has shown that food insecurity is not an exceptional, short-term event, but is rather a continuous threat for more than a third of the population. 2 The vast majority of South Africans buy their

staple foods from commercial suppliers, rather than growing it themselves, and are therefore dependent on having (direct or indirect) access to cash.

Table 7.11 Causes of food shortages

Codes	Number of times code applied	% of responses (n=31)	% of participants that said yes (n=61)
Crop and livestock diseases	2	6,5%	3,3%
Unemployment	13	41,9%	21,3%
High prices	5	16,1%	8,2%
Lack of inputs	2	6,5%	3,3%
Lack of finances	11	35,5%	18,0%
Poor pastures	1	3,2%	1,6%
Weather conditions	9	29,0%	14,8%
Floods	3	9,7%	4,9%
Drought	4	12,9%	6,6%

1.13 Measures to deal with food shortages

The respondents were also asked to provide responses on measures they took when their household faced serious food shortages. Results of data collected on the question are shown in Table 7.12.

Table 7.12 shows the frequency of response on the measures taken by households when facing serious food shortages. Meanwhile, 62,3% specified that they used farming 32,8% used livestock's, 19,& searched for employment. 11,5% claimed they grew different crops another 11,5% also claimed they loaned from others. 9,8% specified plant more crops and sold them. 4,9% specified that they searched for temporary employment. 3,3% specified that they applied for grant. 1,6% claimed they reduced food, the similar percentage on migrating, opting for cheaper goods and those who did not take any measures. The literature has identified four pathways which was utilized by households as a way to solve their food insecurity and poverty (Sibhatu & Qaim, 2017). These consist of agricultural path, multiple activity path and an assistance and an exit path, additionally a fifth path has also been recognized which is the micro-enterprise path.

Table 7.12 Measures to deal with food shortages

Codes	Number of times code applied	% of responses (n=45)	% of those facing food shortages (n=61)
Looking for employment	12	26,7%	19,7%
Piece jobs	3	6,7%	4,9%
Eat less	1	2,2%	1,6%
Farming	38	84,4%	62,3%
Plant different crops	7	15,6%	11,5%
Plant more crops	6	13,3%	9,8%
Sold produce/livestock	20	44,4%	32,8%
Applied for grant	2	4,4%	3,3%
Loaned from others	7	15,6%	11,5%
Migrate	1	2,2%	1,6%
Opt for cheaper goods	1	2,2%	1,6%
Did not take any measures	1	2,2%	1,6%

7.14 Challenges faced by respondents in securing food

The research also asked the respondent to disclose challenges they in securing food. Results of data collected on the question are shown in Table 7.13.

Table 7.13 Difficulties faced in acquiring food by respondents

Challenges		Frequency	Percent
High prices	Yes	65	63.1
	No	38	36.9
Low supply	Yes	3	2.9
	No	100	97.1
Lack of alternatives	Yes	22	21.4
	No	81	78.9

No formal marketing	Yes	22	21.4
	No	82	78.6

Food security is a major problem in many countries, the respondents were given an opportunity to identify the major challenges they face in acquiring food. Table 7.13 provides a frequency table on the responses received. A total of 66% of respondents claimed poor transport system was their main problem, whilst 34% pointed other problems, 63,1% claimed higher prices, 36,9% did not specify higher prices, 97,1% did not specify low supply of food, whilst only 2,9% claimed low supply, 78,6% denied lack of alternatives , 21,% indicated lack of alternatives, 78,6% denied lack of formal marketing and 21,4% indicated lack of formal marketing.

7.15 How challenges are addressed

Respondents were also asked to provide information on how the challenges they face in addressing difficulties were addressed. Results of data collected on the question are shown in Table 7.14.

Table 7.14 Addressing difficulties faced in acquiring food

	Number of times code applied	% of responses (n=45)	% of participants facing difficutlies (n=103)
Own transport	3	6,7%	2,9%
Door-to-door	1	2,2%	1,0%
Donkey	1	2,2%	1,0%
Loans	1	2,2%	1,0%
Farming	13	28,9%	12,6%
Opt for cheaper food/goods	22	48,9%	21,4%
Make use of local shops	13	28,9%	12,6%
Nothing can be done	5	11,1%	4,9%
No action has been taken	7	15,6%	6,8%

Table 7.14 shows the measures on the difficulties, 21% claimed they opt for cheaper

food/goods, 12,6% argued they make use of local shops, another 12,6% farming as their measure.6,8% indicated no action has been taken, 4,9% stated nothing can be done. Yet, 2, 9% stated they utilized their own transport. 1% stated they utilized door to door, there was similar response on donkey and loans.

7.2 Discussions

Food security remains one of the socio-economic targets for many economies. This explains why the Sustainable Development Goals (SDGs) make poverty and hunger eradication a goal. The results of this study points to a reduction in the prevalence of food insecurity in the study area. This is extremely encouraging. Various factors might have contributed to this decrease. The South African constitution makes food security a mandatory requirement for a siting government. As such, various government policies are specifically designed to address food insecurity. The National School Nutrition Programme (NSNP) that has been rolled out to every school aims to foster quality education by alleviating short term hunger and enhance children's active learning capacity for children to attend schools.

Secondly, the social grants have been the government main initiative that address food insecurity. These grants come in the form of children support grants, foster care grants, disability grants, pension funds and care dependency grants to name a few (SASSA, 2017). Latest statistics show that over 17 million South Africans are currently receiving grants. All these grants have shown to reduce poverty and increase purchasing power for women, in the process addressing food access (Cheteni, Khamfula & Mah, 2019). Given that the study was conducted in rural areas, tradition and agricultural practices are influence by the diet consumer by the households. Maize and livestock rearing were dominant in the area, possible suggesting that cases of food security were minimum as supported by our findings.

It was shown that over 60 percent of respondents spend less than R600 on food per week. Meanwhile on average the household has 5-6 people to feed, mostly with 3-4 children who are under 12 years old. Furthermore, it was shown that most households planted maize for consumption than selling. Lack of finance and unemployment were pointed as some of the reasons leading to food shortages in certain households. Overall, the households opted for cheap food to avoid any shortages.

7.3 Regression results on sustainable agricultural practices

A binary model was used to determine the factors influencing the sustainable agricultural practices in the study areas. The model explained about 69 percent of variance in household factors contributing to sustainable agricultural practices. The Hosmer and Lemeshow test reveal a good fit (p value>0.05), suggesting that there is no difference between the predicted and observed model values of the dependent variable. The summary of the results is shown in Table 7.15.

Table 7.15 Estimates of the binary logit model

Variable	Coefficie	Odds	Std.	*z*	*P > z*	VIF
Constant	−4.678	0.007	0.009	−2.15	0.007**	
Gender	−0.280	0.567	0.290	−0.97	0.433	1.04
Age	0.055 ***	1.047	0.019	2.56	0.013*	2.10
Education	0.104 **	1.232	0.118	2.01	0.027*	2.54
Farm size	−0.262 *	0.745	0.134	−1.61	0.049*	1.17
Landownership	0.001	1.000	0.004	1.33	0.112	1.43
Membership	0.113	1.234	0.089	2.45	0.023*	2.56
Householdsize	0.245	0.994	0.233	1.95	0.044*	1.67
Frequency of extension visits						
Once a	1.811 **	6.722	5.191	2.31	0.021*	1.67
Twice a month	1.610 **	5.480	4.070	2.05	0.029*	2.17
Three or more times a	3.106 ***	28.54	17.93	4.99	0.001**	2.20
Economically active	−0.270	0.760	0.567	−0.31	0.706	1.01
Perceptions of farmers on sustainable practices						
Agree	−0.720	0.464	0.278	−1.31	0.110	2.22
Neutral	-	1.000	-	-	-	1.40
Disagree	−0.221	0.777	0.501	−0.10	0.889	1.20
Strongly disagree	*−2.621*	0.070	0.044	*−3.05*	0.007**	1.34

Source: Own survey (2015) ***; **; * means statistically significant at 1%, 5% and 10%.

The binary model included numerous variables that were identified through intensive literature review as having a significant influence on smallholder famers utilising sustainable agricultural practices for boosting their food security. This analysis was also guided by the availability of data and the objectives of the study. Table 7.15 shows the results of the binary model that was estimated to determine factors which influence smallholder farmers to adopt sustainable practices. The results show that age, education, farm size, membership in association, household size, extension visits and farmers' perceptions were associated with the smallholder farmers adopting sustainable practices in agriculture.

The binary model results show that age hold everything constant is a significant variable in influencing farmers' utilisation of sustainable practices in agriculture. The variable was statically significant at the 5% significance level (p=0.013). Meanwhile the coefficient was positively associated with the utilisation sustainable practices, which shows that as one gets older so are the chances of utilising sustainable practices. Adding a year in the age of the farmers increases the log odds of utilising sustainable practices by around 1.047 times. While literature is divided about the influence of age on the adoption of or utilisation of sustainable practices, this study finds that older people are receptive to organic means of farming. The findings of the study are similar to works of Cheteni, Mushunje and Taruvinga (2014) who found that old people were more open to adopting of farming techniques. However, Kassie, Jaleta, Shiferaw, Mmbando, and Muricho (2012) found a contrasting view in relation to older people, and concluded that there were reluctant to change.

Education of a farmer has a positive influence in the utilisation or adoption of sustainable practices in farming. The variable was statistically significant at 5% level (p=0.027) and the odds ratio was 1.232 times. Suggesting that the more educated the farmer so are the chances of him/her adopting agricultural practices. These findings are consistent with various studies that show that education has a positive influence in affecting the perceptions of farmer. Some studies such as Knowler (2007) and Nyambose (2013) show that educated farmers are more receptive and open to adoption of sustainable farming practices. The findings of this study are consistent with the works by (Nyambose, 2013; Bisangwa, 2013).

Membership in an agricultural association has been recognised in the literature as a huge factor in farmers' decision-making. The variable was statistical significant at 5 percent level (p=0.023). Suggesting that an addition of membership in a farming association increases the likelihood of utilising sustainable practices by 1.234 times. Cheteni (2017) found that membership in association increased farmer's awareness on adoption of new technology in the Eastern Cape. Likewise, Cheteni *et al*., (2014) initial recorded a similar finding on smallholder farmers' adoption of new agricultural techniques.

Household size is expected to have an influence in the utilisation of sustainable agricultural practice die to the fact that the bigger the household the more the labour

for farming. As expected the household size variable had a positive coefficient of 0.245 and statistical significant at 5% level (p=0.044). Meanwhile a unit increase in the household size is expected to increase the likelihood of a farmer utilising sustainable practices by 0.998 times. Literature shows that the number of household has a significant influence on a farmer decision making. Thus, households with few members are expected to utilise capital-intensive farming which usual involves utilising artificial non-eco-friendly products. This is consistent to Marenya and Barrett (2007) who observed a positive relation on household size and adoption of manure. Likewise, Cheteni (2018) found similar results in relation to the adoption of new farming techniques in the Eastern Cape Province. However, Nguthi (2007) stated that labour availability is not dependent on how large a household is, but also the ages and types of person in that household.

Meanwhile the variable farm size cultivated was found to have a negative relationship with the utilisation of sustainable agriculture practices. Farmers who own large pieces of land were less likely to be interested in organic sustainable ways of farmers because artificial non-sustainable e practices tend to provide high yields and income from farm sales. A unit increase in cultivated farmland showed odds ratio 0.745 were less likely to practise sustainable techniques. There are numerous reasons why farmers who hold big pieces of land can be reluctantly to adopt sustainable agricultural practices. Given that sustainable practices in agriculture involve the use of econ friend inputs, it may be hard to produce big yields. Furthermore, sustainable practices are said to be hard in big pieces of land due to their intensive nature. For instance, it may be hard to apply organic manure than artificial fertilisers given the expected outcomes from both nutrients supplements. Likewise, large farm size may need intensive labour and weeds are a big challenge in the absence of pesticides. This view is support by Cheteni *et al*., (2014) who pointed that farmers with small farms were likely to adopt to new farming practices, especially in the Eastern Cape Province were the current study was conducted. Similarly, Pender and Gebremedhin (2007) claimed that households with less land were more likely to adopt conservation practices that were sustainable.

On the other hand, extension visits were split into four groups. The results in Table 4.89 show that the reference category was the odds of a farmer not having any visits from local extension officer. The results show that farmers who had a visit from an extension office once a month had 6.722 times the odds of utilising sustainable

practices in farming, and the variable was statically significant at 5%(p=0.021). Yet farmers who reported an extensions officer visit twice a month had 5.480 times like to practice sustainable farming. Meanwhile, farmers who recorded more than three visits or more were 28.54 times likely to use sustainable practices in agriculture. The variable was strongly significant at 1% significant level (p=0.001). The findings for the study are similar to (Cheteni *et al.,* 2014) who pointed that extension officers had a positive influence in farmer's perceptions and many farmers are likely to utilise farming practices taught by officers. In this study, it was demonstrated that there was a positive relationship between extension visits and farmers utilising sustainable practices.

On the hand, the variable perceptions of farmers in utilising sustainable practices was measured using a Likert scale, were 1=strong agree and 5=strongly disagree. The scale measures the perceptions of promoting sustainable practices. The base category was the odds of farmer utilising sustainable farming practices. Table 4.3 shows that farmers who had a negative perception on sustainable farming practices were less likely to utilize them by (Odds=0.070), the variable was statistically significant at 1 % level (p=0.007). This translate to mean that as farmer perception on not utilising sustainable practices changes, there were likely to adopt these practices. Cheteni (2018) found that farmer's perceptions had an effect in their utilising of agricultural practices or here awareness to new tech.

7.4 Conclusion

The findings of the study pointed that the majority of households were food secure in the study area. It was also revealed that most households rely on subsistence farming to sustain their livelihoods. On the other hand, a number of farmers were not fully utilising sustainable farming practises due to a number of factors. Some of which includes age, education, extension visit and size of the land farmed. The next section provides a sustainable livelihood model for the study area.

CHAPTER 8: A PROPOSED MODEL TO SUSTAIN LIVELIHOOD IN MBHASHE MUNICIPALITY IN EASTERN CAPE

8.1 INTRODUCTION

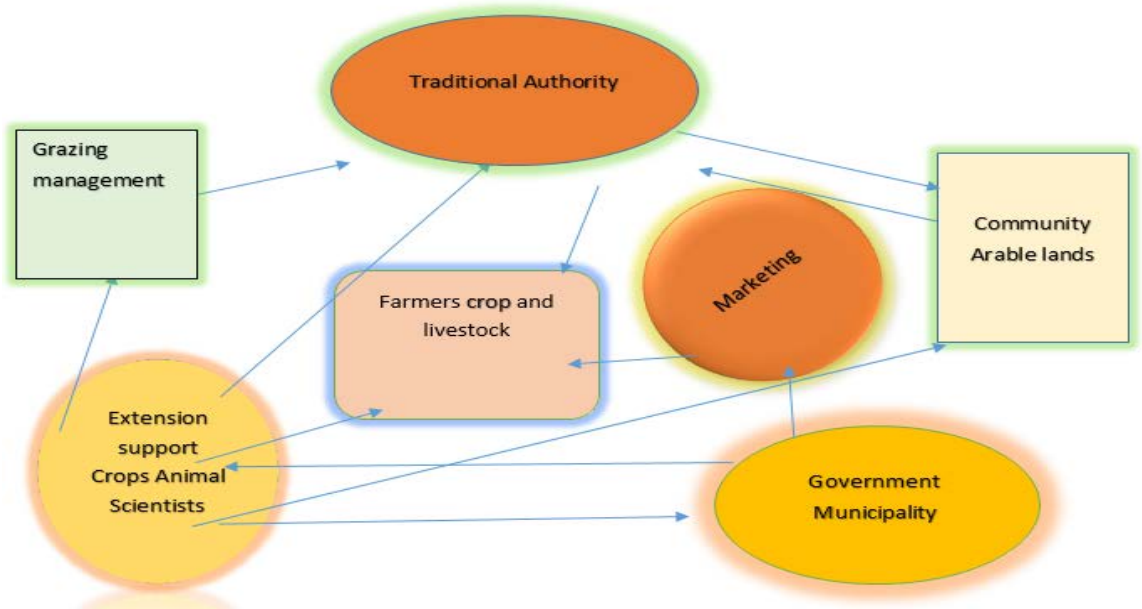
Attaining food security for all South Africans and people living in South Africa has been a key driver influencing government policy in South Africa. To improve food security, the government has come with a number of policy interventions which include enhancing farming activities amongst previously disadvantaged smallholder farmers in rural areas. This chapter provides a brief conceptualization as to how sustainable livelihood could be promoted in Mbhashe Municipality. This chapter is essentially carries the originality of the contribution of the study

Based on the findings the community is engaged in both crops and livestock and the farmers have expressed their opinions about both enterprises. It has become clear that both enterprises do contribute to the livelihood of the community. The model to support the community is briefly explained.

8.2 COMPONENTS OF THE MODEL

At the core of this model lay different role players and enterprises which could serve as drivers or interventions for the promotion of sustainable livelihoods. These role players consist of the local extension officers, the enterprises are crop fields which have allocated arable lands for enabling the community to grow their crops, the animal production component, that use the communal grazing for generating marketable products such as milk, meat, hides and other uses in the community. The Traditional authority, these are the custodians of land in the community, culture and rules for social cohesion, the municipality who represent the government. For the community to continue to access the resources for sustainable livelihoods they need these role players to interact with the enterprises and the environment in a meaningful manner. At the centre of this model is a household. Understanding the household economy of the research participants is relevant in the context of this study because it helps determine the extent to which a household can lead a sustainable livelihood as well as cope during times of stress (Serrat, 2008). Crop farmers are having a role to play in this model especially when one considers the number of years they have been surviving through farming as supported by the findings , for example, the number of years that the respondents have been cultivating crops, the study established that

most of the farmers had been cultivating crop for 26 and more years, followed by those who have been cultivating crops for between 1-5 years, these were followed by farmers who have been cultivating crops for a period of between 6 to 10 years. Others had been growing crops for 11-15 years, 16-20 years and 21-25 years. In this regard, the study concludes that most of the farmers have been cultivating crops for more than 26 years whilst the least number of farmers had been cultivating crops for 21-25 year. One of the key role player in this model is the traditional leader in the area. Apart from ensuring peace in the families is his role in ensuring that traditional way of living where the respect of environment is restored. Traditional leadership is also responsible for allocating farming rights to the community. He is also responsible that there is a balance in resource utilization between livestock owners and crop farmers as well as those who encroaches in both crop land and grazing areas for livestock in search for a place of abode. Based on the study findings the researcher proposes a Sustainable Livelihood model that can be adapted in the study area or replicated elsewhere. As shown in Figure 8.1, the government and traditional authorities are the major players in this framework.



8.3 HOW THE MODEL IS SUPPOSED TO OPERATE

The government through municipalities engages the extension support service who in turn engage farmers. For a successful SAPs programme, the traditional authority through chiefs needs to be sort so that approval is given on community grazing lands

and land for agriculture in general. The traditional authority is critical in places were land is owned by the community since every information should follow certain protocol before it reaches the intended destination. This is a norm in South Africa, specifically in the rural areas. The traditional authorities are a link between the government and its people. Thus, for a SAPs programme to have a buy-in from the community, traditional authorities hold the key in rural areas. Extension officers need to engage farmers using the traditional authority route.

8.4 CONCLUSION

The model is supposed to create a situation in which the community will be ensured that they will continue to be supported either by their own enterprises or by the products from the enterprises from their neighbours. The findings of the study about ownership of land suggested that farmers do own land. The study established that majority of the farmers who took part owned between 1-5 hectares of land. A significant number of the farmers owned 16-20 hectares of land whilst only four of the respondents indicated that they owned less than a hectare. The research also established that only 6 farmers owned 21 hectares or more. It is believed that land has become an important aspect of supporting sustainable livelihood provided the role players work as a team, each one knowing what to do.

CHAPTER 9: SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

9.1. INTRODUCTION

This study investigated sustainable farmer livelihoods and how they impact food security in South Africa. The present chapter present findings, conclusions and recommendations. The chapter also addresses the theoretical, practical and methodological implications of the results of this study. The chapter also provides recommendations for further and future research.

9.2. RECAP OF OBJECTIVES

In order to achieve the main objective of this study, four objectives were formulated as a means of finding answers to the main research question. These objectives were formulated as follows-:

- To carry out a demographic analysis of Mbhashe Municipality
- To analyse the understanding and experiences of using sustainable farming thipractices by smallholder farmers in the Mbhashe Municipality
- To determine the contributions of farm characteristics towards encouraging sustainable livelihoods in Mbhashe Municipality
- To assess the role of household food security in building sustainable livelihoods in Mbhashe Municipality
- To assess factors influencing farm household decision making process in utilising sustainable farming practices in Mbhashe Municipality
- To determine if whether sustainable agricultural practices improve farmer livelihoods and food security for smallholder farmers in Mbhashe Municipality
- To determine the food security status of the farm households in the Mbhashe Municipality and the coping strategies employed by these households in order to mitigate food insecurity; and
- To propose a model based on the current research to sustain livelihoods in Mbhashe community in Eastern Cape.

Achieving these objectives helped to answer the questions of the research.

Recommendations and conclusions are then drawn from answers obtained through the objectives provided above.

9.3. Summary of findings

Sustainable agricultural practice is important in the conservation of soil and reduction of degradation of the ecosystem through forces of nature such as soil erosion, water depletion. This study investigated the farming practices and food security in Mbhashe Municipality. Primary data was collected from a sample of 130 smallholder farmers purposively sampled from the Mbhashe Municipality communities. An exclusively quantitative research methodology was followed in collecting and analysing data. A survey questionnaire was distributed to the sample of farmers and data on which findings for this study are rooted in was collected and analysed. The study approach used numerous variables to determine the factors that influence farmers to practice SAPs. The results of the regression model show that five variables were statically significant in influencing the utilisation of SAPs. This implies that perceptions of farmers, education, gender, membership in an association and credit access were important factors in SAPs adoption. Detailed summaries and conclusions of the results of this study are presented in the preceding sections in light of each objective of the study.

9.3.1 HOUSEHOLD ECONOMY

This section present conclusion based on data collected on the current state of household economy amongst the sampled farmers.

In that regard, this study, expectedly established that an overwhelming majority of the smallholder farmer-owned human dwellings through a minority 5.4% of the farmers confirmed they did not own human dwellings. Through a follow-up question, the research established that only less than 4% of the respondents rented the human dwellings. With regards to the number of rooms within the human dwellings, a number of rooms emerged including eight, seven, six, five, four, three, two and one. Based on the results presented in chapter four, it emerged that the higher the number of rooms, the lower the number of people who indicated that they have those rooms. Most of the respondents had dwellings with four rooms followed by those with three rooms, then two rooms and six rooms. Surprisingly, there was only one responded who indicated that they own only one room. The least number of respondent indicated that

they had seven and eight rooms respectively.

The study also established that a significant majority of the farmers who participated in this study rate the condition of their human dwelling a moderate, however, there were some minority, while others have rated the condition of their human dwelling as poor.

Concerning ownership of a kitchen, the research concludes that there is significant ownership of kitchens amongst sampled farmers. Less than half of the respondents indicated that their kitchens were in a moderate condition whilst a quarter of the respondents rated the condition of their kitchen as good. Put together the two set of responses mean that majority of farmers had kitchens which are in a usable condition.

Furthermore, the study investigated ownership of bathrooms/shower, source of lighting, source of cooking energy amongst the farmers who took part in this study. To that end, based on results obtained, the study concludes that the majority of farmers do not have bathrooms/showers. Additionally, the research also established that a majority of the farmers use electricity for lighting. Other sources, though used by a minority of the farmers who took part in this study include gas, firewood and solar energy. Concerning the source of energy for cooking, the study concludes that a majority of the participants use electricity as a source of energy for cooking. Other sources of energy for cooking include gas, charcoal, kerosene. A significant portion the farmers use firewood. From a sustainable livelihoods perspective, this is concerning because the use of firewood is not sustainable in the long run.

The research also identified that household items that have been owned by a majority the respondents over the past 12 months include radio, mobile phone, television, bed, cupboard, normal chair and laundry iron

With regards to ownership of motorcycle and vehicles, the research concludes that a majority of the farmers who took part in this study did not own motorcycles and vehicles. Perhaps ownership of these assets is heavily affected by the cost and income of the respondents. Based on the means computed for ownership of household the study concludes that concluded that normal chairs are the household items owned in the highest quantity whilst freezers were the items owned in the least quantities.

The study also investigated ownership of agricultural equipment amongst the respondent to this study. The research established that majority of the farmers, who took part in this study owned a hand hoe. Conversely, the research also established that the majority of farmers who took part in this study did not own a number of agricultural equipment investigated in this study. Only a few respondents indicated that they owned ox-drawn plough, water pump, milling machine and machete. Based on computed means, it is concluded that hand hoes are the agricultural equipment owned in the highest quantity whilst water pump owned in the least quantity. Consequently, it is concluded that there is a significant gap in ownership of capital intensive equipment although there is wide ownership of cheaper equipment such as hoes.

9.3.2 Farm characteristics

The research also investigated the characteristics of farms owned by respondents who took part in this study. The study investigated whether respondents had access to arable land in the past 12 months. Land and land ownership is the most important factor in agricultural activities. Access to arable land is an essential requirement for people living in poverty and for economic growth (Aliber & Hall, 2012). The government of South Africa has made efforts to improve access to arable and productive land since 1995 when the Settlement/Land Acquisition Grant (SLAG) was launched. This study established that majority of the farmers owned/had access to agricultural land in the past 12 months. However, there are a few who did not have access to land.

Furthermore, with regards to whether respondents cultivated crop on the land they own/ have access to, the research established that a majority of the farmers grew crops on the land which they have access whilst a minority did not grow crops. Crop cultivation is regarded as the bedrock of food security for rural households. As such, Timmer (2017) states that rural livelihoods are made up of components which are dependent on natural resources such as firewood, water and farming activities such as animal husbandry and crop cultivation.

With regards to whether respondents reared livestock on land which they have access to, the study established that a slight majority of the respondent reared livestock whilst a slightly less than the majority of the respondents. According to Altman, Hart and Jacobs (2009), there has been a noticeable increase in the number of black people

who are involved in agriculture 2001 and 2008. Livestock farming in the Eastern Cape is negatively impacted upon by droughts that have been occurring in the region.

Furthermore, the research established that majority of the farmers had access to communal grazing lands. In addition, a slight majority of the farmers disclosed that the communal grazing lands they access to were adequate for their livestock. A significant 37.5% of the farmers indicated they the grazing land which they have was inadequate. The exposes the need for more grazing lands amongst the other farmers without adequate grazing pastures.

Concerning the owner of the grazing land, the research concludes that most of the land, from a gender perspective, is owned by male heads of the household followed female household heads. However, the study also ascertained that a significant number of respondents indicated that the land is owned by other. It emerged that other owners of the land used for grazing included village heads, community, chiefs or co-owned by male and female household heads.

The research also investigated the farmers' sources of income for the past 12 months**.** A number of sources which were considered for investigation include self-employment, salary of resident member, small scale mining, from elsewhere in South Africa, from other countries, pension pay-outs and renting out equipment. Most households in South Africa especially those in rural areas employ a mix of livelihoods strategies including salaries and wages contributing to household income followed by social grants, income from business and pension remittances (Statistics South Africa 2012). The study concludes that although self-employment was a significant source of employment for the respondents, the number of farmers who earn income from self-employment is less than 50% that is 48.5%. A few farmers get income from a resident member. Other sources of income identified include small scale mining, from elsewhere in South Africa, other country and renting out property. However, only a few of the respondents confirmed getting income from these sources. It emerged that self-employment and pension pay-outs are two main sources of income of farmers who took part in this study.

With regards to whether respondents had received any farm inputs from the government during the past 12 months. The study concludes that although a slight majority of the respondents received farm inputs from the government during the past

12 years, about 48.5% of the respondents did not receive farm inputs in the past year. The government of South Africa formulated the National Food and Nutrition Security Policy strategic with the goal of ensuring availability, affordability and accessibility of safe and nutritious food for the nation and all households. South Africa has approximately 13.8 million individuals who are experiencing insufficient access to food (STATS-SA, GHS 2011). Efforts to increase food production and distribution, including increased access to production inputs for the emerging agricultural sector; leveraging Government food procurement to support community-based food production initiatives and smallholders; and the strategic use of market interventions and trade measures which will promote food security.

The study also established that a majority of the respondents who had indicated that they had received farm inputs from the government in the past 12 months had received farm inputs in-time from the government whilst the number of those who did not receive the inputs in time was less.

Regarding the availability of a household member who operates savings or current account, the study established that a majority of the households did not have any member who has a current account whilst a few had a member with a savings bank account. Savings form part of key assets that are needed for a household to carry out activities that improve their livelihood (United Nations Development Programme, 1990

The research also established that a majority of the farmers had no member who had had a bank loan on the past 12 months. South Africa is concerned with the need to improve small scale farmers' access to credit lines. As a result, it introduced the Agricultural Credit Scheme. The scheme is mandated to address the need for small scale farmers whilst the Land Bank focuses on giving loans to established commercial farmers (May & Nzimande, 2012).

The study also investigated whether the farmers reared livestock or cultivated crops. Small scale farmers are known to practice crop cultivation or animal husbandry or both (Ncube & Kang'ethe, 2015). The study established that most of the farmers grew crops and reared livestock concurrently, followed by those who cultivated crops only and then those who reared livestock only.

9.3.3 Crop farming

Questions specifically tailored for crop farmers only were posed to the farmers. Conclusions drawn from the results of data collected on crop farmers are presented in this section.

The research also established that a majority of the farmers' cultivated maize whilst only 15.7% of the farmers sampled for this study did not grow maize. Concerning the area allocated to maize cultivation, the study established that majority of crop farmers allocated land area of 1-5 hectares followed by those who cultivate maize on an area of land that is less than a hectare. Only three farmers grow crops on more than 5 hectares of land. The study, therefore, concludes that most of the maize farming is done on 5 hectares or less.

The research also established that the majority of the maize crop cultivated is not under irrigation. Irrigation has been identified as one solution that is key in the fight against food insecurity. The NDP makes reference to a number of steps that will improve food security and includes irrigation as one of the steps (Department of the Presidency, 2014). It has been recommended that farmers in South Africa should have access to advanced farming technologies and irrigation infrastructure in order to reduce food shortage risk and inefficiencies in food production (Baiphethi & Jacobs, 2009).

Furthermore, the study also established that an overwhelming majority of the respondents do not practice intercropping whilst only a minority do intercrop maize with beans; the other portion did specify the crop that is intercropped with maize. Intercropping is a sustainable method of farming highly recommended by conservationists. Additionally, the study established that a majority of the farmers produced less than a tonne of maize, followed by those who produced between 1 and two tonnes and then 3-4 tonnes. Only two farmers produced more than four tonnes of maize.

The study further established that a majority of the respondents consume less than a tonne of maize per year a minority of the farmers consume more than a tonne of maize in a year.

It was established that close to half on the farmers do not sell maize produced in a year. Most of the farmers who sold maize produce sold less than a tonne. A few of the farmers sold more than a tonne of maize.

Regarding the quantity of maize retained for seed, the study established that majority of the farmers who took part in this study not retain any maize for seed, most of the farmers who retained maze for seed retained between 1 and 500 kg. Only 8 farmers retained more than 600kg for seed.

The study also investigated the challenges faced by farmers in trying to sell their crops. To that end, it was established that the majority of farmers who took part in this study faced challenges which include poor transport infrastructure, no formal market, low prices and low demand. Low demand and low prices emerged as key challenges affecting the majority of the farmers. Access to formal market has a positive impact on the development of agriculture amongst small scale farmer. For instance, access to formal market can positively impact farmer livelihoods can be drawn from Zimbabwe where maize production by small scale farmers double as a result of the provision of extension, financial and marketing support services (Rukuni & Eicher, 1994). Low prices of agricultural products are a challenge for many farmers across the world. To address this challenge, governments usually subsidise the purchase price for the products (Jacobs, 2010).

9.3.4 Livestock farming

The study established that most of the farmers have been active in livestock rearing in the past ten years. This shows that the past decade presents a marked improvement in as far as livestock rearing amongst the sampled farmers is concerned. A minority of the farmers have been practising rearing for more than ten years. The research showed that a significant number of farmers had calves amongst their livestock although the majority of the farmers had no calves in their livestock.

Furthermore, the study also established that a majority of the farmers did not have heifers in their livestock, however, 31,1% of livestock farmers had heifers within their livestock. As discovered by this study, the majority of the farmers do not have milking cows, dry cows, bulls and oxen. There was however, a fewer people who had these categories of livestock. The study thus concludes that the level of cattle rearing in the studied area needs some improvement. The Eastern Cape Province has been affected by droughts, which have led to reduced stocks of heavy grazers like cattle.

Concerning ownership of goats, the study established that slightly less than a majority of the respondents owned goats, despite this result, the overall findings are that the

majority of the respondents do not own goats. Expectedly, the research established that a majority of the farmers owned sheep as their livestock. This supports the view in published literature which identifies sheep as the livestock of choice for Eastern Cape Province. An overwhelming number of the livestock farmers did not own donkeys whilst on the other hand, the majority of the farmers confirmed that they owned chickens. Donkeys were the least owned type of livestock whilst chicken were owned in the highest quantities. The high number of respondents who have chickens as livestock can be attributed to the fact that chickens are easy to keep and also that from a smallholder perspective chickens plays a critical role in supplementing household food security (Baiphethi & Jacobs, 2009).

Additionally, the research established that chickens were the highest selling livestock by numbers, followed by sheep, calves, dry cows, heifers, oxen, milking cows, goats, bulls and the least sold was donkeys. Regarding the quantity of livestock consumed, the research established that the farmers who took part in this study consumed more chickens than any other livestock followed by calves, sheep, oxen, milking cows, heifers, goats and lastly the least consumed are bulls.

The research also established that the major reason why farmers kept livestock was to earn a living by selling, the second popular reason was housed hold consumption followed by rituals. Other reasons which emerged include paying fees, inheritance, saving money and for breeding. The study further noted a number of challenges that confront livestock production. The most cited challenge was diseases. Diseases identified encompass blue adder, cough, rabies, new castle. Another challenge provided by most farmers was pests which lead to diseases and death. Droughts, theft and shortage of pasture are challenges pointed out by a significant number of farmers' challenges impeding the smooth production of livestock.

On the use of mineral fertilizers, the research established that majority of the farmers do not use mineral fertilizer whilst a significant minority number of farmers use mineral fertilizers. The study further established that majority of the respondent buy mineral fertilizers from shops whilst governments assist 34.7% of the farmers with the mineral fertilizers. In addition, the study also established that there is considerable use of manure as a substitute for mineral fertilizers. Manure produced from the waste of farm livestock is the major source of manure for a majority of the farmers. The study further

discovered that other farmers bought manure from shops whilst others get them from government institutions.

Concerning the use of pesticides, the study ascertained that the majority of the farmers do not use pesticides whilst there were few others who use them. Sources of pesticides identified by this side include government and buying from shops. A majority of farmers buy their own pesticides whilst the government assists the other few. This means that majority of the farmers are spending more on the purchase of pesticides.

9.3.5 House Hold decision making (HDM)

The research investigated the nature of household decision making amongst farmers. Concerning the member who makes the purchase decision of farm equipment, the study established that males dominated decision making in this instance as opposed to their female counterparts. Other farmers indicated that they made the decisions to purchase the equipment together. Contrary to making the decision to purchase equipment, this study established that females contributed more to the decision concerning what to cultivate on farms, this was followed by females and males who make the decision together. Male spouse were the least active members when it comes to making decisions regarding crops that would be cultivated.

To add more, the study further established that the majority of respondents had attended farm training. On top of that, the study also established that an overwhelming majority of the farmers had received information from government extension officers. Information livestock rearing on crop cultivation and agro-processing followed much of the information received. The also established that most of the farmers have not received a visit from government extension officers in the 12 months. Most of the farmer who had received visits from government extension officers had received a single visit from government extension officers. The highest number of visits received by farmers from extension was eight; however, these visits were made to a smaller portion of the farmers.

NGOs are notable players in the area of human development and also play a key role in information dissemination. This study established that most of the farmers had not received information from NGOs whilst the other significant number of farmers had received information from NGOs. Contrary to information from government extension officers, much of the information received from the NGOs was on crop production

followed by information on livestock rearing and lastly agro-processing.

Concerning the number of visits received from officers from the NGOs, the study established that most of the farmers did not receive any visit from someone working with an NGO. Most of those who received visits were visited once, followed by those who got two and three visits respectively.

The study also established that the other significant source of information for the farmers was agricultural associations/co-operatives. The information provides to the farmers is mainly on crop farming and livestock rearing and less on agro-processing. The shockingly low number of farmers receiving advice on agro-processing can be a sign of a lack of support for farmers from other stakeholders in the farming industry. This leaves the smallholder farmers mostly relying on government support (Rukuni & Eicher, 1994).

Results presented in chapter four also show that majority of the farmers viewed that information from government officers a useful to their cause whilst the other viewed it as somehow useful. The overwhelming response on how useful was the advice from government extension is a testimony of the effort being made by the government to uplift smallholder farmers to curb food insecurity (Aliber & Hall, 2012). The study established that majority of the respondent viewed information from government extension offers as accessible whilst a considerable amount of farmers viewed the information as somewhat accessible. Comparing with NGOs, government officers are more accessible to the farmers. The usefulness of the advice being provided by a non-governmental organisation is due to the fact that the organisations are corroborating government efforts to create improved sustainability when it comes to food security (FAO, 2016).

It emerged that farmers even though government extension officers are more accessible to the farmers, there are still challenges farmers' face in accessing extension service delivery. The challenge includes transport, shortage of officers, distance, finances, time and poor service delivery. Amongst these challenges, the ones cited by most of the farmers are poor infrastructure, transport and poor service delivery.

9.4 Recommendations of the study

The study proposes a number of recommendations, which are aimed at addressing

problems faced by smallholder farmers in the study area or elsewhere with similar geographic conditions. For simplicity the recommendations are divided into levels namely; policy district and household.

9.4.1 Policy level recommendations

1. In order to improve SAPs utilisation in South Africa, it is necessary for the government to provide incentives and provide a legal framework that will allow more organisations to provide extension services to their communities. The creation of such a framework will increase autonomy for agricultural associations to provide specialised knowledge to their areas of jurisdiction.
2. In areas like Mbhashe where there are limited income opportunities and land is unproductive, the government should come up with strategies of improving land productivity and help farmers access inputs at the right time. This involves the DAFF working with community leaders to make this process visible given that it is in rural areas and land is owned by the community.
3. In addition, the policies targeting smallholder farmers should consider their perceptions with regards to sustainable practices. It was demonstrated that numerous farmers were not into sustainable agricultural practices in the area due to one reason or the other. Therefore, extension officer need to be more active than before in providing farmers with all the necessary information to decide what the best way of farming is. Empirical results showed that age, education, farm size, membership to an agricultural association, extension visits and perceptions of farmers were statistically significant in influencing them to adopt or utilise sustainable practices. This signals that the government should consider all these factors when drafting policies to have a buy in from the targeted farmers.
4. In this study, majority of families were food secure, although some struggled to access food in 30 days. The government has a huge role to play to make sure that everyone has access to food all times. Thus, the national policy should make it a priority that by 2023 almost 90 percent of households are able to access food regardless of their geographic location. Empirical evidence points that the rural areas households are the most prone to household food insecurity. Therefore, given the area has high volume of maize production, there is a need for diversification given the effects of the 2016/17 drought were

devastating to many households, especially in the Eastern Cape. This can be done by ensuring that a larger number of farmers participate in the mainstream markets.

9.4.2 District and household level recommendations

1. At a district level there is a need for more finance access for farmers. This can be done through banks or micro finance lending institutions who can structure their lending based on farmers needs so that there can cover costs of running a farm.
2. There is a need to have more agriculture-based associations or organisations that will make it easier for farmers to access extension services and make informed decisions with regards to sustainable farming.
3. On the hand, behavioural change is needed at a household level, as the results how the more communication strategies are needed to address this problem. In African culture, the man usual has a final say in almost every household decision. This has shown that in certain instances decision making in a household can also influence the utilisations of SAPs and food security. This lack of balance can be a hindrance to the adoption of SAPs.

9.5 FUTURE RESEARCH

This study provided empirical evidence on the status of sustainable agricultural practices in Mbhashe Municipality and food security status. The study took a pragmatic approach in addressing the relevant objectives set forth, and it was shown that most farmers do not practice sustainable farming due to a variety of reasons. Above all this study points that there is a need of further investigations specifically to address sustainability issues in the study area. Empirical analysis to identify the core factors hindering farmers from practicing sustainable efforts in

9.6 CONCLUSION

The chapter provided a summary of the results of the study. It also discussed the practical, theoretical and managerial implications of the study. Furthermore, the chapter presented recommendations of the study. Additionally, the chapter pointed out suggested areas of future research based on the findings of this study.

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APPENDIX A QUESTIONNAIRE

Province of the

EASTERN CAPE

RURAL DEVELOPMENT AND

AGRARIAN REFORM

SUSTAINABLE FARMER LIVELIHOODS AND FOOD SECURITY UNDER MBHASHE MUNICIPALITY AT IDUTYWA, EASTERN CAPE PROVINCE OF SOUTH AFRICA

IDENTIFICATION DETAILS

Location of the respondent

S/N	Location	
	Name	
ID1	Region	
ID2	District	
ID3	Division	
ID4	Ward	
ID5	Village	

SECTION A: HOUSEHOLD CHARACTERISTICS

1. What is your gender?

Female	0	Male	1

2. Are you originally from Mbhashe?

Yes	0	No, where are you from? ……	1

3. What is your age?

Up to 18	0	46 – 50	5
19 – 25	1	51 – 60	6
26 – 34	2	Above 60	7
35 – 40	3	Prefer not to answer	8
41 – 45	4		

4. What is your current Marital Status?

Single, never married	0	Divorced	3
Married or domestic partner	1	Separated	4
Widowed	2	Prefer not to answer	5

5. What level of schooling or higher education have you completed?

No schooling completed	0	Some college or university credit, no degree	4
Primary school	1	Trade/technical/vocational	5
Some secondary/high	2	Tertiary education (University	6
High school graduate,	3		

6. What is your current employment status?

Own business (e.g. shop)	0	Unemployed	6
Salaried employee (e.g.	1	Retired	7
Skilled worker (e.g.	2	Unable to work	8
Domestic worker or unskilled	3	Others, please specify:	9
Student	4	……	
Employed full-time in farming)	5	Prefer not to answer	10

7. What is your source of Income? (Select all that apply)

Full time employment	0	Social grants (tick grant applicable) Pension	4
Part time/casual employment	1	Farming	5
Contract worker	2	Others, please specify:	6
Family members	3	Prefer not to answer	7

8. If farming is a source of your income, how much is it monthly?

	1

9. What is your total monthly income including income from farming?

Less than R300	0	Between R2001 and R2500	5
Between R301 and R800	1	Between R2501 and R3000	6
Between R801 and R1200	2	More than R3001	7
Between R1201 and R1600	3	Prefer not to answer	8
Between R1601 and R2000	4		

10. How much Rand do you spend on food per week?

Up to R100	0	Between R701 and 1000	4
Between R101 and R300	1	More than R1001	5

Between R301 and R500	2	Prefer not to answer	6
Between R501 and R700	3		

11. How many people live in your household?

1 – 2	0	More than 6	3
3 – 4	1	Prefer not to answer	4
5 – 6	2		

12. How many children live in your household?

1 – 2	0	More than 6	3
3 – 4	1	Prefer not to answer	4
5 – 6	2		

13. What is the age group of the children in your household? (Select all that apply)

Younger than 2 years old	0	19 – 24 years old	4
Between 3 and 5 years old	1	Older than 24 years	5
6 – 13 (Primary School)	2	Prefer not to answer	6
14 – 18 years old	3		

SECTION B: HOUSEHOLD ECONOMY (HE)

HE1: Household Asset Ownership/Possession

Please, kindly provide some details of your homestead buildings

No.	Type of Building	Tick	Is it rented/owned? (1=rented, 2=Owned,	No. of	*Condition (1=Poor, 2=Moderate,

1	Human dwelling				
2	Kitchen				
4	Shower/bathroom				
5	Other (specify)				

**Note:*

*1. **Poor:** walls made of pole s or mud, thatched roof, poorly ventilated windows and stubble doors.*

*2. **Moderate:** mud brick walls, corrugated iron sheet roofing, earth floor, non-grilled windows and wooden/iron sheet doors.*

*3. **Good:** brick walls, corrugated iron sheets for roofing, cemented floor, grilled*

windows and wooden/iron sheet doors.

HE2. If rented, what is the monthly rent? ……..

HE3. What is the main source of energy used for lighting?

1. Electricity
2. Solar
3. Gas
4. Kerosene (lantern/chimney)
5. Kerosene (Wick lamps)
6. Candles
7. Firewood
8. Others (Specify)

HE4. What is the main source of energy used for cooking?

1. Electricity
2. Solar
3. Gas (industrial)
4. Gas (biogas)
5. Kerosene
6. Charcoal
7. Firewood
8. Animal residuals
9. Others (specify)

HE5: Please provide information on the following household items during the past 12 months

	Item	Does your household own the following asset? (1 =	If yes, specify the quantity?
1	Radio		
2	Mobile phone		
3	Bicycle		
4	Motor vehicle		
5	Motorcycle (any type)		
6	Television		
7	Beds		
8	Cupboards		
9	Normal chairs		
10	Furniture suit (cushen chairs)		
11	Iron (electric/charcoal)		
12	Cooker (electric or gas)		
13	Refrigerator/Freezer		
14	Other (specify) ……		

HE6: Please provide information on ownership of agricultural equipment during the past 12 months

	Name/Type of equipment/ asset equipment	Does your household own the following asset? (1=Yes, 2	If yes, specify the quantity?
1	Hand hoe		
2	Ox-plough (set)		
3	Water pump (Motorised/mechanical)		
4	Milling machine (motorised/hand)		
5	Machette		
6	Others (specify)		

SECTION C: FARM CHARACTERISTICS (FC)

FC1: Did your household own/access any agricultural land during the past 12 months? 1 = Yes, Then continue 2 = No, Then go to LH3

LH2. Land Category	Total Area (acre)	Crops	Livestock	Cost
FC1.1. Owned				
FC1.2. Rented-in/Borrowed				
FC1.3. Rented-out land				

FC2. Did you have access to communal grazing land? (1=Yes, 2=No)

FC3. If your response to FC2 is 'yes', is the area of land available for your livestock

(1) Adequate? (2) Inadequate?

FC4. *(Enumerator ask this question if FC2 was answered)* who owns the land?

(1) Male Head of Household (2) Female Spouse/ Head of Household (3) Other, specify ……

FC5: Please provide the average annual income from the following sources during the past 12 Months.

	Income source		**Did you/ your household receive**	
		Self-employment: petty trading		
		Salaries/labour wages of resident		
		Small scale mining		
		Charcoal/ fuel wood sales		
2	Migrant remittances/ transfer from	From elsewhere in South Africa (friends, relatives,		
3	Pension payments			
4	Renting out/leasing of house, land, equipment, etc.			
5	Other income sources (Specify)			
	Total estimated annual income			

FC6. Which months of the year do you not have any income to the household?

……..……..

FC7: CREDIT AND SAVINGS

FC1. Did you receive any farm input from the government during the past 12 months? 1=Yes 2=No

FC2. If Yes, what type(s) of farm inputs?

(a) mineral fertilizer (list the fertilizer types)……..

(b) Improved crop seed varieties (list the crops)……. c) Other (specify)……..

FC3. In which month(s) of the year were the inputs received? ……..……. FC4. In which month(s) of the year were the inputs needed? ……..……. FC5. Does any member of this household operate a saving or current account?

1=Yes 2=No

Member number		FC5a. Amount saved in past 12 months (r).
First member		
Second member		
Third member		

FC6. What were the other ways you saved during the past 12 months? 1. ……..……2. ……..……. 3. ……..……

FC7. If Yes to either FC5 or FC5a, What was the main reason for saving?

……..

FC8. Has any member of the household taken a bank loan during the last 12 Months?

1=Yes 2=No

		FC8a. **Amount saved in past 12 months**
First member		
Second member		
Third member		

FC9. If Yes to FC8, what was the loan for? ……

FC10**.** If 'No' to FC8, explain the reasons why the household did not take loan for any purpose during the last 12 months?

……

FC11: CROP PRODUCTION AND DISPOSAL

FC11. How long have you been cultivating crops?_____Years or Months

Kindly provide the following detailed information on crops grown, output obtained and their disposal

S/N	Crop(s) grown	Area allocated for each crop	Area Under Irrigation agric	Intercropped with FC11a	Quantity produced (kgs)	Quantity consumed at ho	Quantity Sold (kgs)	Quantity retained for se	Processed harvest (kgs)	Post-harvest loss?
	FC11a	FC11b	FC11c	FC11d	FC11e	FC11f	FC11g	FC11i	FC11j	FC11k
1	Maize									
2	Rice									
3	Sorghum									
4	Sesame									
5	Green									
6	Other									
7	Sun flower									
8	Sweet									
9	Cotton									
10	Tomatoes									
11	Onions									
12	Vegetables									
13	Other Crops									

FC12. Why did your household grow the type(s) of crop(s) you mentioned during the past 12 months?…….

……

FC13.How did you address pests on your field crops during the past 12 months? (*Select all that apply*)

1) Did not take any measure
2) Selection of pest resistant plant species/varieties
3) Pesticides (*enumerator*: *list all that are ever used on your farm*)

   ……

   ……....

   ……

   ……
4) Mixed/ inter cropping
5) Other (Specify)

FC14.How did you address crop diseases on your farm during the past 12 months?

(Enumerator: circle all that apply)

1) Did not take any measure
2) Plant spacing
3) Fungicides (*enumerator: list all that are ever used on your farm*)

   ……

   ……
4) Selection of resistant plant
5) Other

   (specify)……

   ……

FC15. How did you address weeds on your farm during the past 12 months?

(Multiple answers possible).

1) Did not take any measure
2) Hand weeding
3) Herbicides *(enumerator: list all that are ever used on your farm)*
   ……..
4) Use of fast emerging crop varieties
5) Other
   (specify)…….
   ……..

FC16. During the past 12 months, did you grow different crops from the previous year?

1. Yes 2. No =>FC18

FC17. If Yes to FC16, What is the main reason you changed the crops you grow?

…….

FC18. How did you make the decision when to harvest the crop during the past 12 months?

1) Maturity (3) Danger from theft
2) Market price (4) Other (specify) ……..……

FC19. Does your household have access to any storage facility?

1) Yes (2) No

FC20. If YES to FC19: Which are they (a) On Farm (b) In House (c) Public

FC21. If YES to FC19 how did you store the crops during the past 12 months? *(Enumerator: circle all that apply)*

(1) In locally made traditional structure (2) In modern store

(3) In Sacks/open drum (4) In airtight drum

(5) Other (specify) _____

FC22. How did you protect your stored crops during the past 12 months?
(Enumerator: circle all that apply)

1) Did not take any measure
2) Ashes
3) Pesticides/insecticides *(enumerator: list all that are ever used on your farm)*

   ……

   ……

(4) Tree leaves and other herbs

(5) Others (specify)

(6) Cow dung

FC23. If you experienced any losses, what are the main reasons for the loss?

1. ……
2. ……
3. ……

FC24. Where did you sell your harvests during the past 12 months?
(Enumerator: circle all that apply)

(1) In the village market (4) On the roadside

(2) In the neighbouring village market (5) To the Neighbour

(3) Sell to traders who visit the village (6) Other

(specify)……

……

FC25. What difficulties did you face when trying to sell your crops?

(Enumerator: circle all that apply)

(1) Poor Transport Infrastructures (3) Low prices (5) Others (Specify). ……

(2) No formal market (4) Low demand

FC26. How did you address these difficulties?

…….. FC27. What is the distance of your homestead to your most commonly used output market place? (Give one way estimate in mins) ____

FC28. What are the three main problems you experienced when growing crops in 2013?

1._____2._____3. _____

FC29. If the rains are very poor or fail do you:

(1) Plant same crops anyway (4) Make prayers/Rituals to gods (6) Migrate

(2) Do not plant any crop (5) Planting of short term varieties (7) Other (Specify)…….

(3) Plant different crops - *(Please mention the crops)……..*

FC30: LIVESTOCK PRODUCTION AND DISPOSAL (2013 AGRICULTURAL YEAR) (LP)

FC30a. How long have you been keeping livestock?_____Years or Months

Provide details for livestock production activities of your household during the past 12 months

	Livestock and	**How many ….. Do you keep?**	**Quantity**	**Quantity consumed at**

	FC30b	FC30c	FC30d	FC30d
	I: Livestock type			
1	Calves			
2	Heifers			
3	Milking cows			
4	Dry cows			
5	Bulls			
6	Oxen			
7	Goats			
8	Sheep			
9	Donkey			
10	Chicken			
12	Others (Specify)			
	II: Livestock products:			
1	Milk			
2	Butter			
3	Yoghurt			
4	Cheese			
5	Hide (No)			
6	Skin (No)			
7	Animal manure (Bags)			
9	Others (Specify)			

FC30e. Why did your household keep the type(s) of livestock you mentioned during the past 12 months……

FC30f. Where did you sell your livestock/products during the past 12 months?

(1) In the village market (3) Sell to traders who visit the village (5) Neighbour

(2) In the neighbouring village market (4) On the roadside (6) Other (specify)……

FC30g. How did you address animal diseases during the past 12 months?

(1) Did not take any measure (4) Seek advice from friends/neighbours/relatives

(2) Seek advice from veterinarian

(3) Use traditional medicine

(5) Seek advice from agriculture input shops

(6) Selection of disease resistant livestock species

7) Other, (specify)……..
……..

FC30h. What are the three main problems that you experienced in livestock production in the past 12 months Start with the most important problem facing your household. 1…….. 2. …….. 3. ……..

FC30i. What difficulties did you face when trying to sell your livestock/livestock products?

a. Poor Transport
b. No formal market
c. Low prices
d. Low demand
e. Others

FC30j. How do you address these difficulties?

……

. What are the three main problems that you experienced in livestock production in the past 12 months Start with the most important problem facing your household. 1…….. 2. …….. 3. ……..

FC31: AGRICULTURAL INPUTS AND USES

FC31a.Please provide information on the uses & sources of agriculture input during the past 12 months

	Type of input	**Did you use…?**	**If Yes, give source?**	**Estimated annual …**	**If No, give reason for not using…**	**Assessment**
		Code 1	**Code 2**	**(Rands)**		**Code**
1	Mineral fertilizers					
2	Animal manure					
3	Pesticides					
4	Herbicides					
5	Improved Seeds/Seedlings					
6	Chicks/breeding stock					
7	Veterinary medicines					
8	Animal feeds/Concentrates					
9	Mechanization services					

Code 1	Code 2	Code 3	Code 4
2=No	2 = Buy from shops 3 = Own farm	2=Not available 3=Not needed 5=Don't know how to use	2=Obtained with difficulty 3=Not available

FC31b. What is the distance of your homestead to your most commonly used input market centre? (Give one-way estimate in minutes)

……

……

FC32: HOUSEHOLD DECISION-MAKING (HDM)

		Male spouse	Female spouse
HDM1	Purchase of farm equipment		
HDM2	Crops to cultivate in the farm		
HDM3	Sale of crops		
HDM4	How to spend cash from sale of crops		
HDM5	Foods to feed the household		
HDM6	Livestock species to raise		
HDM7	Sale of livestock		
HDM8	How to spend cash from sale of		
HDM10	Attend farm training		
HDM11	Other (specify)		

FC33: Agricultural Information and Extension Services

During the past 12 months

Sources of advice/ information		**FC33a**. Did you receive advice/ information for your agricultural/ livestock activities	**FC33b.** Was the information about…?				**FC33c**. How many times did someone from... *[Source]* visit your farm in the past 12months?
			Crop production	Livestock	Agro-forestry	Agriculture	
		1=Yes	1=Yes	1=Yes	1=Yes	1=Yes	
		2=No → NEXT	2=No	2=No	2=No	2=No	
1	Government extension						
2	Non Governmental						
3	Cooperative/Farmer's						
5	Radio/Television						
6	Publication						
7	Neighbour/Relatives/Frie						
8	Other (specify)						

FC33d. If yes to any of the items in FC33a, Please provide information about how useful and accessible to you/your household were each source of agricultural advice/information during the past 12 months.

	Source of advice/ information	**a.** How	**b**. How accessible was … *[Source]*as a source of advice/information? (1=Not accessible, 2 = Somehow accessible

1	Government extension		
2	Non Governmental Organization		
3	Cooperative/Farmer's association		
5	Radio/Television		
6	Publication		
7	Neighbour/Relatives/Friends		
8	Other (specify)		

FC34: If yes to any of the items in FC33b, how important to you/your household were each type of agricultural advice/information during the past 12 months?

	Type of advice/ information	**FC34a. How important was… *[type]* advice/information (1=Not important, 2= Somehow important, 3=Very important)**
1	Crop production	
2	Livestock production	
3	Agro-processing	
	Agricultural prices and	
5	Other (specify)	

FC35. Please indicate the best preferred method should agricultural information be made available to you/your household in the future.

……

FC36. What are the 3 major challenges in accessing extension service delivery in your area?

(1) ……(2) …… (3) ……

SECTION D: FOOD SECURITY (FS)

Household Expenditure and Consumption

Now we will ask you questions related to your household expenditure and consumption
of major food and non-food items during the last 30 days

FS1: Regular household food expenditure and consumption during the last 30 days

		1.Total quantity of ... consume d in	2. Amount of …consumed in the last			
			Own	Purchase	Gift/Bor	Transfers/
		FS1a	**FS1b**	**FS1c**	**FS1d**	**FS1e**
1	Maize/Maize Flour (kg)					
2	Rice (kg)					
3	Wheat flour (kg)					
4	Sorghum (kg)					
5	Bread (loaves)					
6	Local donuts/Voetkook (No)					
7	Sweet Potatoes (kg)					
8	Irish Potatoes (kg)					
9	Potatoes (kg)					
10	Beans & other legumes (kg)					
11	Groundnuts (kg)					
12	Cooking Oil (lt)					
13	Ginger & other Condiments (kg)					
14	Tomato (kg)					
15	Onion (kg)					
16	Carrots (kg)					
17	Cabbage (No)					
18	Lettuce/other					
19	Mango, Papaya & other fruits					
20	Tea/Coffee (packets)					
21	Sugar (kg)					
22	Salt (kg)					

23	Beef, Goat, Mutton (kg)					
24	Fish (Number)					
25	Chicken (Number)					
26	Eggs (Number)					
27	Milk (lt)					
28	Honey (lt)					
29	Others (Specify…)					

FS2. HOUSEHOLD FOOD INSECURITY ACCESS SCALE (HFIAS)

For each of the following questions, consider whether they have happened in the past 30
days. If the answer is 'Yes' to a question, please indicate how often this happened.

No.	Question	How often did this happen? (0) Never= it did not happen in the past 30 days (1) Rarely= once or twice in the past 30 days (2) Sometimes = three to ten times in the past 30 days (3) Often = more than ten times in the past 30 days
FS2a	In the past (30 days), did you worry that your household would not have enough food?	
FS2b	In the past [30 days], did it happen that you or any household member were not able to eat	
FS2c	In the past [30 days], did it happen that you or any household member had to eat a limited	

FS2d	In the past [30 days] did it happen that you or any household member had to eat some foods	
FS2e	In the past [30 days] did it happen that you or any household member had to eat a smaller	
FS2f	In the past [30 days] did it happen that you or any household member had to eat fewer meals	
FS2g	In the past [30 days] did it happen that there was no food to eat of any kind in your house	
FS2h	In the past [30 days] did it happen that you or any household member went to sleep at night	*If yes, ask describ* Rsponde to n
FS2 i	"In the past [30 days] did it happen that you or any household member went a whole day and	*Ifyes, ask describ* responde to nt

FS3: HOUSEHOLD COPING STRATEGIES (HCS)

Please ask these questions to the mother. Ask questions FS3a to FS3h to the household head (husband) in case of male-headed households as well.

Did your household face food shortages in the last 12 months? 1=Yes, 2=No

FS3. Number of servings per day [First tick the composition of household members]			
a	Household member*	Tick	Number/Frequency of meals
b	Children under 5		
c	Girls (6-18 years)		
d	Boys (6-18 years)		
e	Lactating mother		
f	Pregnant mother		
g	Non-lactating/Non-pregnant		
h	Husband & other adult men		

FS3a. If 'Yes' to FS3, in which month(s) of the year were the food shortage serious in the household? List the months ……, ……..., …….

FS3b. If again 'Yes', to FS3 what are the most important causes of food shortage in the household? Please list in the order of their importance (1=Most important)

1. ……

2. ……

3. ……

FS3c. What measures did you take when your household faced serious food shortage?

1) ……. 2) ……. 3) …….....

FS3d.Where do you get food you do not produce?

Buy from neighbours (c) Seek from the forest

Buy from the local shops/market (d) Others (specify)…… **FS3e**. What difficulties do you face when trying to buy foodstuff

a) Poor Transport Infrastructure
b) High prices
c) Low supply
d) Lack of alternatives
e) No formal market
f) Others (Specify)

FS3f. How do you address these difficulties? 1) …….. *2) ……* 3) …….

FS3g. What are the major traditional/socio-cultural activities that consumed a

significant amount of your food produce in the past 12 months?

(a) Weddings (c) Traditional dances (e) Others (specify)
(b) Religious offering/Rituals (d) Funerals

FS3h. Apart from funerals, what month do most of the major traditional social-cultural activities (e.g. weddings, traditional dances, etc.) take place in your area?

……

INTERVIEWER: You have now come to the end of the interview. Make sure to do the following:

i. ***Thank the respondent for the cooperation shown by the members of the household during the interview***
ii. ***Take enough time to examine all the entries/boxes on all pages. Make sure that no empty boxes are left, for which an entry is required. In particular work out, with the help of the main informant, how information (missing) relating to members of the household who happen to be absent at the time of the interview can be obtained.***