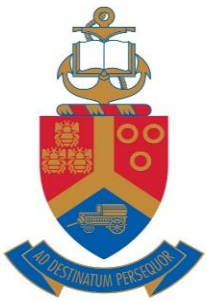


UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

The Contributions of Smallholder Farmers toward Household Food Security in Chabelane Village, in Limpopo Province, South Africa

By

Ramatshekgisa Malebo Gratitude

Submitted in accordance with the requirements for the degree of

Doctor of Philosophy in Development Studies

In the

Faculty of Humanities

Department of Anthropology, Archaeology & Development Studies

At the

University of Pretoria

Supervisor: Dr Dhee Naidoo

Date: 13 May 2024

DECLARATION

I, Ramatshekgisa Malebo Gratitude declare that “The Contributions of Smallholder Farmers toward Household Food Security in Chabelane Village, in Limpopo Province, South Africa” is my own work; that all sources used or quoted have been indicated and acknowledged by means of complete references, and that this dissertation was not previously submitted by myself or any other person for degree purposes at this or any other university.

Student signature 

Date: 16/09/2024

Supervisor’s signature: 

Date: 16/09/2024

DEDICATION

First and foremost, I dedicate this project to God who gave me the strength throughout this journey.

I also dedicate this study to my loving parents Sewela and Molatelo Ramatshekgisa and my siblings for their encouragement and support.

ACKNOWLEDGEMENT

- I would like to express my gratitude to the following people who supported my dream of conducting a successful research study:
- To my loving parents, Sewela and Molatelo Ramatshekgisa, I would like to thank you for all the prayers, support and unconditional love that you have shown me throughout this project. Thank you for believing in me.
- I would like to express my gratitude also to my supervisor Dr Dhee Naidoo, thank you for not giving up on me. I will forever be grateful for the support, encouragement and input you gave me from the beginning till the end.
- I would also like to express my gratitude to Prof Thebe, Mrs Sechele and the department for all the support and encouragement.
- Last but not least, I would like to thank all the participants who took part in this study. This study would not have been a success without your contribution. Thank you for taking time off your busy schedules to accommodate this project.

All Glory to the Almighty God!

ABBREVIATIONS

HLPE-High-Level Panel of Experts on Food Security and Nutrition

FAO- Food and Agriculture Organisation

SAI-Sustainable Agricultural initiative

HFIAS-Household Food Insecurity Access Scale

COSATU-Congress of the South African Trade Union

BEE-Black Economic Empowerment

IPCC-Intergovernmental Panel on Climate Change

IFAD-International Fund for Agricultural Development

WHO-World Health Organisation

CASP-Comprehensive Agricultural Support Programme

LEGDP- Limpopo provincial employment, growth and development strategy

LDA-Limpopo Department of Agriculture

NDA-The National Department of Agriculture

GLM-Greater Letaba Municipality

CSI-coping strategy index

IFSS- Integrated Food Security Strategy

SDGs-Sustainable Development Goals

DOA-Department of Agriculture

RDP-Reconstruction and Development Programme

MDGs- Millennium Development Goals

LEGDP-Limpopo Employment, Growth and Development Plan

UNEP- United Nations Environment Programme

WFP-World Food Programme

OECD- The Organisation for Economic Co-operation and Development

SLF-Sustainable Livelihood Framework

DFID-Department for international development

HDDS-Household Dietary Diversity Score

SASSA- South African Social Security Agency

SLA- Sustainable Livelihood Approach

ABSTRACT

Although South Africa is considered to be food secure at the country level, majority of the households within the country remain food insecure (De Cock et al., 2013). Food inaccessibility in many rural areas of South Africa has manifested itself in many ways, but has positioned poor households to struggle to meet their basic household requirements and be more vulnerable to food insecurity (De Cock et al., 2013; D'Haese et al., 2013). The aim of this study was to investigate the contributions of smallholder farmers toward household food security in Chabelane Village, in Limpopo Province, South Africa. This study applied sustainable livelihood as its theoretical framework. Quota sample method was used to select 50 smallholder farmers in Chabelane village. Data was collected through observation; semi-structured interviews and the data was analysed using thematic analysis method. This study has highlighted the prevalence of food insecurity among the smallholder farmers in Chabelane Village. Household food security in rural areas is a significant matter, as it is necessary to have appropriate access to healthy foods to lead an active life. Furthermore, the study highlighted the smallholder farmers' agricultural practices which are crop farming and livestock farming. Moreover, increased food supply, increased power purchase parity, job opportunities and income generation were highlighted as the contributions of the smallholder farmers towards household food security. However, the smallholder farmers in this study area experienced challenges such as lack of finances, water shortages, lack of access to formal market, lack of farm inputs, lack of infrastructure, lack of knowledge about soil type, and technological barriers. This study recommend access to markets, improved infrastructures and water access system, in order for smallholder farmers to be productive. This study further recommends access to financial aid through access to loans from the financial institutions, raising awareness to smallholder farmers about the knowledge on how to access formal markets and educating smallholder farmers about soil types and how to utilise smartphones for digital agriculture. Additionally, the study further recommends Department of Agriculture or municipality to provide water tanks or borehole for smallholder farmers to have undisrupted access to water for productive farming practice. This study contributes to the growing body of knowledge on the contributions of smallholder farmers towards household food security by providing valuable insights into the relationship between food secuity and the smallholder farmers, particularly in Chabelane Village, Limpopo province, South Africa.

Keywords

Food security, Smallholder farmers, Chabelane village, Households, South Africa

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

CHAPTER 1 INTRODUCTION

1.1 Introduction

There are continuous deliberations over improved and more sustainable methods to nourish the expanding population globally. The population globally is projected to exceed 9 billion by 2050 (Galhena, 2013). Certain nations may have challenges in satisfying the increasing demand, perhaps resulting in food insecurity and hunger for numerous households grappling with food price fluctuations and constraints in local food supply. Many households in the lower income bracket face the harsh reality of uncertain access to adequate food (Adekunle, 2013).

Statistics South Africa in 2020 reported that 23.6% of South Africans were moderately to severely food insecure, with 14.9% experiencing extreme food insecurity (StatsSA, 2022). Among 113 countries, South Africa was classified as the most food secure nation on the African continent (GFSI. Global Food Security Index. 2022). South Africa is deemed food secure, since it generates sufficient staple food to sustain its population. Nevertheless, households in rural persist in facing challenges related to food security. Various measures are necessary to tackle the escalating challenges of food insecurity and food production. The efficacy of these techniques is fundamentally contingent upon prevailing the resources at hand, the current economic climate and socio-political conditions (Cerda, 2022). Smallholder farming is seen as an effective approach for enhancing food accessibility. Despite the evolution of home food gardens amid urbanization, they remain a vital resource for families globally in sourcing their own food (Ferreira et al., 2018).

In South Africa, the right to adequate food and water for all citizens is protected by the Constitution, specifically in Section 27, 1 (b) of the Bill of Rights (The Constitution of the Republic of South Africa, 1996). This fundamental right is supported by the government's commitment to implement reasonable legislative and other measures to ensure its realization. To further address issues of household food insecurity and hunger, the Food and Nutrition Security. Similarly, the former Department of Agriculture, Forestry and Fisheries (DAFF),

now known as the Department of Agriculture, Land Reform and Rural Development, aimed to create agricultural policies and launch initiatives to ensure South African citizens could produce their own food and achieve food security. This aim aligns closely with the Food and Nutrition Security Implementation Plan. Both are crucial for realizing Goal 2 of the Sustainable Development Goal: eradicating hunger and attaining food security and nutrition (Department of Agriculture Forestry and Fisheries, 2013).

Food security exists in two levels that is the household level and at the national level. At the household level, there is food security if all members of the household at all times, have the access to enough safe, sufficient and nutritious food that meet their dietary needs. Lack of access to food or the inability to buy food are both examples of household food insecurity (Mango et al., 2014). Food security is a topic that has being discussed for many years. It is a multifaceted phenomenon that is complex. Food security does not have a single reason that applies to all nations and cultures. According to earlier research, lengthy periods of poverty, a lack of sufficient productive resources, household size, household education, livestock ownership, market access, and remittances are all potential drivers of food insecurity (Barrett, 2010). In addition, households with low income are more likely to experience food insecurity because they cannot afford to buy the food they need (Asghar and Muhammad, 2013). Additionally, the contribution of productive resources like agricultural technology transforms the performance of agriculture (Kassie et al., 2011).

At the national level, food security refers to the condition whereby the nation is able to produce, import, retain and sustain food needed to support its population with a minimum per capita nutritional standard, that is, there is enough production of food to meet all the food demands of the whole nation. According to National Food Security Policy (n.d) South Africa has a national food security policy in place with an action plan for implementation. By way of a collection of guiding principles and pronouncements that specifically and directly direct and coordinate actions of the government, maybe towards the realization of the right to food, a national policy for food security and nutrition is in place.

A national food security plan or policy may specify specific objectives, benchmarks, or targets for upcoming political choices. It may also indicate clearly how the policies of the government are oriented. In order to combat food insecurity, the national policy or plan should be specifically created to concentrate on the circumstances of population groups who experience exclusion and/or prejudice.

According to Pereira et al., (2014) even though South Africa is considered food-secure on a national level, and on a household, level is a different story. The large majority of South Africans, particularly in rural households remain vulnerable to food insecurity, which is as the result of poverty, insecurity, climate change, wars and population growth. Most of the food insecure households uses coping strategies such as eating less food as a way of saving food and having their small plot for farming their own food for their own consumption and for selling. The large majority of South Africans, particularly in rural households remain vulnerable to food insecurity, which is as the result of poverty, insecurity, climate change, wars and population growth. Most of the food insecure households uses coping strategies such as eating less food as a way of saving food and having their small plot for farming their own food for their own consumption and for selling. In light of this background, this study aims to investigate the contributions of smallholder farmers toward household food security in Chabelane Village, Limpopo province.

This chapter introduces a research study that concentrates on smallholder farmers' contributions toward household food security. The chapter gives pertinent background information for the study. The research problem, research questions, and research objectives are all explicitly stated. Additionally, this chapter discusses the rationale of the study, significance and chapter outline of the study.

1.2 Background to the Study

Human population today is affected by the most pervasive socioeconomic issues such as hunger and poverty. Food insecurity and hunger have been thoroughly studied, yet the issue of household food insecurity persists in many parts of the regions globally. Food insecurity and hunger have been thoroughly

studied, yet the issue of household food insecurity persists in majority of the world's regions. According to FAO (2022), the number of people living in hunger worldwide was estimated to reach 828 million in 2021, in 2020 there was an increase of 46 million and 150 million since Covid-19 arrived in our shores.

South African policymakers continue to be concerned about food insecurity since it infringes the Constitutional right of people to have access to food. According to Stats SA (2021), 14.6% of South Africans have insufficient to severely inadequate food access, with women, children, and the elderly being the ones who are susceptible. South Africa retains continuously its capacity to satisfy national food needs despite the country's difficult food access situation. Due to the country's competent commercial agriculture industry and robust bilateral trade ties, food reserves are normally sufficient to fulfil the nation's entire needs, with imports compensating for shortfalls in domestic output. However, families that are food insecure in South Africa confront a broad range of developmental challenges, such as poverty, unemployment, rising prices, job loss, urbanization, rising interest rates, population expansion, illnesses, and inconsistent food production at home. In addition, the nation often encounters natural calamities like as floods and droughts, which are typically confined to certain regions or districts. These variables seem to affect food security negatively (DAFF, 2014).

The South African government maintains to prioritize smallholder agriculture in its battle against poverty and food insecurity. Numerous policies, programs, and strategies have been consistently created in the country to enhance agricultural production sustainably, particularly in the smallholder agricultural sector, including:

- Micro Agricultural Financial Institutions of South Africa (MAFISA),2005

In three provinces in 2004/2005, the Micro Agricultural Financial Institutions of South Africa (MAFISA) program was introduced as a test project. Its objective was to offer small, short-term, and medium-term loans to smallholder farmers in order to help them increase their productivity, especially in communal land regions as well as on small farms with a range of ownership forms. The Department of Agriculture, Forestry and Fisheries (DAFF) monies were directed

by MAFISA by using the Land Bank to reputable financial intermediaries that made loans to farmers of up to R500, 000 (PER - MAFISA - Vulekamali, n.d).

MAFISA offers smallholder agricultural, forestry, and fisheries producers financing services. The program's goal is to meet the sector's smallholder producers' demands for financial services. Production loans, assistance with savings accumulation, and building capacity for member-owned financial institutions are among the services offered by the program (intermediaries) (PER - MAFISA - Vulekamali, n.d).

A variety of organisations that have been approved by the Department of Agriculture, Forestry, and Fisheries (DAFF) to act as retail intermediaries provide access to MAFISA products and services.

- Fetsa Tlala Production Initiative, 2013

The government's primary initiative for ensuring food security is the Fetsa Tlala Food Production Initiative. Fetsa Tlala is an integrated government structure that aims to increase food security as well as to tickle the structural reasons of food insecurity, that persist in perpetuating social exclusion and inequalities, according to official literature. Fetsa Tlala seeks to end hunger as well as provide everyone in South Africans with a country that is food secure. In order to maximize synergy between the various strategies and programs of the government and civil society, it serves as an overarching framework (DAFF, 2013). The program emphasizes uplifting those who are interested in farming, especially by giving them access to the tools and resources required for crop production. By the 2018–2019 growing season, the program has put 1 million hectares of land under production across the nation, majority of which were underutilized land in homesteads and on land reform initiatives (DAFF, 2022).

- Agricultural Policy Action Plan (APAP), 2015

The APAP can be defined as a programme that react to the resurgence of agriculture and the value chain for Agro processing. It provides a value chain strategy for essential products that is influenced by the National Development Plan 2030 (NDP)'s list of products with highest growth potential and high labour absorption capability. There are seven Chapters of the APAP. The primary initiatives of the Agricultural Policy Action Plan are described in Chapters 5 and

6: While Chapter 6 includes the first interventions of Transvaal made by APAP, or the ones that will help numerous subsectors, Chapter 5 concentrates on sectorial interventions that address specific subsectors and value chains (DAFF, 2014).

These programmes and frameworks for agricultural have been developed and executed in recognition of the fact that eliminating hunger in a sustainable manner would need a substantial improvement in the investment of agricultural and a more resources equal allocation. Restructuring agriculture, particularly the role of smallholder and subsistence farmers, and comprehending their role in ensuring food security in household is a significant task for the state (DAFF, 2014).

Smallholder farmers are characterized differently in different contexts, environments, and countries (Hazell, 2007:10). Despite the efforts to relieve global hunger, food insecurity continues to be a severe problem in several countries (Sibhatu & Qaim, 2017). According to the Food and Agriculture Organisation et al., (2021), the Prevalence of Undernourishment (PoU) surged from 8.4 % in 2019 to roughly 9.9 % in 2020, complicating efforts to achieve the Zero Hunger objective by 2030. According to Lakner et al., (2021), the COVID-19 crisis likely exacerbated inequalities in food access. Also, with the recent Ukraine and Russian wars, I have observed high inflation in South Africa which has exacerbated the issue of food insecurity. Majority of the people are unable to access food as a result of the war and ultimately leading the poor to be undernourished. Undernourished populations coexist in both developed and emerging countries of the world; however, the distinction between developing as well as developed regions in terms of food insecurity is in the scope and complexity of the condition, as well as the proportion of the population affected. The overwhelming majority of hungry people live in underdeveloped countries, especially in Africa and the global south countries (FAO, 2021). According to the latest Food and Agriculture Organisation (FAO, 2021) data, approximately 13% of the developing countries population is malnourished (Our World in Data, 200) while Porkka et al., (2013) noted that providing for the world's population is a challenging issue that is probable to become much more significant in the future. The population of the world surpassed 7.6 billion people in 2018 (FAO,

2020) and is anticipated to reach 9.2 billion by 2050, resulting in an expected upsurge in food consumption of 59%–102%. Given the foregoing, it appears required to boost agricultural productivity by approximately 60%–70% in order to feed the world's population by 2050 (Fukase & Martin, 2017). According to Foley et al., (2011), food supply will double up by 2050 in order to fulfil continued growth.

Circumstances in global agriculture are rapidly changing, and the future of small farms appears precarious. The global food retailing system's modernization has generated concern that smallholder farmers may become increasingly excluded, prompting doubts about the best way to handle food security concerns. It is worth noting that food-insecure households across the world, majority of them live in rural areas where the source of income is the small-scale agricultural output (Mvelase, 2017).

Smallholder agriculture is limited to farms with less than two hectares of farmland. It is interpreted as a type of small-scale agriculture practiced by households who employ exclusively or primarily family labour in South Africa the family consists of husband, wife, and children (High-Level Panel of Experts on Food Security and Nutrition (HLPE), 2021). Smallholders are an integral part of rural livelihoods. As such, boosting their sustainability may help to eliminate poverty in rural areas. A few studies such as Mshamaite (2014) and Mvelase (2017) have been conducted to ascertain the contributions of smallholder farmers, particularly in Limpopo. However, the contributions of smallholder farmers to household food security continue to be debated. This proposed Ph.D. study aimed to understand the contributions of smallholder farmers toward household food security in Chabelane Village. Majority of the households in Chabelane Village are practicing small-scale farming to feed their families. The smallholder farmers in Chabelane village majority of them are females between the ages of 40-65 years of age. The men in this village most of them has passed on. These females are left as breadwinners most of them do their farming at home because they have huge stands, where they cultivate cereal grain to get maize meal from the crop to support their families. Since there is no place without history, Chabelane village has its unique history ranging from colonialism to the apartheid system.

The tribe of Mamaila is part of a huge Balobedu ethnic group. As depicted on the website (Mamaila Network), in the seventeenth century the Balobedu tribe as they originate from Zimbabwe decided to split from Monomotapa old Kingdom of the Karanga and relocated southward where they are located today at Ga-Modjadji across the Limpopo River, as they came to the place in 1620 (Mamaila Kolobetona n.d). This is how their roots are recognised currently. In the 1720s, the Mamaila tribe decided to part ways with the Dikolobe tsa Mamaila Kolobetona and Modjadji main cohort. They then established a tribe that is independent and led by Chief Mamaila and they are now formally classified as the Balobedu ba Mamaila.

Mokgawa (2010) in his Master's thesis discussed that Chief Mamaila's 7 lands (including Chabelane land) during apartheid were transferred to Gazankulu and Venda respectively. For 300 years Batlokwa tribes had settled in Sekgosese area. They were then removed and told to possess Chiefs Malebogo, Kibi, and Moloto's land before any consultations with the chiefs. These led to a fight between Moletsi, Bochum, and Chiefs of Sekgosese. Lebowa was not yet formed into a unified whole territory by 1987. By that time, the portion of land had been already transferred to Gazankulu and Venda in the favour of Gazankulu through the assistance of Pretoria (Makgowa, 2010:87). Dr. CNM Phatudi, Lebowa Chief, received a letter from the minister of Development Aid and Education in early 1987. Lebowa replied to the letter written by the minister by sending a ten-point petition to Pretoria, the memorandum had requested that all Lebowa land that had previously been merged into Gazankulu be returned to Lebowa (LL Assembly Verbatim Report, 1987).

From 2022 Chabelane village is developing gradually, and I have observed development that is happening in the village throughout time. Since 1994 the village had no tar road connecting them to the marketplace, making it difficult for smallholder farmers to access transport to take their harvest to the marketplace. During raining season or when is extremely hot, they stay at home because they don't want to walk long distance to the marketplace in such bad weather. According to Matlala (2022), on the 2nd of February 2022, President Cyril Ramaphosa went to the Thakgalane area to assess a 40km road

construction project by the Limpopo Road Agency which passes through Chabelane Village to Morebeng. This road construction will assist the farmers to access transport with ease to marketplace to sell their products.

Chabelane village residents experience lot of challenges and one of them happened to be water shortages. The municipality supply the residence with water through the residents' tap water twice a week. This is because South Africa is a water scare country. Some of the smallholder farmers depend on rainfall for irrigation while others use water buckets to irrigate their crops. Most people in the village buy clean water from those with boreholes just to get by. This problem affects their livestock because most of the smallholder farmers have cattle and goats. Therefore, I believe it is important for the municipality to ensure that the village gets enough tap water or water tanks so that the livestock and the crops do not die as a result of lack of irrigation leading to food insecurity in the village.

Majority of the people in the village are elderly who staying with their grandchildren, and they depend on social grants for a living. Only a few are public servants and retail workers who earn a salary for a living. At this old age, most of them are into small-scale farming to ensure that their families are food secure and use grant money for other things such as electricity. Therefore, it is important for study how the households manage to be food secure when they depend on South African Social Security Agency (SASSA) for living.

1.3 Problem Statement

According to Stats SA (2019), impoverished households broaden their livelihood choices, expanding their reliance on sources of income that are not related to farms at the cost of agriculture participation. South African households are increasingly protected by social security from extreme food-related challenges. Grants, on the other hand, may function as an unexpected deterrent, preventing people from utilizing accessible land to supplement themselves by producing food. Knowing the extent to which agriculture adds to people's food security may be critical in determining how to maximize agriculture's benefits to communities. According to Stats SA (2019), Limpopo province has a higher percentage

(38.2%) of households that are practising in agriculture, however, just 2.3 % rely on agriculture as their primary food source. 93.6 % of Limpopo province population has adequate food access (Stats SA, 2019). It is unknown whether improved food access in Limpopo is related to smallholder agricultural activity. It is vital, therefore, to understand how smallholder agriculture contributes to household food security in Chabelane village.

1.4 Significance of the Study

This study had been motivated by the current trend of complexities of food insecurity observed in South African rural households. This study was based on the premise that agriculture add up to a major factor within a broad range of strategies that can be adopted to reduce food insecurity and contribute to agricultural productivity. Numerous studies documented the contributions of smallholder agriculture production in rural households, such as Mvelase (2017) & Godfrey (2016). However, there are few challenges that smallholder farmers experience and the prevalence of food insecurity among the households. Additionally, past researchers used quantitative approach and therefore, there was no in-depth data. This study aimed to close the gap of dearth information on the challenges, the contribution of smallholder farmers as well as the prevalence of household food security using qualitative approach. As a result, more viable policies and programs to benefit smallholder farmers can be developed.

Food insecurity is a persistent problem everywhere. To solve issues with food security, a deeper comprehension of the occurrence and nature of food security is required, as well as accurate description of the impacted populations (Wadsworth et al., 2016). Therefore, this study assesses the contributions of smallholder farmers toward household food security in Chabelane village, the prevalence of food security, and the challenges smallholder farmers' experience in Chabelane village, which put a threat on food security. The research's findings can be used to add to the body of knowledge already available in the fields of agriculture and development studies. This study can be used as a resource for policymakers, academics and other interested parties as they formulate and put into action plans to improve the smallholder farmers' lives.

This study aimed to benefit the managers of agricultural projects, programs, as well as the government, in comprehending the opportunities and difficulties faced by smallholder farmers in Chabelane village.

1.5 Aim of the Research

This research aimed to ascertain the contributions of smallholder farmers toward household food security, their challenges, and the household food insecurity prevalence. To develop a policy for sustainable solutions to combat food insecurity.

1.6 Research Objectives

The main objective of this study had been to assess the contributions of smallholder farmers toward household food security in Limpopo province, Chabelane village. The study also aimed at the following specific objectives:

- To assess the prevalence of food insecurity status among households in Chabelane Village.
- To investigate the challenges faced by smallholder farmers toward household food security in Chabelane Village.
- To determine the extent to which smallholder farmers contribute to household food security in Chabelane Village.

1.7 Research Question

The general research question on which the study was based on is as follows: what are the contributions of smallholder farmers toward household food security in Limpopo province, Chabelane village?

Sub-Questions:

- To what extent is household food insecurity prevalent in Chabelane Village?
- What are the challenges experienced by smallholder farmers in attaining household food security in Chabelane village?

- What are the contributions of smallholder farmers toward household food security in Chabelane Village?

1.8 Definitions of Terms

- **Dietary Diversity-** it is characterized as the variety of foods or dietary types ingested during a particular timeframe (Ruel, 2003).
- **Small-scale farming- it** involves the production of livestock and crops farming for their small family, with farming constituting a key source of income (Chomitz et al., 2007). Small-scale farming is typically associated with undeveloped, non-commercial, unproductive subsistence farming which can be found in former homelands.
- **Household structure-** In this study, the term "household" is applied as is described by the UN (2008) as "a group of people who share the provision of food, shelter, and other necessities for living."
- **Livelihoods**- refers to the methods used by households to gain and sustain the resources access they need to survive both now and in the future.
- **Food security**- is defined as ensuring that everyone has access to the food, they need to live a healthy life at all times (FAO, 2009).

1.9 Chapter Outline

The study comprises five chapters.

Chapter 1: The purpose of this chapter is to introduce the thesis by providing a brief description of the research to be conducted. This chapter is based on orientation which provides an analysis of the background of the study under the title understanding smallholder farmers' contributions to household food security, research problem, objectives and aim of the study, the rationale of the study, and the significance of the study.

Chapter 2: This chapter presents a literature review. This chapter provides an exploratory discussion of the diverse relevant concepts such as food security and smallholder farmers utilized in this research. The chapter conceptualizes history of food security, the definition of food security from the perspective of World Food Summit, 1996. It further discusses the four-basic dimension of food

security which are as follows: food availability, utilization, access and stability. This chapter will further discuss a brief history of food security, the World Food Summit 1996, the Millennium Development Goals 2000-2015 and analysis of food security dimensions.

Chapter 3: The chapter focus on the perspectives of food in Sub-Saharan Africa, South Africa and points out major indicator that are used to measure food security. The study further takes a look at the overview of Limpopo Province's economy and its agriculture sector as well as factors influencing food security in South Africa and other countries

Chapter 4: This chapter presents the theoretical frameworks used for the research which is sustainable livelihood. The chapter offers a variety of theoretical viewpoints that aid in understanding, analysing, and interpreting the results of the study.

Chapter 5: Research methodology: This section will elaborate on the research design and the methodology employed in this study. This study will employ a qualitative technique and quota sample will be used to sample the smallholder farmers. The data collection technique for this study will be face-to-face interviews and data will be analysed using thematic analysis.

Chapter 6: This chapter will provide a detailed presentation, analysis, and discussion of the findings based on the contributions of smallholder farmers toward food security.

Chapter 7: This chapter describes the socio-economic characteristics of the sampled smallholder farmers' households to provide an understanding of the type of community studied. Socio-economic characteristics means quantitative factors that provide a direct or indirect measure of the social and economic status of a group of people.

Chapter 8: The chapter provides the qualitative assessment of the challenges of smallholder farmers in the study area. The challenges experienced by the smallholders are analysed and discussed. The findings are presented under a theme challenge faced by the smallholder farmers in Chabelane Village, which

is associated with the sub-themes which all emerged from the analysed interview data.

Chapter 9: This chapter presents and discusses results on the contribution of smallholder farmers towards household food security. The purpose of this chapter is to indicate the important role that smallholder farmers play towards household food security. This chapter will be presented according to the main themes and sub themes emerged during data collection**.**

Chapter 10: This chapter present the conclusions and recommendations drawn from the data analysed on the contributions of smallholder farmers towards household food security in Chabelane village Limpopo province, South Africa. This chapter will begin by providing a summary of the findings per objectives of the study. Secondly, conclusions will be drawn from the study findings. Lastly, this chapter will provide recommendations based on the findings of the study

1.10. Chapter Summary

The chapter has given a summary of the goals of the research. It presented and contextualized the study by offering pertinent background and introduction information. Additionally, the research problem, the significance of the study, research questions, aims, and objectives were defined in detail. The chapter ended with a summary of the chapters and the following chapter is the literature review.

CHAPTER 2 LITERATURE REVIEW

2.1 Introduction

This chapter provides an exploratory discussion of the diverse relevant concepts such as food security and smallholder farmers utilized in this research. The chapter conceptualizes history of food security, the definition of food security from the perspective of World Food Summit, 1996. It further discusses the four-basic dimension of food security which are as follows: food availability, utilization, access and stability. This chapter will further discuss a brief history of food security, the World Food Summit 1996, the Millennium Development Goals 2000-2015 and analysis of food security dimensions.

This chapter moreover discusses global perspective of food security, the level of food security in Africa, the global efforts were undertaken to address food security in Africa and how effective the Rome Declaration and the MDG 1 on eradicating extreme hunger have been in addressing Africa's food insecurity. The chapter also discussed food security and food sovereignty, State of world food insecurity, poverty levels in the world, Drivers of world food insecurity, the effects of inequality on food security and the consequences of food insecurity. Moreover, this chapter will look at the definition of smallholder farmers, food security and smallholder farmers, types and Characteristics of Smallholder Subsistence Agriculture, arguments against smallholder agriculture and smallholder farmers in rural South Africa. Agricultural policy frameworks in South Africa, policy and legislative frameworks for food security in South Africa, the contributions of smallholder agriculture in achieving food security and major challenges experienced by South African smallholder farmers will also be discussed. The chapter will end with a chapter summary.

2.2. A Brief history of food security

The process of defining a problem is crucial when analysing policy discourse. It sets the foundation for identifying possible solutions. A study was conducted to explore how policy discourses on food security for smallholder farmers in

Chabelane Village are created. The study revealed that definitions, terminology, and conceptual frameworks are used to create these policy discourses. The term 'food security' may seem easy to understand, but it encompasses multiple values and meanings. It is not just about having access to food, but also about trade (Vivero, 2013). This is linked with the study findings in chapter 8, in a way that the findings revealed that the smallholder farmers sell their products to the community and outside their community.

Food security is concurrently: a simple definition, an analytical framework, an implementation process and a goal. With adjustments over time to the working understanding of what was meant by ‘food security’ (or what was needed to achieve it), food security has been on the global agenda since the founding of the United Nations in the late 1940 (Shaw, 2007). From its beginnings, eliminating hunger and ensuring food security have been held up as universal values, a global concern and an urgent priority, and have therefore been central for the global development project for generations. With ‘freedom from hunger’ built into the conceptual bedrock of the United Nations (2019), stewardship of food security has long been entwined with what has come to be known as the international development sector; that is, the network of specialized institutions which oversees the global social and economic development project, specifically in the Global South. The locus is important: development has been described as ‘a historical construct that provides a space in which poor countries are known, specified, and intervened upon’ (Escobar, 1995 quoted in Rossi, 2004).

This institutional structuring took it as read that food security and malnutrition was an issue for developing nations, rather than developed ones, that a path towards food security would suggest emulating the progress made in developed nations as a means to an end (Barling et al., 2012). The first definitions of food security had been developed with the specialized agencies of the UN in mind and expanded thereafter to included national governments (Windfuhr & Jonsen, 2005). As global governance institutions and mechanisms have evolved, UN Commissions, specialized agencies of the UN, IFIs, the NGO sector and more recently, civil society organisations have all claimed a role in food security. Food security therefore does not appear sui generis, but as a function of the

institutional context in which it exists. Recognition of role of the private sector in food security governance and policy has only latterly and incompletely been included in the discourse. Prior to the World Food Conference of 1974, 'freedom from hunger' was presented as an issue of redistribution: greater general availability of food via the redistribution of existing surpluses through technological and trade fixes was the seeming solution to food insecurity and hunger (Shaw, 2005).

At the 1974 World Food Conference, this assumption began to dissolve, with the conference proposing to develop both a world food production policy, as well as a world food security policy, operating in tandem, albeit with a focus on increased production in both cases (Shaw, 2007). It was at this point that the phrase 'food security' itself came into global policy use (Farsund et al., 2015). The conceptual shift away from productionism was solidified in the early 1980s, with a monograph which is routinely cited as a key milestone in the evolution of approaches to poverty and food security, Sen's Poverty and Famines: An Essay on entitlement and Deprivation (1981). Sen posited that major famines had their root cause in poor access to food, not availability- or rather, that hunger was a function of access, rather than supply (what Sen called 'entitlement failure') (Barrett, 2002). He demonstrated that weak conceptual understanding of hungry populations' inability to access food had directly contributed to prolonged hunger. Describing what he called 'ownership bundles', Sen suggested that the ability to produce or exchange goods and services is the result of how individuals 'own' (that is, are able to act) within the context of access to land, finances, legal rights, employment, obligations to family and other networks, etc. (Devereux quoted in Pritchard 2014). Sen's work paved the way for recognition that addressing food insecurity need not entail direct agricultural production by insecure populations themselves but was contingent on a much wider set of endowments (Patel et al., 2015). This set up a shift in the conceptual framework, suggesting that food security is a function of much more than just food, and that it is access, rather than availability, which is key. This is seen in chapter 8 study findings whereby the smallholder farmers contribute to food access through increased food supply.

The shift of focus from availability to access modified the discourse from production of food, to sourcing of food, acknowledging the entitlements of individuals and households in accessing food. This marked a conceptual transition in both conceptual and spatial terms, opening the door for consideration of food security not only at the level of the state, but at the level of the individual citizen (Windfuhr & Jonsen, 2005). This also paved the way for important shifts in development theory, including the sustainable livelihoods approach promoted by Chambers and Conway (Erni, 2015) and Capability theory (Nussbaum, 2011).

Sen remains a highly respected development theorist, with works such as Development as Freedom (1999) a key text in development studies. Important feedback loops between food security and development theory continue to the present day. Over the course of developments outlined above, the definition of food security has changed to fit the prevailing assumptions of the time. Clay (2002) highlights three pre-1996 definitions as illustration of this: - 'Availability at all times of adequate world food supplies of basic food stuffs to sustain a steady expansion of food consumption…and to offset fluctuations in production and prices' (Proceedings of the 1974 World Food Conference). 'Ensuring that all people at all times have both physical and economic access to the basic food that they need.' (FAO, 1983:44). In the World Bank report, Poverty and Hunger (1986:32), this concept of food security is elaborated in terms of: access of all people at all times to enough food for an active, healthy life. Machethe (2021) notes that the 2021 World Bank report adds an important temporal element, delineating chronic and transitory food insecurity, adding a timeframe to the physical elements of availability and access mentioned in previous definitions. This was also the first time that of the quantity and quality of food required being appropriate for an active life was included, as opposed to food intake required for basal metabolic function and survival only (Maxwell, 2022). By the 2021, the spatial framework for food security was shifting from global levels to household and individual level, from a food-specific focus to a more inclusive focus on livelihoods, and from objective to subjective measurement (Maxwell, 2022. Definitions and interpretations of the term proliferated, with Smith et al., (2022) cataloguing approximately 200 mentions of food security from both academic

and grey literature. The need for clarity on this subject was becoming increasingly necessary.

2.2.1 The World Food Summit, 1996

In 1996, the World Food Summit (WFS) in Rome developed a single definition for food security which was agreed to by 190 nations. Despite subsequent adjustments, it remains the most well-known, commonly used definition, and as such, is a logical starting point from which to explore the concept. The definition of food security put forward in the Rome Declaration states Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life (Rome Declaration 1996). This formulation sets up a number of key aspects of food security and is a synthesis of previous iterations as noted above. 'All people, at all times' indicates that it pertains to all humanity, here and now and evermore into the future. This indicates the universality of what is suggested by the term (European Commission, 2022). Physical and economic accesses recognize that food is not simply an issue of production but is also contingent on the ability to get it, requiring economic and social structures, such as financial income (and thus, employment) and so on (European Commission, 2022). As seen in chapter 6 study findings, the smallholder farmers disclosed their various income sources such as remittances, wage, social grant and salary which helps them to buy food for their household.

''Dietary needs and food preferences" suggest that there are both physiological and cultural factors to be considered, suggesting that although it may be universally applicable, the modes of achieving it are contingent on social and cultural context. Finally, 'an active and healthy life' proposes not simply enough food to meet minimum requirements for survival, but rather adequate food to sustain a full livelihood. Although there have been adjustments to this formulation since 1996, the basic components of this concept have remained the foundational elements of subsequent definitions of food security (Rome Declaration 1996).

The WFS Declaration (2018) goes on to state that food security is 'a common objective-food security at the individual, household, national, regional and global levels. The supporting WFS Plan of Action document, which runs to details linkages between food security and gender, food safety, access to water and education, and biodiversity protection, but does not indicate how its targets are to be met, but rather what the general approach should be. It does not set out a singular global strategy as to how food security might be attained, suggesting instead that at national level, 'diverse paths to a common objective' could be applied (Sharma, 2011). So, although the Declaration establishes a normative definition for food security and a global target, how to achieve that target is subject to interpretation at the nation-state level. The 1996 Plan of Action was also silent on control of food production: where food should be produced, how and by whom, and who has the right to make these decisions. Over time this came to be seen as weakness, stimulating the development of alternative approaches such as food sovereignty and the Right to Food (McKeon, 2009). A synopsis of the interplay between these approaches and food security itself is included in Annex II.

2.2.3 The Millennium Development Goals, 2000-2015

While not necessarily representing a shift in the conceptual framework or definition of food security, the Millennium Development Goals, an interlinked series of goals and targets agreed to by 189 countries in 2000, provided a new momentum on food security which the World Food Summit had not delivered. The MDGs highlighted food security (or at least, one very specific aspect of it-malnutrition) as a top-level priority for all developing countries, establishing the first goal (MDG1) as the eradication of poverty and hunger. The pairing of poverty and hunger was consistent with development theory and prevailing narratives in food security: food security as a symptom of broader poverty issues, and its inverse- food security as the cause of poverty (Von Braun 1999). Ironically, the progress on poverty attained over the course of 2000- 2015 (such that the MDG poverty goals were broadly met at the global level) versus the lack thereof on malnutrition served to decouple this assumption, as poverty alleviated improved nutrition was shown to be not as tightly linked as once assumed this was further borne out by research conducted in South Asia over

the 2000s (Deaton & Drèze, 2009, Banerjee & Duflo, 2011). Committed to the Millennium Declaration, developing countries were now to be expected to meet the targets set out in the MDGs, and would be assessed on their performance in the service of those goals. This took food security out of the remit of the purely 'technical' issue, and gave it international political importance, a socio-economic benchmark against which the development efforts of a state would be assessed.

MDG1 was framed as: • Goal 1: Eradicate extreme poverty and hunger

Target 1A: Halve, between 1990 and 2015, the proportion of people living on less than 1.25 USD a day

Target 1B: Achieve Decent Employment for Women, Men, and Young People

Target 1C: Halve, between 1990 and 2015, the proportion of people who suffer from hunger Crucially, the MDGs pushed nutrition to centre stage of the development project, with a DFID report (2009) stating 'Nutrition is, essentially, a foundation for the attainment of the MDGs.' In the service of target 1C, two key indicators were proposed: prevalence of underweight children under five years of age (indicator 1.8, measured by weight for age) and prevalence of stunting (that is, chronic malnutrition) as indicator 1.9, measured by height-for-age. The MDGs introduced a critical modification of the WFS target: these indicators were to be measured as a proportion of the total population, whereas the WFS target looked to a reduction the absolute number of undernourished people. The MDG target was thus seen as a dilution of the more ambitious WFS target, which made no allowances for population growth. In policy terms, this also created the space for interpretation as to whether or not progress was occurring; or indeed, if the progress was adequate. Equally importantly, in a development that eventually came to light in the food and fuel crisis on the back of FAO's claims of one billion hungry in 2007, was the shift of indicator from FAO's 'undernourishment' to anthropometrically derived nutrition-specific indicators. This reinforced the conceptual shift from food availability (and hence agriculture and productivity) towards nutrition and public health, although the emphasis specifically on malnutrition effectively reinforced the need for increases of carbohydrate consumption, and had little direct reference to quality of diet, or intake of protein and fats (Gill et al., 2003).

Fukuda-Parr and Orr (2013) see the MDG focus on malnutrition as a negation of the more complex interpretation of the WFS formulation of food security as a matter of public health, gender equality, equity and human rights in favour of a more simplistic focus on 'hunger' (Fukuda-Orr and Parr, 2013). Coates et al., (2006) note that it is not immediately apparent how the MDG's underweight and undernourishment indicators relate to the WFS definition of food security. Aggregating these indicators at national and global level, as required by, for example, MDG reporting, may offer little illumination of food security at the regional, community or household level. In their review of MDG1 and the Hunger targets, Fukuda-Parr and Orr (2013) conclude the MDG target and indicators frame the problem of food insecurity as a common-sense issue of supply and production, favoring quick and measurable gains in supply and production as the key solution, and marginalizing the complex socio- economic determinants and the human development and human rights priorities of distribution, discrimination, inequitable access, and lack of voice and autonomy. Global political momentum to address the MDGs was considerable. It focused attention on malnutrition as the pivot point, and it set a new, more attainable target. Taken together with the WFS, where the World Food Summit provided the definition, which was most commonly put into policy use, the MDG provided the target, singular: the reduction of malnutrition. Nevertheless, the state of knowledge around what was meant by food security continued to evolve, partly as a result of the disassociation of poverty and hunger mentioned above, and partly as reaction to the oversimplification of the MDGs.

2.3 The four basic dimensions of food security

The World Food Programme (WFP) defines food security as the availability, accessibility, utilization, and stability of food security. These four factors have been selected from the WFP's definition and are mostly regarded generally as the food security fundamental or "pillars"; they will be studied in further detail below.

2.3.1 Availability

Availability of food is the first food security component. This term related to the tangible availability of food, also known as adequacy. The availability of food is

measured by the amount of output, net trade, and levels of stocks (FAO, 2008). It suggests that a country ought to have "sufficient" food supplies at both the household and national levels. According to the WFP (2009), food availability is the quantity of food available in a specific region or nation through domestic production, imports, food stores, and food assistance. In addition to net business exports and imports, local communities and households are included. Previously, according to Shaw (2007), the analysis of food security was restricted to availability of food. This developed from the misconception that hunger is seen as the primary reason of poverty and also that poverty causes "food insecurity" or "shortage of food availability." This belief that the availability of food products would inevitably point to food availability has led in growth in agricultural output adequate to serve the world's expanding population (Headey and Ecker, 2013).

The world's agricultural production planet, precipitation data, a food market survey, and a food balance sheet, may all be used to evaluate this aspect of food security at various levels (DAFF, 2011). Harvesting season, population movements, fertility rate, food production, production of staple foods, storage of food and intake of wild foods are additional indicators of food security for this dimension at various levels (FAO, 2019). Food is produced in sufficient quantities to feed the whole world's population, but distribution issues mean that some individuals consume less than 2100 Kcal per day, making them subject to food insecurity (FAO, 2013). The distribution of food includes “storage of food, food processing, food transportation, packaging, and marketing” (WHO, 2019:33). The cost of inputs of agriculture and the food distribution to the local market might both be impacted by inadequate transportation (Godfray et al., 2018). Similarly, in chapter 9 study findings revealed that the smallholder farmers had encountered problems when transporting their harvests during rainy season. The transport would not be able to reach their households due to muddy roads.

2.3.2 Access

Food access is the ability of a nation and its’ households to acquire sufficient food on a sustainable basis. In the WFP definition, it refers to having physical,

economic and the social ‘access. The WFP (2009) describes food access as a household’s ability to acquire sufficient food on a regular basis through a combination of “purchases, barter, borrowing, food assistance or gifts”. There are three elements that describe the access dimension of food security: physical, financial and socio-cultural.

The physical element refers to a logistical aspect of acquiring food such as transportation and information to those who need it. It implies that food is readily available at a location where individuals, households, or the community can access it (Maxwell et al., 2017). The financial element refers to the economic aspect such as being able to afford to buy food. From this perspective, food commodities are readily available where the human population needs it, and households have the financial ability to acquire amounts of food to meet their requirements. However, high food prices can inhibit the food access or food security at household level, and this can lead to some negative reactions from people (Maxwell et al., 2017).

A practical example is the 2008 World food prices that led to incidents of food riots and protests in some parts of the world (Porter et al., 2018). Concerns about food access have resulted in a greater policy focus on incomes, expenditure, markets and prices in achieving food security objectives. The FAO (2018) contend that measures to enhance direct access to food are more likely to be beneficial if these are embedded in more general social safety net programmes. These entails meals at schools, nursing mothers, and providing meals to young children through special canteens, basic health centres and soup kitchens. Food-for-work initiatives help households while creating practical infrastructure, such as structures for rural health centres, schools, small-scale irrigation systems and rural roads. Programs that transfer income, they include food stamps, subsidized meals, and other specific programs for low-income households. They can be provided in any form or in cash. The social-cultural element is the third component of the food access dimension. From this point of view, although food may be easily accessible and reasonably priced for consumers, there might be certain socio-cultural hurdles preventing some disadvantaged groups in the community from accessing food. This is seen in chapter 9 where challenges of smallholder farmers are discussed.

2.3.3 Utilisation

Food utilisation, as defined by the World Food Programme (WFP), 2020 refers to the consumption of safe, nutrient-rich food that satisfies their nutritional "needs." Therefore, the safety and quality of food is a crucial element, as it encompasses the range of food products, their preservation and processing, and the human body's absorption of nutrients. Consequently, food utilisation refers to the manner in which the human body utilizes the different food nutrients and intra-household/individual distribution of food, the nutritional intake arising from dietary variety and feeding habits, preparation of food. A person's nutritional state is established by efficient biological use of the food ingested (Maxwell et al., 2017). From this vantage point, understanding of basic nutrition, eating habits, clean water and sanitation, and healthcare are crucial for guaranteeing food security. The food utilisation aspect demonstrates that nutrition is strongly connected to food security and therefore, food security occurs mostly when the population is malnourished.

Utilization includes, among other things, using appropriate food preparation and storage techniques, adequate nutrition knowledge as well skills, high-quality childcare, as well as adequate hygienic and medical services (FANTA, 2016). According to Mishra (2003), utilizing food has both a biological and socioeconomic aspect. The socioeconomic component is thought to include decisions about what food is eaten and the way it is allocated within households (Woller, 2011).

A diverse diet is closely associated with both a sufficient intake of macronutrients and an adequate intake of micronutrients. In many countries, eating too much food is becoming a health hazard. In reality, there is a co-occurring outbreak of foodborne diarrhoea and malnutrition (WHO, 2016). Research has shown that hygiene helps lessen the incidence and dissemination of several disorders that can restrict the consumption of food (FAO, 2001). Therefore, this aspect of food security can be made secure by teaching people concerning how to prepare food and nutritional.

2.3.4 Stability

The fourth component of food security is food stability. The definition of stability includes the phrase "at all times" (Maxwell & Smith, 1992). This aspect relates to the stability of food security (availability, access, and utilization) throughout time. In the aspect of stability, there should not be restriction on food security to a period, a week, a month, or a year, but must be eternal and sustainable. In the lack of stability, food insecurity which is transitory and chronic takes centre stage. In addition, it means that even if a person has enough nutrient consumption currently, if they are without a consistent food supply on a periodically, they are deemed as food insecure since their nutritional health would be at danger. Food security may be hard to obtain and sustain, particularly in the periods of economic crisis, which often influences food costs (Maxwell et al., 2017). In terms of stability element, food security should be ongoing and sustainable rather being restricted to any particular time frame, such as a second, a week, a month, or a year. Moreover, chronic and temporary food insecurity develops in an unsteady environment. Furthermore, it suggests that even if a person consumes a sufficient amount of nutrient-rich food today, they are still considered to be food insecure should they sometimes experience a shortage of a reliable food supply since their nutritional condition will be exposed. In particular when there is a financial issue, which often has an impact on food costs, food security may be challenging to attain and maintain (Maxwell et al., 2017). This is similarly to the study findings in chapter 8 where the prevalence of smallholder farmers' food security is presented.

2.4 Analysis of food security dimensions

Food security dimensions cannot be isolated from development questions, such as those relating to education, sources of income, rural and urban development, changing household structures or livelihood, retail markets and nutritional knowledge (Altman et al., 2018). This section provides a comprehensive overview of food security dimensions in the South African context, relating to production, trade and imports, food access and distribution, and stability.

2.4.1 Food production in South Africa

According to Vink (2018), the definition of food security has changed since 1975. It changed from a focus on food availability (macro-level) to emphasis on access to food as equally important, and more recently to the nutritional value of food along with its social acceptability. For South Africa, as with any other country, its food security depends on the country's food production and stocks and on its food imports (DAFF, 2011). Carletto, Zezza and Banerjee (2018) report that the country's ability to produce food depends on its resource endowments, climate, the capital of all types, policies, and on the productivity with which the available resources are employed. The ability to import food depends on a country's national income, the availability of foreign exchange, and the conditions and prices on international markets. Food aid may also be an external addition or emergency addition to national food supply when it is needed (Carletto et al., 2018). Jacobs (2019) concurs that the country's food security condition is considered to be food secure, as it produces sufficient amounts of staple foods and has the ability to import foods where required to meet the nutritional needs of its citizens. Analysing food availability in the context of South Africa, several studies (De Cock et al, 2013; D'Haese et al, 2013; Altman, et al., 2019) confirm that, at the national level, South Africa is food secure, i.e., it produces enough food for its citizens, whereas at the household level the food security status is unacceptable.

The recent result of the global food security index also validates that South Africa is in a good environment when compared with other countries, as it ranks 47th in the 2016 index (EIU, 2016). This means that the South African agricultural sector has the ability to compete with other countries global. Hendriks (2014) explains that political uncertainty, global price volatility, high input prices and agronomic factors also put South African agriculture under strain. Greyling, Vink and Mabaya (2015) agree that food production in South Africa thus remains risky and is highly connected to local and global influences. The South African agriculture sector represented only 2.3% of the economy in 2013 and has declined in the economy since 1994 due to the relatively faster growth of the non-agricultural sectors, which expanded by 41.5% during 2014. As to the structure of South African agriculture and possible structural changes to expand agricultural production, there still is largely a "two agricultures"

perspective in South Africa. One is of agriculture characterised by the highly developed white-owned and technologically advanced commercial farms. It consists of 40 000 farmers who produce most of the marketed agricultural produce. About 1.3 million households have access to land for farming purposes. However, smallholder also known as traditional agriculture, were estimated to have 97% of these households engage in some farming activity, mostly on relatively small plots of land (Vink & Van Rooyen, 2009).

South Africa has a dual agricultural economy, which is well-developed commercial and small-scale farming (Greyling, 2018). Policies have to be devised to close the bridge between these agricultures, the implementation, however, has been slow due to the slow pace of land reform and redistribution of land, as well as a lack of well-designed support services and structures (Vink & Van Rooyen, 2009). Therefore, proper facilitation of factors such as infrastructure, extension services and training should be considered, as they will enable an increase in food production. In chapter 9 of this study, it is documented that the smallholder farmer has infrastructure challenges, therefore, if they get assistance on this issue will increase food production.

According to Vink and van Rooyen (2009) and the BFAP (2016), the performance of South African agriculture is aligned with poor natural resources and is strongly influenced by weather occurrences. Historically, there has been a severe countrywide drought in at least one year of each of the preceding decades (the most severe being in 1966, between 1982 and 1984, and from 1992 to 1993). The period from 1994 to 2008 is an exception to this trend, as there was no countrywide drought for more than a decade. Nevertheless, the BFAP (2015b) explains that 2015 represented the lowest national annual rainfall, hence drought, in South Africa. Drought affects current prices, the level of import and export parity, price bands and every stage of the food value chain. Vink and Van Rooyen (2009) also highlight that the agricultural sector is highly exposed to global markets, as farmers receive few subsidies; international trade (imports and exports) makes up a large proportion of total production; and trade at the country's borders has been substantially liberalised. Farmers' incomes are therefore highly dependent on movements in the exchange rate and on global economic conditions. Regarding people active in agriculture, StatsSA

(2018) reported that only 14.8% of South African households were involved in agricultural production. Food production consisted of fruit and vegetables (50.8%), grains (45.5%), livestock farming (36.0%) and poultry (33.1%). In 2021, StatsSA (2021) reported that households that were getting agriculture-related support, training and dipping/livestock vaccination services from the government were only 12.1%, 2.1% and 6.8% respectively. According to StatsSA (2021), only 13.5% of the households involved in agriculture were receiving agriculture-related support from the government. In this study, they are few farmers who received support from Department of Agriculture, this is documented in chapter 8.

2.4. 2 Trade and import food commodities in South Africa

In terms of trade, the NAMC (2015) reports that South Africa is a net exporter of agricultural products. There have been fluctuations in agricultural trade. Between 2012 and 2015, fruit exports such as lemons and limes, fresh apples, fresh grapes, wine and oranges increased sharply, by 80%, 29%, 24%, 21% and 20% respectively. In 2015, South African agricultural exports and imports were valued R111.9 billion and R76 billion respectively. In 2015, the largest agricultural product destinations/markets were Africa, the European Union (EU) and Asia, with a market share of 58%, 29% and 13% respectively (NAMC, 2015). However, the impact of the current drought in South Africa has reduced domestic production, which has induced significant changes in trade volumes to meet domestic demand, even when it implies substantial price increases (BFAP, 2016). For instance, the BFAP (2016) reports that almost 30% in the national area planted to maize has been impacted by the severity of the drought. South African white maize production decreased by 40% in 2015. The demand for white maize is very inelastic because it is the most affordable food staple in the Southern African region. According to the BFAP (2016), South Africa has always been a reliable supplier of white maize to the rest of the region. However, to supplement the South African production, South Africa is expected to import almost one million tons of white maize. Mexico and the United States were identified to be the potential main sources of South African imports.

A framework for household food security Household food insecurity is no longer seen as a failure of food production at the national level, but nonetheless as a livelihood failure. The focus has shifted from national food production (availability), as the problem lies at the household level (Hendriks, 2005). Sen (1981) highlights that food access by households and individuals may be constrained by economic, social and cultural factors, which are not directly related to national-level food supply. Numerous studies reveal that majority of South African citizens are experiencing food and nutritionally insecurity at the household level (De Cock et al., 2013). Koch (2011) and Van der Merwe (2011) also argue that South Africa's food security situation has become worse after 1994, as its citizens continue struggling to meet their basic household needs. According to Pinstrup-Andersen (2012), food insecurity undermines people's health, productivity and often their very survival. Efforts to overcome the development challenges posed by food insecurity necessarily begin with accurate measurement of key indicators at the household level (Leroy et al., 2015). Hence, the focus of this study was on measuring and interpreting food security at the household level.

The importance of undertaking measurement of food security at the household level is to determine the accessibility of available adequate food, what causes their food insecurity, and what should be done to reduce household-level food insecurity (Benson, 2004). Household food insecurity is defined as the lack of access to amounts of food of the right quality to satisfy the dietary needs of all its members throughout the year (Rose and Charlton, 2001). According to Benson (2004), it is possible that the degree to which individuals within the same households have access to sufficient food may vary. The extent of households having access to sufficient food depends on several factors, such as their composition (size, age and gender) and sources of income (employment, remittances). If food is in the marketplace but the household does not have resources to acquire it, then the household is food insecure. Food availability is necessary, but entitlements to food in the household to assure food security are essential (Greyling, 2018).

2.5. The global perspective of food security

“Based on the 1996 World Food Summit, food security is defined when all people, at all times, have physical and economic access to sufficient safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life” (World Bank, 2016). Globally, the fight against hunger and food insecurity continues, even though majority of people impacted remains intolerable. 98 % of the world's 805 million starving people are found in developing countries. Enormous attempts have been devoted to combating hunger, and steps have been taken. Globally and in emerging countries such as Liberrea and Burundi, the rate of undernourished persons has decreased by approximately 63% and 70% respectively, over the last decade (FAO, 2019). The international community's commitments are clear; nonetheless, the fight seems far from ending, and additional efforts and international aid are needed. Around 225 million people in Africa suffer from hunger (FAO, 2019). Asia, on the other hand, is the most afflicted region in the world, accounting for even more than two-thirds of people who are living with hunger in the world, hunger alleviation progress has been slow in this region (FAO, 2019).

Before 2015, the United Nations (2014) felt that the World Food Security (WFS)'s target of halving under nutrition was still attainable; nevertheless, the most recent report showed that the goal was nearly accomplished, albeit some of the specified targets were completed prior to 2015. By estimations 63 developing nations met the Millennium Development Goals (MDGs) hunger target, while 25 countries met the WFS goal. Latin America and the Caribbean as a whole made enormous strides in eradicating hunger and met both the World Food Security Goals and MDGs (United Nations, 2014).

The global prevalence of hunger is frighteningly sky rocketing. In 2021, they exceeded every past data, according to the Global Report on Food Crises 2022, with about 193 million individuals facing severe food insecurity, approximately 40 million higher than in 2020, when the prior peak was attained. WFP and FAO have cautioned that severe food shortages might intensify in 20 nations or regions between June and September 2022 (The World Bank, 2022).

The Agricultural Price Index is 34 % higher as of June 30, 2022, as in comparation to January 2021. In comparison to January 2021, the prices for maize and wheat have increased by 47 % and 42 %, respectively, while rice prices have decreased by roughly 8 %. Domestic price inflation continues to rise globally, with 94 % of low-income, 89 % of lower-middle-income, 83 % of upper-middle-income, and 70 % of high-income regions undergoing increased food rising prices (higher than 5 %), and several countries undergoing double-digit rising prices. In majority of nations, food inflation outpaced total inflation (UN, n.d).

According to the April 2022 Commodity Markets Outlook published by the World Bank, the war between Russia and Ukraine has modified worldwide trade patterns, production, and usage of commodities in form that will make prices to sky rocking like it has never been seen towards the end of 2024, thereby aggravating inflation and food insecurity. The commodity that is mostly impacted include wheat, maize, edible oils, and fertilizers. Global commodities markets are confronted with risks by the following services: reduced grain supply, rising energy and fertilizer costs, and trade disruptions caused by the closure of main terminals.

In the subsequent months, accessibility to fertilizers will be a significant obstacle, whereby it might have an effect on the production of food of several crops in various places. Belarus and Russia are significant producers of fertilizer, contributing for 38% of potassium fertilizers, 17% of compound fertilizers, and 15 % of nitrogenous fertilizers, respectively. This year in March, costs of fertilizer increased by about 20 % from January 2022 and by thrice when compared to the previous year (FAO, 2018). The executives of the United Nations World Bank Group, World Food Programme, the International Monetary Fund and the World Trade Organisation jointly published a statement on April 13, 2022, urging the international community to take immediate steps to combat food insecurity, to assist affected countries, such as allocating funds to fulfil the needs that require immediate attention (Husain, 2022).Yemen, Jordan, Lebanon and Israel are among the most vulnerable nations due to their reliance on imports of essential goods, a large portion of which comes from the Ukraine

and Russia. African nations will also struggle with market interruptions and price increases. In the meantime, the increasing costs and scarcity will result into a significant effect on food aid for vulnerable nations. The United Nations World Food Programme presume that in Ukraine alone, 45 % of the citizens are in 'anxiety already about getting sufficient food' (Caprile, 2022).

2.6 Global efforts to address food insecurity food

The key task of states is to guarantee adequate food for its citizens. This has been reiterated during many global events. This includes the declaration of the initial Rome Principle for Sustainable Food Security. This standard based on the Statement of the World Summit on Food Security, section 9 reads: "We reaffirm that food security is a national responsibility and that any plans for addressing food security challenges must be nationally articulated, designed, owned and led, and built on consultation with all key stakeholders. We will make food security a high priority and will reflect this in our national programmers and budgets" More renewed commitments by states on food security have been made during the Rome Declaration of 1996, 2005 MDGs, SDGs among other international gatherings of states (FAO,2018). Among the most important country-level actions mentioned by Land and Heisman, (2015), including setting up of strong food security and nutrition approaches policies and programmes which are coordinated at high levels of government. This also includes consolidation of these policies in national law, multi-sectoral involvement, rolling out and implementation at local levels for improved implementation, evaluation and monitoring of strategies, legislation, policies and programmes. Finally, long term engagement of public and private stakeholders for agricultural and economic development is required (FAO, 2017).

For a better response to global challenges, states and international organisations also committed to additional global funding to the regional and country levels through specific and integrated methods that ensure global food security. These methodologies have included the adoption of country-led strategic and programmatic strategies (WFP, 2018).

According to McDonald (2010), partnerships among various states and stakeholders that promote cooperation for food security field should be

encouraged. Additionally, South and triangular cooperation that propose real prospects for the sharing of policy, skill and technologies required for improving agricultural productivity in low-income countries is another approach. With Official Development Assistance (ODA), contributing states also make real efforts towards reaching ODA targets of 0.7 per cent of GNI to the developing states, and 0.15 to 20 0.2 per cent to the least advanced countries (McDonald, 2010). Developed states and International Organisations deliberate of utilizing external debt relief actions to release resources for fighting hunger, easing rural and urban poverty and stimulating sustainable development. FAO through governments also works on large-scale opportunities of trade that promote financial development and poverty mitigation and as well as increasing food security and nutrition at the national level (MacDonald, 2010).

FAO (2003) also argued for climate change mitigation which would be achieved through heightened international teamwork and sharing of the technology proposed to ensure adaptation to the hostile effects of climate change and recover the productivity of agricultural systems. Food Aid is another global effort based on various situation analysis that includes recipients as well as other associated stakeholders where possible and whose focus is specifically needy and susceptible groups (Clapp, 2020).

According to the UN MDGs (2015) fact sheet on ending poverty, there has been some development in developmental aid. Microfinance has helped many poor people to increase their income through self-employment and employment. This has led to some improvements in health and education indicators. However, this begs the question to what extent are the improvements; could they have been maximized to the greater population of Africa?

2.6. 1 Millennium Development Goal

Eradicating Extreme Poverty and Hunger and Sustainable Development

Goal 1: Zero Hunger "The bells that are presently tolling for those starving to death every day will tomorrow be tolling or all mankind if it did not want, or did not know, or if it could not be sufficiently wise to save itself" (Fidel Castro, World Food Summit, 16 November 1996) Most presenters at the WFS were bound by their profound concern for the injustice which contributes to more than 800

million hungry people, 22 years after FAO's 1974 World Food Conference. Subsequently, unity fragmented (Mulvany, 1997). Some researchers answer through greater importance of planned economic and social development on the input, civil rights, and requirements of small-scale farmers and poor users. However, others argued the liberal market would deliver the required food for a growing and progressively urbanized population (Mulvany, 1997). The Rome declaration had seven objectives. Highlighted below are two of the seven objectives that have a direct contribution to this thesis 1. “We will ensure an enabling political, social, and economic environment designed to create the best conditions for the eradication of poverty and durable peace, based on full and equal participation of women and men, which is most conducive to achieving sustainable food security for all”. 2 “We will implement policies aimed at eradicating poverty and inequality and improving physical and economic access by all, at all times, to sufficient, nutritionally adequate and safe food and its effective utilization” (FAO, n.d) An NGO forum proposed an additional commitment which was contended by technocrats at the summit.

In June 2012, at the United Nations (UN) Conference in Rio de Janeiro, a judgment was agreed to specify extra targets and tasks related to each goal. However, the targets addressed food accessibility and availability to a subsection of a vulnerable population and neglected the development of food sustainability and utilization. This gap was later rectified by the SDG 2: which solely focuses on ending hunger, achieving food security and improving nutrition, and promoting sustainable agriculture (Wyasokinska, 2017). As defined by United Nations Development Programme (UNDP), goals were adopted by all United Nations Member States in 2015 as a collective call to action to finish poverty, safeguard the 24 planet and ensure justice and prosperity for all people by 2030. The 17 distinct goals recognized also appreciated that they were each a priority but integrated if they were to sustainably realize. All governments, their cooperation, knowledge, financial resources were also needed to achieve the Sustainable Development Goals (SDGs). SDG 2: Zero Hunger would require a healthy nation, gender equality, clean water, zero poverty to mention the least other goals for its targets to be realized (Sharma & Sobti, 2017).

2.7 The food security state from levels of global to national

Access to adequate nutritious food is a global challenge (Adeniyi & Durojaye, 2020). According to Matebeni (2018), over the past half-century, global food production has always been ahead of demand; however, there is still a great number of people experiencing food insecurity around the world. In 2000, 189 countries gathered at the United Nations (UN) to formulate the Millennium Development Goals (MDGs) to reduce world challenges by achieving eight development goals by 2015 (Hwang & Kim, 2015). Goal One of the MDGs was to reduce extreme hunger and poverty (UN, 2015). According to the United Nations Report, the number of undernourished people dropped from 23.3% between 1990 and 1992 to 12.9% between 2015 and 2016 (UN, 2015). However, other reports reveal shocking numbers of food insecurity after the MDGs.

A report released by the FAO in 2017 revealed that the number of people who are undernourished in the world increased from 777 million in 2015 to 815 million in 2016. Africa has the highest prevalence of undernourishment while Asia has the highest number of undernourished people (FAO et al., 2017). According to various international organisations (see in particular, FAO et al., 2019), more than 820 million people in the world experience hunger, making it difficult to achieve the zero hunger 2030 goal. According to the FAO et al., (2019), about 1.3 billion of the world population experience food insecurity at a moderate level, meaning that they do not have access to nutritious food. SDGs were introduced after the deadline of the MDGs (Matebeni, 2018). The SDGs were established in 2015 to continue the efforts of trying to achieve the MDGs and to deal with other new challenges (Hwang and Kim, 2015). The SDGs contain 17 goals that should be achieved by 2030 (Hwang and Kim, 2015). SDG 1 focuses on ending poverty and SDG 2 on ending hunger and food insecurity by 2030 (Matebeni, 2018). Estimations of the SDG indicators that monitor the progress towards achieving access to all, show that about 2 billion people in the world experience food insecurity (FAO et al., 2019). The COVID-19 pandemic has exacerbated the issue of food security, disrupted the chains of food supply, caused the loss

of income, and widened income inequalities (FAO et al., 2021). According to the FAO et al., (2021), between 720 million and 811 million people around the globe faced hunger in 2020, an increase from 161 million from 2019. These trends and events show that food insecurity continues to be a major problem facing the global population. In 1994 after the collapse of the apartheid system in South Africa, achieving food security was prioritized by the South African government and the right to access to sufficient food was included in the Constitution. Sections 26 and 27 of the Constitution states that every South African citizen has a right to food, water, and social security (Du Toit et al., 2011). South Africa is described as being food secure at the national level because it can produce enough staple foods and can import them (Mothae, 2017). This means that the country can produce food for everyone and still have a surplus to export to other countries. Even though South Africa is considered to be food secure at a national level, there are numerous households experiencing food insecurity (Mothae, 2017; Ndobo, 2013), like that of the smallholder farmers in Chabelane village.

According to Statistics South Africa (Stats SA, 2019b), several studies have established links between food insecurity, poverty, unemployment, and inequality. Research conducted in South Africa shows that poverty is rooted in the apartheid policies that perpetuated racial inequalities where most black South Africans were placed in unsustainable settlements (Bhorat & Kanbur, 2006, cited in Stats SA, 2019a). Under these conditions, people struggle to meet their basic needs, making it impossible for them to buy food. According to Stats SA (2017), 56% of the South African population live in poverty, while nearly 28% live in extreme poverty below the poverty line. In another study conducted by the South African National Health and Nutritional Examination, it was found that 28% of households from urban areas were at risk of hunger, while 26% were experiencing hunger in comparison to rural areas, where the risk was 32% and 36% respectively (Oxford, 2018). The unemployment rate in South Africa as of 2021 was 34.9% (Stats SA, 2021). This unemployment rate is derived from the results of the Quarterly Labour Force Survey (QLFS) which indicates that the number of employees decreased by 660,000 in the third quarter of 2021 to 14,3 million (Stats SA, 2021). This is reported to be the highest unemployment rate

to be recorded since the establishment of QLFS in 2008 (Stats SA, 2021). South Africa is known for having the highest global Gini coefficient, which is the income inequality of a country (Read, 2021). The Gini coefficient in the country is 63.0 (World Population Review, 2021). More than 15 million of South Africa's population depend on social grants (Moosa & Patel, 2021). This indicates that many South Africans of working-age are not employed, and thus do not have the resources to access food. Therefore, in South Africa, food insecurity, linked to the socio-economic status of a household, is indicated by employment and food expenditure (Chakona & Shackleton, 2019). For example, majority of people who live in informal settlements in South Africa have inadequate access to food because they have no income (Chakona & Shackleton, 2019). The South African government introduced social grants to enhance income and act as one of the strategies to help curb the rate of poverty in South African households (Chakona and Shackleton, 2019). According to Moosa and Patel (2021), more than 17 million people from low-income households are recipients of social grants. This hinders the economic growth of the country because a large proportion of the population depends on the government for survival.

The COVID-19 pandemic placed more responsibility on the government, as it increased the monetary amounts of social grants, and created social relief grants for those who lost their jobs and could not afford to apply for other forms of grants (Köhler and Bhorat, 2020). Even though social grants play a pivotal role in food security (Moosa and Patel, 2021), improvements in the employment rate would also make a great change. Despite being afforded great importance by the South African government, food insecurity is still one of the major challenges in the country. Food insecurity is a problem that co-exists alongside other social problems in the country that still need to be addressed. To help reduce food insecurity in South Africa, social issues such as unemployment, that has been identified as a major cause of food insecurity in the country, need to be addressed. To this end, the government must expand the employment opportunities for the citizens and also reduce income inequalities.

2.8 Food Security and Food Sovereignty

Although food security and food sovereignty are both focused on ensuring that individuals have sufficient food needed for healthy living, this is where their relationship ends as they differ in the explanation of the causes, consequences and responses to hunger and malnutrition. For food sovereignty advocates, food security is a rhetoric that is deeply entrenched in neoliberalism discourses with an emphasis on international trade and fixation with feeding the masses by any means necessary, thus often working to the advantage of developed economies and big agricultural corporations (Jarosz, 2014; Reddy et al., 2016). Since the mid-1990s, the peasant movement known as La Via Campesina has been at the forefront of the demand for food sovereignty. The movement in their position statement defined food sovereignty as "the right of each nation to maintain and develop its own capacity to produce its basic foods respecting cultural and productive diversity. We have the right to produce our own food in our own territory. Food sovereignty is a precondition to genuine food security" (La Via Campesina, 1996:1). As such, food sovereignty in its initial conception was preoccupied with issues of national sovereignty and food systems diversity (Agarwal, 2014). In 2002, the scope of the movement expanded, and this was reflected in the definition of food sovereignty which was broadened to mean "the rights of people to define their own food and agriculture; to protect and regulate domestic agricultural production and trade in order to achieve sustainable development objectives; to determine the extent to which they want to be self-reliant' (cited in Patel, 2009).

The reference to 'peoples" here embraces the local (community) as well as the household (like those of Chabelane village), thus recognizing the importance of individual food self-sufficiency. Self-reliance serves to promote the rights of 'peoples' to determine their priorities and courses of action on food and agriculture without coercion (La Via Campesina, 2017). Furthermore, the emphasis on regulation is striking as it highlights the need to protect local production and guard against susceptibility to inequitable workings as well as fluctuations of international market. The most comprehensive definition was an outcome of the Nyeleni declaration of the forum for food sovereignty held in Nyeleni, Mali by La Via Campesina in 2007. Food sovereignty was defined as:

“the right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agriculture systems. It puts those who produce, distribute and consume food at the heart of food systems and policies rather than the demands of markets and corporations. It defends the interests and inclusion of the next generation. It offers a strategy to resist and dismantle the current corporate trade and food regime, and directions for food, farming, pastoral and fisheries systems determined by local producers. Food sovereignty prioritises local and national economies and markets and empowers peasant and family farmer-driven agriculture, artisanal fishing, pastoralist-led grazing, and food production, distribution and consumption based on environmental, social and economic sustainability. Food sovereignty promotes transparent trade that guarantees just income to all peoples and the rights of consumers to control their food and nutrition. It ensures that the rights to use and manage our lands, territories, waters, seeds, livestock and biodiversity are in the hands of those of us who produce food. Food sovereignty implies new social relations free of oppression and inequality between men and women, peoples, racial groups, social classes and generations” (La Via Campesina, 2017).

The latest definition stresses peasant empowerment, household farming, elimination of gender inequality, while it also incorporates different rights such as right to manage land (Agarwal, 2018). More importantly, it encompasses everyone involved in the food chain; from farm to plate. However, operationalizing the definition, as Agarwal (2018) notes, may prove to be a tall order because farming families’ choices may be contradictory to the vision of the concept as these are determined by their priorities and constraints they contend with. Limiting their choices, she argues, may undermine the democratic principles of self-determination the declaration advances. The message of the food sovereignty movement is however exigent. Frowning against the business-as-usual approach which prioritises trade, food sovereignty is not merely about economics of food production but also a social and environmental imperative and a sine qua non for food security (McMichael and Schneider, 2011). It prioritizes the analysis of power relations and effects of trade liberalization on agricultural development, poverty, hunger and environment (Jarosz, 2014). It

privileges the ‘commons’, arguing for the recognition of their rights to access and have control over productive resources (McCarthy & Obidzinski, 2015).

2.9 State of world food insecurity

Global development is intrinsically endangered by compelling evidence of global food insecurity. Without a doubt, the issues surrounding food security are intricate and long-lasting. Despite the hurdles, there has been notable progress; yet this growth seems inconsistent and hides the severe predicament that the poor experience in terms of insufficient food. Notwithstanding overwhelming evidence that the world generates enough food to satisfy everybody each day, 2 billion people are undernourished, and every day 1 billion people go hungry (Cistulli et al., 2018).

According to latest estimates, 495 million people worldwide are undernourished (FAO, IFAD, and WFP, 2015). In 2019–20, 7% of the global population struggled to consume enough food to fulfil their needs. Regarding the two internationally recognized targets of food security, the WFS target of reducing by half the amount of hungry people by 2019 was substantially missed compared to the goal of MDG of lowering the number of hungry people by half by 2019 (FAO, IFAD, and WFP, 2019).

However, the total number of undernourished people increased to 321 million in 2017 (FAO, 2018). However, if global food insecurity is quantified using other dimensions or components, these estimates might not accurately reflect the situation on a global scale. According to Pinstrup-Andersen (2019), the FAO estimate of the number of undernourished people (795 million in 2015 and 821 million in 2017) may be greatly understated if the FAO's definition of being food secure is understood to include fulfilling every person's dietary requirement. The world population is expected to exceed 9 billion people by the year 2050, which will necessitate special consideration being given to global food consumption. In addition, it is anticipated that numerous developing nations' per capita incomes will steadily rise, increasing demand for certain types of food. Therefore, the production of food needs to be boosted by a minimum of 70% in order to fulfil the projected 2050 food demands (Tomlinson, 2019). In a comparable manner, it is important to recognize how food security is impacted

by global food prices. Global food security has suffered as a result of the troubled history of food prices worldwide. According to trends in food price during the past decade, gross food costs have generally decreased, but this trend has been notably interrupted by increases in prices in the 1970s, 2008, and 2011 (Godfray et al., 2010). 2008 price of food surges in particular saw several commodities' prices treble from their early-2005 levels, increasing consumer expenses globally and sparking social upheaval in some regions (Beddington, 2017).

However, it is currently believed that the world is currently experiencing a phase of prolonged instability in the price of food worldwide, mostly due to rising demand from developing nations and a greater need for resources through competing users (Godfray et al., 2010). Additionally, regional inequities continue to be a prominent component of the worldwide food security scenario. Despite a 44.5% drop in the prevalence of malnutrition in this part of the world from 1992 (FAO, IFAD, and WFP, 2015), developing regions still have majority of the global hunger crisis.

According to FAO (2018), as of 2017, South Asia had 280 million people living in, 139 million in East Asia, and 231 million in Sub-Saharan Africa. In fact, the problem of starvation in Africa is disturbing. According to Garrity et al., (2010), the region is home to around 75% of the world's ultra-poor people (those who make less than $0.50 per day) and about 26% of the population suffers from extreme food insecurity. Africa is currently seeing the fastest population increase of any continent, and this will surely have an impact on the availability of food (FAO, 2018).

By 2050, the population of the region is expected to increase from 796 million in 2005 to 1.8 billion. Although there has been a dramatic drop over time, Sub-Saharan Africa still has the greatest prevalence of undernourishment in the world (FAO, 2018).

Furthermore, the persistent food insecurity in the area is regularly reinforced by famine threats. For instance, the Sahel region is experiencing an increase in the frequency and intensity of climate shocks, which is negatively affecting vulnerable households' ability to cope with these shocks (IFPRI, 2014). The

growing food deficits that the continent of Sub-Saharan Africa is facing are a key indicator of or contributing to food insecurity in the area. Widening food inequalities in the region are a result of imports taking precedence to make up for the production shortfall (Baro & Deubel, 2006). At the moment, increase in food production is lagging behind increasing growth in population.

2.10 Drivers of world food insecurity

Around the world there are unquestionably millions of malnourished individuals. The fact that a variety of variables have come together to fuel global food insecurity has brought spotlight to these underlying causes, some of which may be interconnected. A number of these have a long-lasting impact on food security because they directly or indirectly affect agricultural productivity. They include:

2.10.1 Climate Change

Climate change is a fact that has long-term effects on the resources of the planet and the environment. According to IPCC (2022), the world's climate has undergone amazing changes, as evidenced by the rising temperature of the atmosphere and oceans, the disappearance of ice and snow, variations in rainfall, the increase in sea levels, and severe weather occurrences. The constant anthropogenic emissions of greenhouse gases, which have reportedly reached an all-time high in recent years, have had an unprecedented impact on the climate system over the past 70 years, causing the changes that are typically referred to as warming (IPCC, 2014).

These emissions are driven largely by human activities ably exemplified via/in industrialization, urbanisation and population growth. The consequences of climate change have indeed been overwhelming. There are pronounced differences on how climate change impacts upon the earth and its resources across regions and continents and this is further contingent on each region’s resource endowments, the extent of man’s intervention on its environment in these regions, as well as livelihoods and resilience strategies peculiar to each region (Devereux & Edwards, 2004).

As a result of climate change, tropical regions may experience longer dry spells, more intense rainfall, and dwindling irrigation water supplies (Rosegrant & Cline, 2003). If nothing is done to combat climate change, it is expected that the frequency of severe weather conditions, such as floods and droughts, will increase globally (Godfray & Robinson, 2015).

The effects of climate change on food security are wide-ranging and complex. However, the primary way that climate change affects food security is through its effects on agricultural output. It is equally crucial to recognize how agriculture is impacted by climate change and vice versa.

However, Godfray and Garnett (2014) contend that in some circumstances, where land that was previously unsuited for agriculture, particularly in high latitudes, turns acceptable because of a climate change, a rise in temperature, might be advantageous to agriculture. Agriculture, which is responsible for about 10 to 12% of greenhouse gases due to the usage of fertilizers without first considering the impact of deforestation, has a major effect on food productivity and is also an important contributor to climate change (Beddington, 2010; Cistulli et al., 2014).

According to Godfray and Garnett (2014) although there have been a number of objections, it is generally accepted that the net effect of change in climate on agriculture would be declining productivity Despite the fact that concerns with food access are increasingly widespread, it is still crucial to ensure availability of food, particularly in regions that experience the worst effects of climate change. It is crucial to balance supply and demand for food in light of global warming and its impact on the ecosystems, land, water —all of which are crucial to food systems. This necessitates the implementation of strict measures to lessen the effects of greenhouse gas emissions and climate change, which, must be decreased by at least 50% to 60% by the year 2050 (Beddington, 2010).

2.10.2 Population growth

Demand for agricultural products is steadily increasing due to population growth, placing pressure on a supply of goods that is not quite limitless and jeopardizing the food security globally. According to UNDESA (2022), the earth's population increased by almost 1 billion people in the previous 5 years, reaching 8.0 billion

in 2022. Africa is projected to account for over 50% of the growth in world population, increasing from 1.2 billion in 2015 to 2.5 billion by 2050 bringing the total to 8.5 billion by 2030 and 9.7 billion by 2050 (UNDESA, 2015).

The planned increase in population is anticipated to result in rising food consumption and also greater rivalry for resources on earth, including water and land needed for production of food. According to Cistulli et al., (2014), within the next 20 years, demand for food is expected to increase by over 50%. This is happening despite a pattern of declining yields from agriculture, particularly in Africa, wherein the bulk of people suffering food insecurity reside.

2.10.3 Urbanisation

People frequently relocate permanently or semi-permanently from one place to another in search of better possibilities. Urbanization, also known as the growth in the population residing in urban regions as an outcome of a migration of people from rural to urban areas, has significant effects on food security (Mcgranahan & Satterthwaite, 2014). In the world, greater numbers of individuals reside in urban regions than in rural ones, and by the year 2050, 66% more people will live in urban areas compared in rural ones (UNDESA, 2014).

Evidence indicates that Asia and Africa are urbanizing faster than other regions. The %age of people residing in urban areas in Asia and Africa was 48% and 40% respectively in 2014 but this is anticipated to increase to 64% and 56% by 2050 (UNDESA, 2014). As people move from rural areas to urban areas, agriculture suffers as labour force working in the sector is lost to increasingly expanding cities which are often serviced with food produced in rural areas. Rapid urbanization is accelerating demand for higher valued food products such as vegetables, fruits, meats and dairy products (Rosegrant & Cline, 2003). The resultant effect of this is shortage of agricultural commodities which may often need to be offset through importation. In Africa, for instance, about 70% of farmers are smallholders living in rural areas, but these numbers are slowly shrinking as a result of urbanization. Farming in Nigeria is being left in the hands of the ageing population as young and energetic people troop to the cities in search of better opportunities (Akerele et al., 2013). As seen in chapter 6 of the study, demographic data of the participants shows that majority of the

smallholder farmers in Chabelane village are farmers aged between 31-40 years of age.

The corollary of the foregoing is that continued urbanization is taking its toll on production and consequently on food security; food demand is increasing with a concomitant constrain on supply resulting from reduced agricultural labour force. Furthermore, urbanization of many countries that were previously largely rural is associated with the rising expansion of supermarkets and global food retail chain outlets, further driving up demand for higher valued food products (Gregory, Ingram & Brklacich, 2018).

2.10.4 Economic prosperity

Consumption will increase as countries and people tend to be richer, driven by a need for superior services and greater quality of life. Food demand is anticipated to rise along with income prosperity, particularly for more expensive food items. It is projected that economic progress in developing nations will raise many people's status and pull millions from poverty. This progress will undoubtedly have certain concomitant effects, some of which are already showing. In numerous countries, lower levels of hunger have been achieved thanks to increased economic growth (FAO, IFAD, and WFP, 2013).

Growing per capita consumption and dietary shifts away from starch-heavy diets toward ones higher in protein and away from regional foods toward Western foods are two effects of rising prosperity (Baldos & Hertel, 2014). It is anticipated that rising earnings in emerging nations would be accompanied by a rise in the intake of meat and dairy products, which will raise the need for agricultural goods used to feed cattle (Beddington, 2010). According to predictions made for the year 2050, developing nations will account for 93% of the increase in global demand for cereals and 85% of the increase in global demand for meat, respectively (Rosegrant & Cline, 2003).

In expanding nations, there is also an expanding middle class with affluent preferences, which drives up demand for more expensive goods like agricultural products. In a similar vein, rising wealth has the potential to encourage increased agriculture investment, which may be achieved through, among other things, the development of infrastructure, scientific research, new technologies,

and innovations to enhance livestock breeding, crop and seed types. Without a doubt, the aforementioned will increase the world's food seurity, but it depends on stakeholders' priorities for agriculture sector development in an environment of rising success (Rosegrant & Cline, 2003).

2.10.5 Water

It is obvious that managing water will have a lasting impact on agricultural output and food security, as can be seen in this study (see chapter…). Up to 70% of water use is currently accounted for by agriculture, however by 2050 it is predicted that this number would fall to 60% (Beddington, 2010). This is not unrelated to the diversity of global and national economies, which is shown in the declining agriculture role to GDP and the growing rivalry among diverse sectors for water usage (Beddington, 2010). Since the 1980s, freshwater intake has increased by 1% annually, and groundwater abstraction has increased by 1% to 2% annually. Both of these trends are related to the rising demand from emerging nations (WWAP, 2016).

Total water intake increased in South Africa, a figure that is much less than the global average but is expected to rise sharply as a consequence of population and economic expansion (Amarasinghe & Smakhtin, 2021). Droughts, floods, seasonal changes, and climate change all contribute to a decrease in the amount of water that is available, further compounding the problem of availability of water in agriculture. 90% of the water withdrawn from sources that are accessible in numerous developing nations is used for irrigation, which has continued to be a crucial part of agricultural productivity (WBCSD, 2021).

However, according to Godfray and Garnett (2018), 15 to 35% of irrigation withdrawals worldwide are considered to be unsustainable. In addition to this, the rising population and economies have increased the need for water coming from lakes, rivers, and aquifers for home and industrial use. As a result, it is projected that the global per capita drop in irrigation water use that has been observed over the past couple of decades will go on (Godfray & Robinson, 2015). As seen in chapter 9 of this study, most of the smallholder farmers had issues of water whereby they were using water from the river to irrigate their crops.

2.10.6 Land

Agriculture relies heavily on effective land resource management, and this trend is anticipated to last. At the moment, cropland accounts for one third of all agricultural land use, encompassing more than 30% of the world's land area (FAO, 2018). The estimated 60% rise in demand for food by 2050 (Alexandratos and Bruinsma, 2012) must undoubtedly be fulfilled by increasing agricultural output. Evidence suggests that although a rise in crop yields as well as cropping intensities is expected to account for roughly 90% of the predicted rise in world agricultural output (80% in developing nations), land expansion is expected to account for the remaining 10% (Bruinsma, 2009a, 2009b).

Effective land resource management is crucial to agriculture, and this trend is expected to continue. Cropland currently occupies over 30% of the world's land surface and makes about one-third of the total agricultural land usage (FAO, 2018). Increasing agricultural output is unquestionably necessary to meet the projected 60% increase in food demand by 2050 (Alexandratos and Bruinsma, 2012). Evidence indicates that while an increase in crop intensities and crop yields is anticipated to be responsible for around 90% of the estimated increase in global agricultural output (80% in developing countries), land expansion is anticipated to contribute for the 10% that remains (Bruinsma, 2009b).

At least 300 people in Zimbabwe who received land allocations during the height of the country's land reform program stand at risk of losing their means of survival when peri-urban land used for subsistence farming was allegedly taken over by suspected government officials. Earlier, the administration of President Emmerson Mnangagwa declared that white farmers who had land that had been expropriated by former President Robert Mugabe may petition to receive it back. The Zimbabwe Congress of Trade Unions has also criticized President Emmerson Mnangagwa's land compensation plan, claiming that his administration has neglected to pay 400,000 former commercial farmworkers who are still owed terminal benefits.

2.11. The consequences of food insecurity

There are three main consequences of food insecurity, namely, hunger, vulnerability and malnutrition. These are discussed in detail below.

2.11.1 Hunger

According to Hamilton et al., (2018), hunger is described as "the uncomfortable or painful sensation caused by lack of food or the recurrent and involuntary lack of access to food." According to an FAO (2019) projected that, every day between 2010 and 2015, nearly 670 million people around the world go to bed hungry. Hunger is thought to be one of the effects of food insecurity over time. Due to its potential to lead to malnutrition over time, hunger is a social issue. Hunger-related pain results when there is not enough food available due to scarce resources (Cook & Jeng, 2009). Because low labour productivity results from hungry workers, hunger has a direct impact on the labour market and slows economic growth. Additionally, it is an indicator of risk for numerous illnesses across the world and contributes to a lot of ailments (POSTNOTE, 2006).

2.11.2 Vulnerability

Vulnerability, as described by Chambers (1989), is the inability to deal with stress and unforeseen circumstances. A person or household can be exposed to hazards, shocks, and stress on the outside, but they can also be defenceless on the inside due to a lack of resources to deal with them without suffering negative consequences. Vulnerability and food insecurity both have a significant impact on how vulnerable households are to stress and anxiety and how well they are able to handle these situations.

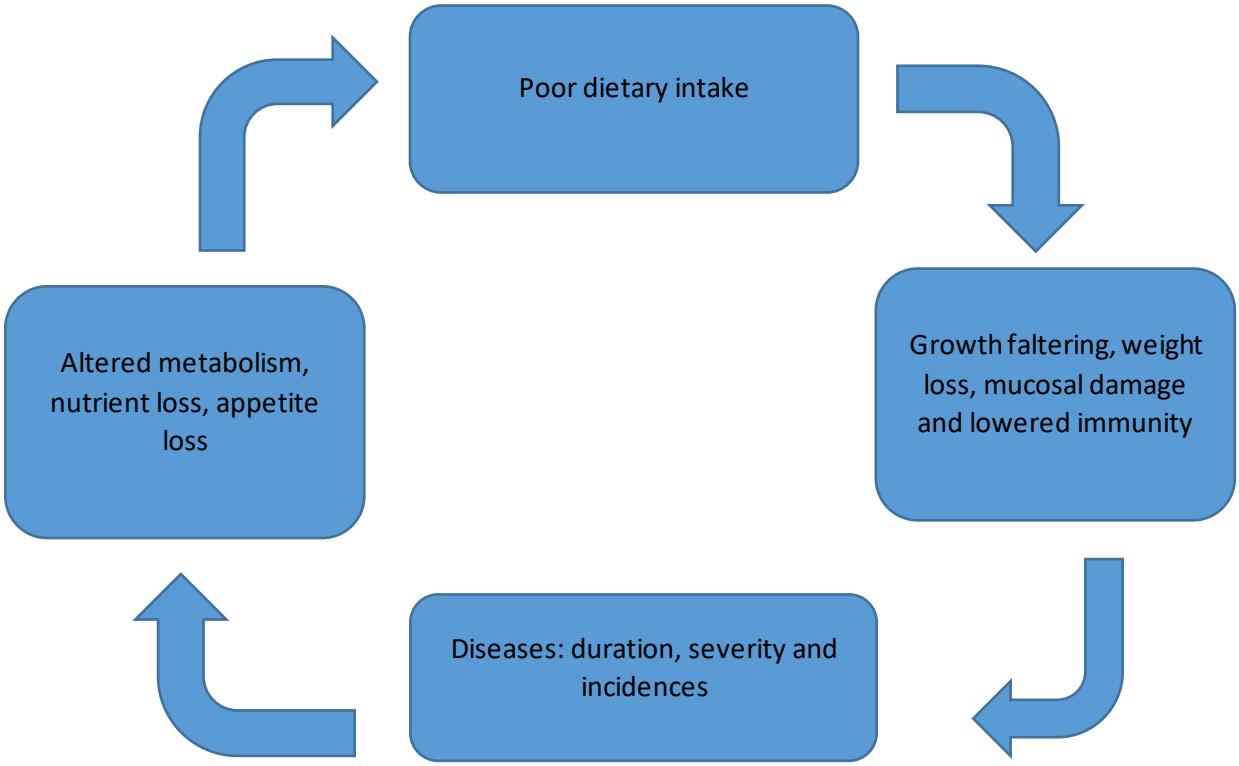
According to Hamelin et al., (2018)'s study, among the social effects of food insecurity is stress. Long-term food insufficiency leads to stress, which in turn decreases the need for nourishment and food and leads to decline in cooking interest (Hart, 2009:376). Because food insecurity encompasses both possible future danger of food insecurity as well as the current occurrence of inadequate food consumption, it is implied that both notions are comparable in nature by the phrase "vulnerability to food insecurity" (European Commission, 2018:7).

2.11.3 Malnutrition

Malnutrition encompasses problems including the general insufficiency brought on by insufficient amounts of nutrients like iron and vitamins. Protein and calorie consumption must be kept to a minimum for people to sustain growth and

wellness (Folaranmia, 2012). Majority of malnourished people live in poor households, especially in emerging nations. According to Yegammia (2002), malnutrition primarily affects children and mothers. There is a significant association between malnutrition and food insecuirty, according to a number of academic studies, including Mvelase (2017), Mashamaite (2014), and Makgobokwane (2019). This is because it is thought that while sufficient nutritional food consumption is not indicative of deficiency always, neither does insufficient intake of nutritional food (Yegammia, 2002). According to Osei et al., (2010), food consumption is impacted by food insecurity at the household level, which may then have an impact on the dietary diversity and status of nutrition of specific households. Because malnutrition results in slow growth and problems with mental development, it has a negative impact on human wellness. Absolute poverty is the primary cause of malnutrition (Bello, 2009:2). The World Development Report (2018:95) demonstrated that malnutrition impacted on the economy since it reduces productivity by 10% to 15% of lifetime earnings as well as reduces GDP by 2% to 3%. The European Commission (2009:11) proposes two types of malnutrition: acute malnutrition, which predominates when a child is underweight for his or her age and typically increases mortality risk, and chronic malnutrition, which primarily affects children and typically occurs when a child's diet is chronically not appropriate and impacts a child's future growth. Figure 3.1 shows the malnutrition infection cycle.

Figure 3.1: The malnutrition infection cycle



Source: Tomkins and Watson, 1989

2.12 Production of agricultural in the World

There is ongoing debate over the contribution of agriculture, particularly in Africa, to economic development. While many believe that the sector is essential to promoting prosperity and reducing poverty in Africa, others have questioned the sector's applicability, arguing that its influence on these goals is quite marginal. The arguments on both sides were briefly presented in a paper by Diao et al. (2010) on the role of agriculture in Africa's development. They, the critics, claim that the industry is marked by poor performance and steadily declining agro-ecological conditions. Additionally, it is assumed that because agriculture is expected to play a less part in development, the agricultural sector's continued size could be a clue as to why the region has failed. According to Murphy (2010), there was a claim that non-agricultural sectors produce more revenue and jobs. Nonetheless, proponents of agriculture's role in development have made reference to both the sector's underperformance in many African nations as well as its size and growth-linkage benefits as an engine of economic development (Diao, Hazell & Thurlow, 2010). Furthermore, since agriculture currently contributes significantly to both the GDP and labour

force of sub-Saharan Africa, and accounts for one-third of the region's GDP, it is a sector that can deliver growth that is pro-poor and shared (Diao, Hazell & Thurlow, 2010). This question also relates to what kind of growth is beneficial to all.

Nonetheless, there is no denying that boosting agricultural output will always be essential to the global effort to reduce poverty and ensure food security. Agriculture's capacity to reduce poverty and promote human development as well as food security through its dual roles of feeding consumers and generating cash throughout value chains is indisputable. The aforementioned has guaranteed that stakeholders' attention and focus have consistently been on (growing) agricultural production. There are several reasons to increase agricultural productivity, including improved food security and a decrease in poverty. First, more agricultural output will address the issue of food availability by eradicating shortages and bringing down food costs, enhancing affordability among the underprivileged. Secondly, by improving economic opportunities and increasing income as a result of the rise in food production (especially if the rate of productivity increase is higher than that of price decrease), economic accessibility to food is enhanced (DFID, 2018). Thirdly and an offshoot of the aforementioned is that dietary diversity and food quality of households are bound to improve owing to increased agricultural production (Lyne, Hendriks & Ngidi, 2009). Achieving individual food security will enhance healthy living, consequently leading to poverty reduction as people are healthy enough to work and secure their livelihoods. There is evidence in profusion relating to the positive relationship between increased agricultural productivity and reduction of poverty (Diao, Hazell & Thurlow, 2010; Gollin, 2014). In their empirical review of the impact of agricultural development on poverty reduction, Christiansen et al. (2010), cited in Murphy (2010), for example, discovered that agriculture is more successful than non-agricultural sectors at decreasing impoverishment among the most impoverished people, that is, as long as disparities is not too high.

Food availability has improved as a result of increased agricultural output observed globally over the past 50 years (Baldos & Hertel, 2014). Reliance on expanding land cultivation and technical improvement have been necessary for

accomplishing this. Nevertheless, despite the fact that the globe produces sufficient food to feed everyone, there are growing scarcities due to the significant inequalities in regional and national food production. For example, despite having a larger labour force involved in agriculture, one-third of Africa's food grains are imported, and the continent's food production growth rate falls behind its population growth rate. However, due to declining investments in agricultural research, infrastructure, irrigation, and water resource management, food yield increase has slowed recently on a global scale (Rosegrant & Cline, 2021). The decline in crop yield growth has also been attributed to increased competition for resources. This decline is made worse by the threat posed by climate change, which has a negative impact on agricultural production globally, particularly in tropical regions where long stretches of heavy rainfall, which can cause flooding are interspersed with protracted dry spells. Poor weather, inadequate infrastructure, corruption, erratic policy, and conflicts all have an impact on agricultural output in Africa (Cistulli et al., 2014). Access to markets and financing is another factor limiting the production of agricultural commodities (Pinstrup-Andersen, 2000; Pottier, 1999; Pinstrup-Andersen, 2000; Stevens, Devereux and Kennan, 2003; Lyne, Hendriks and Ngidi, 2009; Qureshi, Dixon and Wood, 2015). It is difficult for rural farmers, the bulk of whom are smallholders, to obtain institutional credits, and the effectiveness of government funded credit programs has been lacklustre (Pinstrup-Andersen, 2000). This is similarly to the study findings in chapter 9 whereby the smallholder farmers have challenges of not being able to get assistance with loans at the banks to fund their farms.

The idea that all farmers have unrestricted access to markets and resources is maybe deceptive when it comes to marketplaces. As Pottier (1999) correctly notes, terms of trade and trade channels are shaped by local power structures, which are by products of the interaction and bargaining between producers (farmers) and marketers (traders). It would consequently be imprecise to speak to the market as a "single, unified exchange environment" given the dynamic nature of the negotiation and relationships (Pottier, 1999:100). Large-scale commercial producers have generally benefited from markets, but smallholders with restricted access to input and output markets have suffered as a result

(Stevens, Devereux & Kennan, 2003). Because of the aforementioned, efforts are currently being made to enhance food production, particularly in areas where shortage is common. This is further supported by the expectation that the global population would grow and that food demand will rise in tandem. There exists a renewed push to double food production in order to satisfy the projected 9 billion people on Earth in 2050 (Sage, 2013; Tomlinson, 2013). Remarkably high rates of agricultural expansion are needed to fulfil projected increases in food demand in the future (Gowing, 2003). This needs to be accomplished in an environment with finite water (as experienced by smallholder farmers in Chabelane village as well) and land resources and a changing climate (Lal, 2013).

Given that the majority of the world's food production has been dependent on irrigated, fertile rain-fed lands, with less fertile lands neglected as a result, maximizing productivity on present agricultural land and increasing cropped land through rendering the less productive lands more appropriate for use will be necessary to increase productivity in the years to come (Pinstrup-Andersen, 2000; Pinstrup-Andersen, Pandya-Lorch and Rosegrant, 2001; Gowing, 2003; Garrity et al., 2010; Godfray and Garnett, 2014). For example, it is projected that expansion will account for 25% of Sub-Saharan Africa's rise in food production through 2030, with the remaining 75% coming from improving the quantity of yields of crops on previously farmed agricultural lands (Gowing, 2003). A significant investment in agricultural research, infrastructure, and technology, as well as the successful fusion of traditional and modern farming methods with an emphasis on sustainability, will all be necessary to increase global agricultural production. Indeed, redesigning agricultural production requires a consideration of sustainability. The sustainable intensification of production, as defined by Godfray and Garnett (2014), calls for raising productivity without negatively affecting the environment or jeopardizing the ability of future generations to satisfy their food needs. A reference to value chain agriculture is also essential, since smallholders are being integrated into agricultural value chains as a means of boosting agricultural productivity on a worldwide scale.

Value chain agriculture has indeed become the "it" thing these days, combining output for both export and home consumption while encouraging inclusive

engagement from all parties involved. McMichael and Schneider (2011) claim that commercialization, which includes smallholder farmers' integration into the larger food commerce and production system, is an effective way to boost agricultural productivity. Additionally, as this will encourage smallholders to participate in agricultural trade, access to markets and financing should be improved. When obstacles to the profitable production and trading of agricultural commodities are removed, it will be possible to increase rural household incomes (Lyne, Hendriks, and Ngidi, 2009). In order to ensure a proper balance between market mechanisms and regulations, the aforementioned calls for government intervention (Pinstrup-Andersen, 2000). Developing and implementing sound policies is another requirement for raising agricultural output. Even in situations where poverty is widespread, progress toward food security can be made as long as policies that prioritize increasing agricultural output and food availability, paying special attention to smallholders—are implemented. When social protection programs and other initiatives aimed at increasing the incomes of the impoverished and encouraging them to take advantage of economic possibilities are combined with such policies, their efficacy is further enhanced (FAO, IFAD & WFP, 2013).

2.13 Definition of smallholder farmers

There is no fundamental agreement as to what is meant by the term "smallholder farming" or "smallholder farmers" because it has been interpreted in a variety of ways using a variety of features. The size of the land, the use of labour, and goal or emphasis of the production, the source of capital are important indicators of smallholders (Kamara & Brixiova, 2010). There are significant differences in operations, farm size, resource allocation and distribution, inputs, as well as outputs even among smallholders (Siddik et al., 2015).

As a result, the idea has become hazy because there is no accepted definition in the literature. For instance, there is a propensity for smallholders to be confused with subsistence farming, which only makes up a small portion of overall household income, and some have used the word "smallholders" to refer to all rural poor people (like those of Chabelane Village) (Cousins, 2013). It

would be improper to describe, for example, a chicken farm based on the extent of the area of land employed in production as high yields may be obtained from very small land (Gollin, 2014). Nevertheless, various smallholder descriptions are suitable for varied production systems.

According to Collier and Dercon (2014), most of the farms in Africa have a median size of one hectare and are smaller than two hectares in size. According to Gollin (2014), "the quality of the land, the profit-maximizing choice of output and technology, and the prices of inputs and outputs" are the factors that determine the size of a farm. The amount of labour and capital that will be used in production will rely on their respective costs, which will also determine how much land will be used for production. When capital is scarce in developing nations, there is a greater reliance on labour to make up for the shortfall in resources and suitable technology, which further limits the size of farms (Gollin, 2014).

According to Cousins, (2008), with regard to the scope or production capacity, smallholders include those who sell the surplus generated after satisfying household consumption needs, those who produce primarily for the market and those who fall under the category of smallholder commercial farmers on a modest scale and with few outside inputs, they produce agricultural commodities (IFAD and UNEP, 2013). For majority of smallholder families, smallholder agriculture is the main source of food. There are high rates of household consumption of agricultural products amongst African smallholder households (Gollin, 2014).

Majority of smallholder farmers are independent business owners with few employing other people. According to Salama, Kamara, and Brixiova (2010), most of smallholder farm is structured with the family unit at its core and depends on family labour to run these farms. Except for huge plantations, majority of Africans working in agriculture are self-employed, accounting for a sizeable fraction of the region's labour force overall (Gollin, 2014). In addition, many smallholders work outside the farm to supplement their income.

These are not implausible explanations. Many smallholder households discovered that their yearly profits from farming were hardly enough to keep

them afloat. Thus, diversifying one's sources of income becomes a survival tactic. According to Gollin (2014), rural non-farm employment augments income from farming while assisting individuals and households in managing risks, seasonal swings in agricultural outputs, and labour demand.

Cousins (2008) argues that while characterizing smallholders, the differences that might arise among them across certain economic and social traits including class identity, income and assets have been unfairly neglected in favour of the mutual features of smallholders. In fact, there are major differences across smallholders in terms of the tools and methods they use to support their livelihoods (Murphy, 2010; Fan et al., 2013; IFAD & UNEP, 2013).

The understanding of the complexities and root causes influencing smallholders' capacity to sell their products is also inadequate (Cousins, 2008). Smallholders generally experience marginalization in terms of "accessibility, resources, information, technology, capital and assets" (IFAD & UNEP, 2013:10), despite any differences that may exist among them. Another similarity is that smallholding agriculture is primarily practiced in rural areas, which are also where poor nations produce majority of their agricultural output (IFAD & UNEP, 2013; Fan et al., 2013). Additionally, tiny farms are home to majority of those who are undernourished and those who live in abject poverty (Fan et al., 2013).

Since majority of the 1.4 billion poor people who live in developing countries are smallholder farmers, smallholders make up a significant fraction of the population there (UNCTAD, 2015). When smallholders are able to engage in "accumulation from below," that is, when they are able to produce a marketable surplus and successfully reinvest some of the profit resulting from the surplus for future production expansion. As Cousins (2008) correctly notes, smallholder agriculture can only have a meaningful impact on the reduction of poverty. According to Siddik et al., (2015), the contribution of smallholder farmers to economic growth and the elimination of poverty in Sierra Leone was not primarily through export but rather was noticeable in the local food products sales, which helped the country's economy. Smallholders in Zambia prioritize securing household consumption in the face of unknowns over pursuing maximized profits (Umer, 2013).

2.13.1 Food security and smallholder farmers

Achora et al., (2016) claim that agricultural communities have a long history of interpersonal connections in which members of the community regularly interact to get to know one another. New and diverse knowledge systems are forming, the climate has altered, and there is an increased need for production and supply of food (Brown & Sonwa, 2015). Agricultural knowledge and food security are crucial to enhancing knowledge, increasing farm profitability, and making informed agricultural decisions. Thamaga-Chitja and Morojele (2014) claim that South Africa's agriculture sector has a dual form.

Agriculture is significant in South Africa because it promotes food security, improves living circumstances, and generates income for many households (FAO, 2017). According to Stats SA (2019), agriculture in South Africa makes a major economic contribution and has the ability to add up to 1 million new employments by 2030. It is also crucial to know that agriculture contributed 33.6% of the 2.5% growth in GDP during the second quarter (Stats SA, 2019). Nearly 3 million households, or about 20.7% of all families in South Africa, practice farming (Stats SA, 2019).

In terms of their contribution to food production and food security, small-scale farmers are crucial to agricultural output (Smedlund, 2010). The proper use of adequate availability food quality and accessibility is related to food security for families and individuals (FAO, 2017). One of the main pillars for reducing poverty is education. Social ties assist households with low resources in raising the money necessary to purchase food (Faure, 2015). Understanding the way individuals utilize their networks to gain information and resources is crucial.

Agricultural knowledge is related to and affects agricultural output in a number of ways. The functions of agricultural knowledge and information systems need to be recognized in order to maximize the potential of useful knowledge systems that give precise, valuable, and pertinent information and knowledge (Goulet, 2013). Agricultural societies are helped in making good decisions by timely and precise knowledge. Smallholder farms' productivity is increased by using agricultural knowledge (Hart, 2007). According to evidence (FAO, 2014), more independence may benefit a number of crucial development outcomes,

including food safety and nutrition as well as household productivity in agriculture.

Using pertinent, reliable, and important knowledge and information, it is possible to improve the outcome of these other elements (Hornidge et al., 2016). To make informed decisions, farmers need access to information from sources such as education, research, extension and others (Jennex & Assefa, 2018). Very little study has been done on the agricultural knowledge structures, compared to research on farmers' extension services and social information networks. Agriculture provides a natural, different setting for life and serves as farmers' main source of income, especially in developing countries (FAO, 2014). Therefore, providing farmers with reliable and applicable data requires an efficient and effective system of information transmission. It's critical to examine how social communication network and farmers in rural areas relate on both visible and invisible levels (Kigatiira et al., 2018). Smallholder farmers have a significant role in ensuring food security, especially in developing countries, and their efficiency depends on their improved productivity founded on knowledge.

2.13.2 Types and Characteristics of Smallholder Subsistence Agriculture

Smallholder agricultural production of cattle, cereals, and poultry accounts for a sizeable portion of agricultural output for subsistence needs in a large number of developing countries (Salami, Kamara & Brixiova, 2010). Smallholder subsistence farming can be characterized in several ways and differs from country to country. Smallholder agriculture is based on ownership, productivity, and land (Salami et al., 2010).

In certain cases, smallholder farmers use remittances and social assistance subsidies which are the off-farm activities which complement their on-farm operations to meet household food demands. Over 80% of land in majority of developing countries is less than two hectares in size, and the average herd size is ten livestock, making smallholder farming one of the most important agricultural operations (FAO, 2019). Smallholder farming is connected with low levels of production, poor quality, a lack of market, and a lack of agricultural productivity such as financing, technology, and labour (Salami et al, 2010). This is similarly to the study findings in chapter 9 which stated the challenges that

smallholder farmers are encountered with. The bulk of rural communities rely on the sector as their principal source of income.

Smallholder farmers supplement their food and income supplies by cultivating crops on limited amounts of land (Coetzee, 2018). Because of this, most families rely mainly on farms that are smaller than two hectares to maintain their unique dwellings and grow surplus crops for sale that can be used to meet family necessities. Because of this, the vast majority of the world's most impoverished people who live in isolated rural areas, perceive smallholder agriculture as a key tactic for overcoming ongoing food insecurity and poverty (Coetzee, 2018).

According to Machethe (2004), promoting expansion of smallholder agricultural

could be a fantastic way to combat global food insecurity and economic inequality while also assuring food security for a large number of households in rural areas. More than 1 billion people, which involves half of the globe's hunger-stricken population as well as majority of those experiencing food insecurity, own over 300 million smallholder farms in majority of developing countries (Carroll, Stern, Zook, Funes, Rastegar, & Lien, 2021). These farmers produce the largest share of the agricultural output in most of South Asian and African countries.

Zhou (2021) asserts that smallholder farming is primarily practiced by people in Asia, with China encompassing nearly 98% of smallholder farms and Africa coming in second. In contrast, Latin America contains only a handful of smallholder farmers who work on land that is below 2 hectares. Smallholder farms make up majority of land holdings in India, accounting for about 85% of all land and 42% of all agricultural land, and they have a considerable impact on the country's grain production (Zhou, 2021). The bulk of smallholder subsistence farmers concentrate on raising maize, livestock, rice and vegetables among other things. In this study as stated in chapter 6, the smallholder farmers are practicing livestock farming and crop farming.

Throughout the years, debates regarding the ideal size of farms to promote prosperity and boost the economy have raged between small-scale and large-scale agriculture. The question of whether smallholder agriculture proves to be more effective, generates economic growth, and guarantees fast decreases in

poverty in comparison to commercial farming is one that is always being discussed. Indeed, there is plenty of proof to back up every aspect of the argument. (Zhou, 2021).

Collier and Dercon (2014) make the case that historically, sustained improvement in productivity of labour in agriculture has historically been significantly associated with labour decrease on agricultural land, casting doubt on the ongoing dedication to smallholder agriculture as a crucial component to growth in agriculture in the midst of unrelenting globalization and urbanization.

According to them, because agriculture is not the main industry driving economic growth, placing excessive value on smallholder agriculture can obstruct efforts to reduce poverty on a large scale. However, Dercon (2013) contends that the next development priority ought to concentrate on urban areas job creation instead of a limited and frequently myopic attention to the agriculture of smallholders. It is true that there is no guarantee that investments in small-scale farming will have the intended impact on boosting growth and reducing poverty. Instead, the success and viability of such smallholder-focused programs would undoubtedly determine the impact's scope (Gollin, 2014). Verschelde et al., (2013), for instance, note that various farms size has various production methods, which lead to various production relations. The inverse link between land production and farm size has been much contested, although there have been many references to it in literature, indicating that size of the farm shouldn't be a barrier to productivity. However, there is disagreement over the economic tenet that, barring material market flaws, marginal factor productivity ought to be comparable among farms owned by a same family (Verschelde et al., 2013).

Smallholder farming has a significant economic impact on the world. A sizeable section of the global population finds work and earns an income thanks to smallholder agriculture, which greatly aids in ensuring food security and eradicating poverty. Worldwide, more than 2 billion people are dependent on more than 600 million smallholder farms (Bill & Melinda Gates Foundation, n.d.). Smallholders make up a sizable portion of the labour population in Asia and Sub-Saharan Africa where the importance of smallholder agriculture is more

clearly evident. They oversee up to 70% of the small farms in these areas and are in charge of providing more than 70% of the food (FAO, 2021; IFAD & UNEP, 2021), in addition to producing majority of the agricultural exports of the countries in the area (UNCTAD, 2015).

Because smallholder agriculture has become so prevalent, maximizing its potential is essential to guarantee growth in agriculture, food security, and the elimination of impoverishment (Garrity et al., 2010; Tscharntke et al., 2012; Agarwal, 2012). Given that majority of the poor depend on agriculture for their livelihood, there appears to be proof that agricultural growth has a sizable impact on poverty (Dercon, 2013), and programs aimed at boosting productivity of the smallholder farmers have positive impact on society (Gollin, 2014). According to Tscharntke et al., (2012), smallholder farmers must produce food more sustainably and efficiently if there is to be a rise in the production of food in places where the poor and hunger dwell, which is primarily in developing countries. However, it must be emphasized that certain prerequisites must be met for agricultural expansion to have the essential impact on poverty. For instance, inequality shouldn't be great since in such a setting, agricultural expansion could have little or no impact on reducing poverty and may even have the opposite effect, increasing poverty and marginalization (Dawson, Martin, & Sikor, 2016).

2.13.3 Arguments for Smallholder

Small farms have demonstrated impressive performance on a global scale, and in some countries, they have even outperformed large-scale farms in terms of agricultural growth (Wiggins, 2019). As a result, having a high smallholder farmers percentage in the farming industry does not constitute an impediment to economic development. However, earlier economists have highlighted that for growth in the economy to take place, factors of production required to move from an ancient agricultural sector with returns that are low to a modern industrialized sector with greater productivity and return (Diao, Hazell & Thurlow, 2010). The Green Revolution, which took place in various underdeveloped countries, most notably in the 1960s and 1970s in Asia, is still

likely the most trustworthy and long-lasting illustration of the effectiveness and efficacy of agriculture and in literature, smallholder farmers surpassing past beliefs.

The Green Revolution example in South and East Asia, according to DFID (2004), shows that progress in generating revenue and jobs, reducing poverty, as well as ensuring food security has proven to be most significant in regions where growth in agriculture is being concentrated on small farms using labour-intensive techniques. By focusing on smallholder farming development, it may be possible to boost rural farmers' incomes and decrease their food expenses, which would speed up the process of reducing poverty and inequalities (Salami, Kamara, & Brixiova, 2010).

Through the hiring of additional labour, especially around peak farming seasons, as well as by boosting expenditure and consumption on services and non-farm products, smallholder growth can also play a catalytic role in the business and economic development of rural communities (IFAD & UNEP, 2013). There is a wealth of empirical evidence supporting the idea that small, diverse farms are more productive per area than large, specialized farms, which is known as the "inverse farm size-productivity relationship" (or, more generally, the "paradox of the scale").

The negative association has been attributed to a variety of causes, including flawed factor markets. Such could be seen in the accessibility of land labour, capital, or insurance (Verschelde et al., 2013). Similar claims have been made that since smallholders operate in rural areas with limited capital and surplus labour, they enjoy low transaction expenses per unit (UNCTAD, 2015). The proof may be methodologically defective because it might have failed to consider various tangibles, such as measurement problems, soil quality or land and selection concerns, according to assertions that the aforementioned is still highly contested (Verschelde et al., 2013:122). According to Gollin (2014:56), smaller farms frequently have a benefit in terms of crop efficiency because they are more likely to use unusually high levels of labour on small plots of land than larger farms would. This results in a yield advantage for small farms over larger farms because their output per unit of labour is typically lower.

However, FAO (2012) reported on research that examined small-scale farming on 288 projects covering more than 37 million hectares in 57 developing nations and discovered an increase of 79% in average yields of crops when sustainable farming was used. Using their own knowledge and skill base and relying more on labour than capital, smallholder agriculture serves prevent exodus to cities that are marked by poverty and unstable incomes (Murphy, 2010). The fact that smallholders cultivate land more intensely than large-scale farmers results in higher levels of production per land unit, which is a compelling argument in support of the continuing belief that small-scale farms are more productive (Gollin, 2014:87).

Many smallholders' reliance on family labour also allays the issues with incentives that afflict agricultural labour markets, as we see with the smallholder farmer in Chabelane village. Family labour, in contrast to the latter, is inherently flexible and may be used quickly when it is most vital. It is also cheap to monitor and requires minimal encouragement to remain committed (Gollin, 2014). However, it is crucial to remember that family labour is not the sole domain of smallholders. In fact, quite a few widely commercialized farms, even in industrialized nations, are family farms that rely on family labour as their primary source of agricultural work (Gollin, 2014; Graeub et al., 2015:67). When access to markets productive soils, and irrigation water are ensured, smallholders can produce a lot and earn enough money (Cousins, 2013:86). The interaction of forces and actions between smallholders and the ecosystem affects their production as well as how much they contribute to reducing poverty and ensuring food security. Other times, and generally speaking, the activities of smallholders have an impact on the ecosystem and vice versa. For example, food insecurity and poverty impacting households of smallholders can put strain on the ecosystem through overuse of resources and habitat modification (IFAD & UNEP, 2013:22).

2.13.4 Arguments against smallholder agriculture

Contrary to common belief, smallholder advantages from price rises are minimal (McMichael & Schneider, 2011:49). According to them, rising food prices do not provide smallholder farmers with sufficient commercial inspiration because they

are less likely to be able to earn such returns due to things like the propensity for self-consumption of harvests, prior legally binding agreements for the sale of produces at a fixed price, and also increasing energy and fertilizer prices. The idea that increased smallholder agricultural output will reduce poverty is likewise not a simple one (DFID, 2004). This makes sense given that smallholders may not be able to fulfil the requirements of particular commodities' value chains due to market, transportation, and storage constraints. Like other poverty affected households, poor smallholders are extremely vulnerable to food markets volatility, spending a significant percentage of their earnings on staple foods.

Smallholders' responses to this dilemma could potentially revolve around going back to their previous method of producing primarily for household consumption or concentrating on creating higher-value goods (McMichael & Schneider, 2011). As smallholders develop techniques to control their susceptibility, the production for the domestic market diminishes (McMichael & Schneider, 2011:86). Dercon (2013:36) disputes the restricted focus on agriculture, claiming that it will result in a lack of comprehension of the stages of economic transformation if farming is seen as the sole cause of shifts in particular climes.

Dercon contends that the frequently used example of South Asian agriculture's transformation and the contribution of smallholders to that transition undervalues the other economic forces at play in such transformation. It should come as no surprise that applying identical tactics that were successful in South Asia to Africa has had little impact. The adoption of regionally inappropriate seed kinds as well as inadequate institutional and human resources limited the ability to accomplish the anticipated impact (Dawson, Martin, & Sikor 2016:175).

Dercon (2013) contends that smallholder investment is not always a tailored strategy for boosting agricultural growth. A variety of interventions, such as those that improve market development as well as up-scale technological application, have been explored in smallholder farming, according to Collier and Dercon (2014), but there has been scant evidence of their effectiveness. Smallholder farming is further constrained by potential problems with economies of scale. This restriction has more to do with organisational

transformation from "informal and customized to institutionalized and formal than it does with farm sizes" (Collier & Dercon, 2014)

The aforementioned drives commercialization and vice versa, and large farms are more likely to have these organisational characteristics and embrace institutional arrangements, so they are well-positioned to be at the forefront of technological innovation logistics, and capital (Collier & Dercon, 2014). There is no denying that smallholders have been forced to rely on agricultural extension services, which are frequently offered insufficiently, in order to acquire new information.

Smallholders may lack a basic understanding of science, as well as poor managerial and numeracy skills, which could prevent them from effectively embracing new technologies, given that education has been strongly correlated with innovation in agriculture and smallholders' knowledge base is restricted to that acquired through social learning and/or extension (Collier & Dercon, 2014). Many smallholders do not have access to output and input markets, which is essential for the switch from subsistence to commercial production (Salami et al., 2010; Murphy, 2010 & Gollin, 2014). For instance, the interaction between smallholders and the market for the finished product is still inadequate in Africa (Collier & Dercon, 2014). Smallholders have trouble maintaining standards and quality, and this combined with the high transaction costs retailers incur when working with small farms prevents numerous small-scale farmers from adopting to market opportunities availability (Gollin, 2014).

The absence of proper accessibility to infrastructure, such as transport and market facilities, further raises the cost of transactions (Fan et al., 2013). Additionally, many smallholders encounter challenges with distribution, marketing, and storage because these aspects of commercial agriculture need technologies that smallholders may not be able to afford (Collier & Dercon, 2014). Additionally, problems with land tenure and, in general, access to land are major obstacles that smallholders, particularly in Africa, must overcome. Salami et al., (2010), for example, reported a significant disparity in land access Southern Africa and in East, where the highest per capita land quartile

households possess up to five to fifteen times more land than those in the lowest quartile.

Because of increased interest rates and an absence of collateral, smallholders have no way to obtain credit from microcredit institutions and commercial banks, creating an unfair system where large-scale farmers can obtain loans because of their creditworthiness (Salami, Kamara & Brixiova, 2010). Smallholders are unable to take advantage of the relevant technology and opportunities that the market provides due to the credit issue (Gollin, 2014).

2.13.5 Smallholder farmers in rural South Africa

According to Chisasa and Makina (2012), the agricultural sector in South Africa is thought to be strongly multifaceted, with a significant amount of the commercial sector with ample resources being ruled by white farmers and a significant part of the smallholder farming sector with inadequate resources being predominated by black farmers, majority of whom reside in rural areas, like that of Chabelane village. However, there is not yet a definite agreement on what counts as a smallholder farm. Most definitions refer to the size of the farm, which can range from small to huge (OECD, 2006). Based on the overall amount of capital, the area of the land, and the labour intensity, smallholder farming is separated from commercial farming (Chamberlin, 2008).

2 million smallholder farmers in South Africa produce food, primarily for their own households (Aliber & Hart, 2019). A million people work in smallholder agriculture, making up 45% of all farmers in the nation (Aliber & Hart, 2019). 600 000 of these are households in Limpopo Province's rural areas. On plots of land less than three hectares, smallholder farming is done largely for food production and uses outdated technologies (Machethe et al., 2004), as that of smallholder farmers in Chabelane village. The specifics of the region where smallholder farmers conduct their business also set them apart.

Agriculture is performed in the country in the forms of horticulture, animal husbandry, and field crop production (Conradie, n.d.). Sugar, wheat, and maize are the main field crops farmed in the country, and the bulk of the animals are

dairy, cattle, and poultry (Conradie, n.d.). Conversely, majority of horticulture is comprised of deciduous fruits vegetables and citrus fruits. Only 9.8% of South Africa's total agricultural area has a high potential for arable land and 26% of rural families cultivate 12% of the nation's total agricultural land for crop production and possess 24% of the cattle (Hendricks & Fraser, 2019). Maize is the most widely grown crop in the country, followed by sunflower, sugar cane, sorghum and wheat. Even though the country is acknowledged as a net producer and exporter of food, it is not independent in majority of important agricultural products. Some smallholder farmers grow vegetables and fruits only for consumption at the household, but this is not always the case.

2.13.6. Agricultural policy frameworks in South Africa

The apartheid regime, which created discriminatory regulations that restricted access to financial services, agricultural land and other government services as well as support for the black majority, had an impact on South Africa's agriculture industry (OECD, 2006). Due to these discriminatory laws, there is now a significant disparity between smallholder subsistence farming, which is primarily conducted by black farmers, and commercial farming, which is primarily undertaken by white farmers (OECD, 2006; Pauw, 2007).

With subsidies going only to white farmers and black farmers' access to markets being restricted, apartheid laws essentially forced majority of black farmers into labourers (Pauw, 2007; Mukumbi, 2008). However, once apartheid was abolished and a new democratic government was established in 1994, the nation adopted agricultural policies meant to remedy the injustices and aftereffects of the apartheid system (OECD, 2006). Since then, with the domestic markets deregulation, liberalization of international commerce, reduction of agricultural subsidy, and land reform, the agricultural sector in the nation has been subjected to significant policy reforms. Majority of these programs concentrate a lot of emphasis on helping smallholder subsistence farming become more commercial through better agricultural inputs including cutting-edge technology with the purpose of producing for market sale (Oni et al., n.d.). Agricultural White Paper, Land Policies, Strategic Plan for South African Agriculture, Market and Trade Liberalization Policies, AgriBEE Capital

Markets: Water Supply Policy, Farm Input Policy, Agricultural Finance, Agricultural Credit Policy, and Agricultural Labour Market Reform and Skills Development, are some of the recent agricultural policy reforms adopted since 1994 to address the historical injustices of apartheid.

2. 13.6.1. White Paper on Agriculture (1995)

Tregurtha and Vink (2008) state that the Agricultural White Paper, which was adopted in 1995, was not a traditional policy but rather a set of broad principles that guided the creation of policies in the sector. These ideas were taken directly from the Reconstruction and creation Programme. According to the White Paper on Agriculture, the agricultural sector would play a crucial part in creating a robust economy and correcting historical injustices by increasing incomes and opening up job possibilities for the underprivileged in South Africa (Viljoen, 2005). The following major objectives for agricultural policy are listed in the White Paper: “building efficient and internationally competitive agricultural sector; supporting the emergence of a more diverse structure of production with a large increase in the numbers of successful smallholder subsistence agriculture enterprises; conserving agricultural natural resources and establish policies and institutions for sustainable resource use. The paper also identifies core strategies as outlined in the 2001 Agricultural Strategic Plan, to implement the policy, namely: equitable access and participation strategy; a global competitiveness and profitability strategy and sustainable resource management strategy” (Viljoen, 2005:87).

2.13.6.2. Land Policies (1997)

The Land Reform and Redistribution policies were put into place to address the disparities in land distribution brought about by the apartheid government in order to give more land to the previously underserved smallholder subsistence farmers, particularly the black majority in the former homelands (Oni et al., n.d.). The primary goal of the LRAD program is to make agricultural land and land grants more accessible to the nation's historically underprivileged populations.

The improvement of rural poor people's nutrition and incomes is one of the program's goals. Others include eradicating the legacy of previous racial discrimination in farmland ownership, encouraging agricultural growth, strengthening ties between on-farm and off-farm income-generating activities, and facilitating structural change over time by supporting formerly disadvantaged people who want to start small- and medium-sized farms among others.

2.13.6.3. South African Agriculture Strategic Plan (2001)

The government, the commercial farmers' union Agriculture South Africa (Agri SA), and the newly formed black farmers' union National African Farmers' Union (Nafu) collabourated to create the Strategic Plan for Agriculture in South Africa (Tregurtha & Vink, 2008). According to Tregurtha and Vink (2008:3), the Strategic Plan provided “a common agricultural perspective to which government and industry could commit their efforts and resources in its implementation”. The Strategic Plan (2001:78) identified the vision for South African agriculture as “united and prosperous agricultural sector” and the strategic objective as "generate equitable access and participation in a globally competitive, profitable and sustainable agricultural sector contributing to a better life for all."

2.13.6.4. Liberalisation Trade and Market Policies

Early in 1998, the market liberalized with the intention of expanding market accessibility, fostering market efficiency, maximizing export earnings, and fostering the continued existence of the farming industry (Viljoen, 2005; Tregurtha and Vink, 2008). Huge export motivates by different industries, the introduction of instruments for risk management, the severe executive burdens placed on producers, and an absence of market information, along with the broad privatization of state agricultural marketing schemes inside the framework of the Marketing Act of 1968, all had a significant impact (Viljoen, 2005; Tregurtha & Vink, 2008). Deregulation of the market, however, forced farmers to increase both their efficiency and productivity, providing opportunity for both new and experienced farmers (Viljoen, 2005).

Following South Africa's ratification of the Marrakech Agreement in 1993, trade restrictions were replaced by tariffs that were scaled back, but market access requirements, such as reducing support for agriculture, became more effective under the Marketing Act of 1963 (Viljoen, 2005; OECD, 2006; Tregurtha and Vink, 2008). This resulted in a stronger push for regional integration as well as significant agreements and economic links with other nations on a global scale.

2.13.6.5. Agriculture Black Economic Empowerment (AgriBEE) (2007)

The issues related to access to land, market access, inputs, funding, existing infrastructure, marketing expertise and training led to the adoption of the AgriBEE policy in 2007. Nevertheless, despite several efforts and the repeal of the apartheid law that targeted the racial discrimination of black populations in South Africa, this issue still exists. AgriBEE has thus evolved into one of the corrective actions to deal with the issue of market access in the nation. In order to improve market access for previously disadvantaged producers in the nation, the AgriBEE strategy emphasizes that 55% of the total agricultural produce sold by retailers in the country by 2017 must be purchased by previously disadvantaged farmers or producers (Mukumbi, 2008).

The goal of AgriBEE is to establish standards for the creation of an environment that is supportive of the involvement and integration of historically underrepresented black farmers in the economy of agricultural sector at large (Manona, 2005; Tregurtha and Vink, 2008). As a result, the program aims to redistribute the economy of agriculture among South African farmers. Therefore, it should be recognized that the AgriBEE policy is an important strategy for restructuring the socio-economic disparities of the apartheid era and not only an affirmative action tool intended to give preferential favour to the formerly underprivileged farmers.

The policy also aims to combine the commercial and smallholder subsistence agricultural sectors into a single, unified sector by increasing the amount of people overseeing, possessing, and regulating enterprises of agriculture, facilitating worker cooperatives and collaborative enterprises' ownership and management of agricultural enterprises, developing human

resources and skill sets, accomplishing fair representation in every field and level of the personnel, and preferential procurement.

2.14 Policy and legislative frameworks for food security in South Africa

The inability of South Africa to meet basic needs at the household level has its variety of causes however poverty and hunger are particularly shaped by the apartheid legacy (DoA, 2020; Koch, 2018). According to Koch (2018) one aspect of the apartheid era was the deliberate dispossession of assets such as land and livestock from members of the black majority in the former homelands while denying them opportunities to develop, access to markets, infrastructure and human capital. Furthermore, until 1985 agricultural policies in South Africa pursued self-sufficiency consequently protecting only commercial farm production, often at the cost of consumers. This led to a total welfare loss for the country as a whole. Post-apartheid policies including the Integrated Food Security Strategy (IFSS), Reconstruction and Development Programme (RDP), Rural Development Strategy, Land Reform and Redistribution were developed to address the adverse impact of apartheid. Some of these policies were also aimed at addressing the challenges of poverty and food insecurity in rural areas (Koch, 2018). The right of access to sufficient food is enshrined in section 27 of the South African Constitution.

The Constitution obliges the state to provide legislation and other supporting measures to ensure that all citizens are enabled to meet their basic food needs (Koch, 2018). The advent of democracy in 1994 saw the government identifying food security as a top priority and has increased spending on social programmes. Feeding schemes, child support grants, free health services for children up to 6 years and for pregnant and lactating women, pension funds, provincial public works programmes and community food garden initiatives were all introduced as ways to improve household food security (Koch, 2018). The strategic framework for action to achieve food security was first outlined in the Reconstruction and Development Programme (RDP) of 1994, which identified food security as a basic human need. However, most of these programmes had unsatisfactory results. As a result, a National Food Security Strategy was formulated in the year 2000. In 2000, the government decided to launch an

updated national food security strategy to streamline, harmonise and integrate diverse food security sub-programmes in South Africa into Integrated Food Security Strategy (IFSS). The vision of the IFSS is to attain universal and sustainable access to a minimum daily, safe and nutritious food for a healthy, active and better life for all the people of South Africa (Koch, 2018). One of the main dimensions of the IFSS is to eradicate widespread inequalities and grinding poverty amongst majority of households. Poverty is manifested by inadequate and unstable food supplies, lack of purchasing power, weak institutional support networks, poor nutrition, inadequate safety nets, weak food management systems and unemployment (Koch 2018).

According to Stats SA (2020), about 35 % of the total population in South Africa is currently vulnerable to food insecurity. As a result of the statistical revelation, the South African cabinet announced in 2020, urgent government measures to reduce the effects of escalating food prices on poverty stricken and low-income groups, thus giving rise to increased food insecurity. The government acknowledges that food relief is a short-term response to save lives and stem chronic food insecurity, hence accepted the necessity of linking the food relief scheme to medium and long-term self-sufficiency, sustainability and reduced dependency on food relief by vulnerable communities (DoA 2020). The Agricultural starter packs (ASP) which is part of food production was introduced for implementation as a medium measure which complements the first phase, that is to say, food parcel scheme.

According to DoA (2020), the main goal of the Agricultural Starter Packs is to give start-ups and current expanding companies the start-up help they need to boost and sustain their output, whether it be for their own income generating, consumption or employment. In addition, the Department of Agriculture established Special Programme for Food Security in order to establish short-term food programmes such as food gardens to augment food shortages in rural households and to sustain long-term food security in the country (Koch, 2018). There is an absence of legislation which clearly defines the authority, responsibility, organisational structure and working procedures for the IFSS. According to Koch (2018), the absence of a food security policy and the inability

to get a bill tabled and passed prevents the government from providing a clear line of authority and the current IFSS lacks political clout to make immense difference to food security in South Africa. As a result, food security in South Africa is an issue of critical importance.

2.15. The contributions of smallholder agriculture in achieving food security

Smallholder agriculture has received little assistance in past decades, and economic policies and trends have not always been as devoted to smallholder agriculture (Swaminathan et al., 2018). Future visions in South Africa supported commercial agriculture above small-scale agriculture. Food security was elevated to a national priority in 2010 as a result of the recession. This was consistent with the millennium development target of halving the number of hungry people (DAFF, 2018). Smallholder farmers make substantial contributions to world food production. The significance of smallholder farmers is drawn from their widespread presence, their contributions to agricultural and economic development, and the poverty concentration in rural regions (UNCTAD, 2015). Smallholder agriculture is a significant source of income and food for the rural household in the world, particularly in developing nations (Dixon et al., 2013), like that at Chabelane village in Limpopo province, South Africa. Additionally, they participate in raw processing of materials, quality enhancement, and the development of small and medium-sized craft industries capable of reaching a significant volume in all countries (Bosc, 2012).

Smallholder farmers play a crucial role in ensuring food security by agricultural production, it also play a role in employment creation and raising workers' pay offers, which is a crucial factor in reducing rural poverty (FAO, 2011). Smallholder agriculture is a significant job creator in rural areas, notably of low- and intermediate-skilled labourers. Smallholder farms may hire high number of unskilled rural agricultural workers in nations with relatively low labour costs, which can have a considerable influence on decreasing poverty in this industry (Collier & Decron, 2013). With productivity-enhancing incentives, such as greater markets opportunities and financing and land rights recognition, towards the contribution to economic development and rural employment the

smallholder farmers have to enhance their labour intensity activities (Landesa, 2014).

Improving agriculture should be a fundamental component of strategies for reducing food insecurity as well as boosting economic development. FAO (2019) suggested that policies aiming at raising agricultural output and boosting food supply, particularly when the target is the smallholder farmers may reduce hunger even in regions with rampant poverty. furthermore, when there is a combination of these policies and social protection as well as other indicators which can raise the poor households' income so that they can be able to buy food, they can also possess more greater favourable impact and encourage development in rural areas by establishing lively job prospectus and markets, thereby enabling equal and fair growth in the economy (DAFF, 2018). The World Bank (2007) has highlighted the importance of agriculture as a driver of economic development in rural development and poverty alleviation. Therefore, more agricultural investment assist in redressing the existing disparities. If the goals of food security, the struggle against poverty, and economic growth were to be realized thoroughly, most people's standard of living would improve.

2.16. Major challenges experienced by South African smallholder farmers

In South Africa smallholder farmers encounter diverse challenges which affect their ability and growth to contribute to food security effectively as the commercial farmers does. Agricultural production in smallholder agriculture continues to worsen, which has been a problem for the government as well as other development organisations (Mutero et al., 2016). This minimal agricultural output is frequently a result of low soil quality, deteriorated soils, a dearth of agricultural inputs, dearth of income, and restricted access to land, capital, markets, farm inputs, and weather information, as well as a dearth of awareness and data about the Sustainable Agriculture Initiative (SAI) effective practices (Myen et al., 2019). For instance, the vast of South African smallholder farmers frequently cultivate maize and dry beans with no or little use of fertilizers (organic or chemical), which frequently results in output declines over time and negative environmental impacts including soil degradation and depletion of soil (Tray et al., 2015).

Poor agricultural productivity is exacerbated by further climate-related dangers such as rising air temperature changes, increased variability in rainfall amounts and occurrence, extended drought, and disasters such as thunderstorms, floods, and droughts and frosts, which are estimated to rise in intensity and frequency as a consequence of projected changing climate (Mpandeli et al, 2019). Low productivity exacerbates nutritional and food insecurity for most of the smallholder farmers, who rely heavily on rainfed agricultural production and have reduced ability for adaptability (Musemwa et al., 2015). One woman in Khopo outside Tzaneen said, “Last year, I lost a one-hectare worth of green beans, as I didn’t have enough water, so I had to watch it all fade away” (Mogale, 2021). The issue of water for irrigation is of concern which affect smallholder farmers and ultimately posing a threat to food security. Even though South Africa is typically regarded as a country which is food secure, vast of households in rural areas face persistent malnutrition and poverty which result them to be food insecure. Therefore, these impoverished smallholder farmers tend to depend on social grant as their means of income as they fail to sustain themselves (Myeni et al, 2019).

As a result of a lack of market access, small-scale farmers with surplus yields stay confined in poverty (Marizka, 2022). Almond and Hainsworth (2013) believe that field extension agents are typically uninformed about local markets and does not give smallholder farmers with the requisite training and help to acquire access to market information. These writers argue that private sector has to be empowered by the government to ease market access through utilizing the existing infrastructure of the value chain.

Smallholder farmers in South Africa are impacted by load-shedding at unprecedented levels. After Covid-19 pandemic and the worst flood in KZN's history, majority of smallholder farmers cannot afford renewable energy and increasing fuel for generators for those who already have it, their productivity worsens. Most of the machines they utilize need depend on electricity, and when theirs load-shedding, the machines happen to burst (Marizka, 2022). The State of Food Security and Nutrition in the World (SOFI) report indicates that these obstacles generally hold back efforts to eliminate malnutrition and hunger. Even though a global economic recovery is recognised, the World Health

Organisation predicts that 670 million people, or 8% of the world's population, would still be experiencing hunger in 2030. (Marizka, 2022).

The fundamental issue facing the entire nation is the development of economic circumstances that might benefit hungry, low-income households. Majority of households have an insufficient and unstable source of food. Additionally, majority of households have relatively limited resources for food production. The shortage of funds for food purchases is another issue that has basic issues restricting job prospects and resulting in inadequate food security. These issues have lately come to light, and both family and societal levels need to change. The government and the public policy makers ought to consistently address these concerns (van der Merwe, 2011).

According to Ibnouf (2011), the main obstacles that farmers face in securing food security in the household as food producers and suppliers entails of a dearth of access to altered production systems, such as improved seeds, credit facilities, marketing facilities, suitable technologies, fertilizers, modern farming methods, and pesticides. The limitations that farmers are facing in attaining food security in the household, according to Mwaniki (2006), include uneven political and social surroundings that hinder the conservation of economic growth, a depleted human resource base, war and public disputes, poor health, a low level of education, natural restrictions, natural disasters gender inequality, like locust infestation and floods, and a lack of effective governance. According to Abu and Soom (2016), challenges to farmers obtaining food security for their households include things like a lack of off-farm income-generating activities infertile soil, issues with processing and storage facilities, among others.

2.17. Chapter summary

This study has alluded on the history of food security according to world food summit of 1996. Whereby in 1996, the World Food Summit (WFS) in Rome developed a single definition for food security which was agreed to by 190 nations. Despite subsequent adjustments, it remains the most well-known, commonly used definition, and as such, is a logical starting point from which to

explore the concept. The definition of food security put forward in the Rome Declaration states Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life (Rome Declaration 1996). It has further discussed how MDGs respond to the issue of food security. The MDGs are an interlinked series of goals and targets agreed to by 189 countries in 2000, provided a new momentum on food security which the World Food Summit had not delivered. The MDGs highlighted food security (or at least, one very specific aspect of it- malnutrition) as a top-level priority for all developing countries, establishing the first goal (MDG1) as the eradication of poverty and hunger. The analysis of food security dimensions, the dimensions of food security was also stated in this section which are food availability, utilization, access and stability.

The chapter has also reviewed the global perspective on food security as well as how the world put efforts to battle food insecurity. The study established the relation between food security and food sovereignty. The chapter further explains state of world food insecurity, drivers of world food insecurity such as climate change, urbanisation and land whereby growth in food production is increasingly dependent on arable land expansion, an enduring phenomenon which World Resources Institute (2013) and UNEP (2014) note is accompanied with forest resources depletion especially in tropical regions.

This chapter suggest that on the poverty levels in the world, the effects of inequality on food security, the consequences of food security which are vulnerability, hunger and malnutrition. Discussion of agricultural production in the world was articulated wherein, the role of agriculture in economic development especially in Africa remains widely contested. While many are of the view that the sector is indeed fundamental to driving growth and poverty reduction in Africa, others have criticized the relevance of the sector, contending that its impact on growth and poverty reduction is limited. Agricultural sector has policies and legislation that governs the sector; therefore, this chapter has alluded amongst other policies that governs the sector which are white paper on Agriculture, Land policies and Agriculture Black Economic Empowerment.

Policy and legislative frameworks for food security in South Africa was articulated, the right of access to sufficient food is enshrined in section 27 of the South African Constitution.

The Constitution obliges the state to provide legislation and other supporting measures to ensure that all citizens are enabled to meet their basic food needs. In this chapter smallholder farmer conceptualisation was made, as well as the relation between food security and smallholder farmers. Smallholder farmers is characterised by agricultural production they own, such as livestock, crop production they practice. Moreover, this chapter alluded on the issues experienced by smallholder farmers, the contributions of smallholder farmers towards household food security and agricultural support programmes for smallholder farmers was also expounded in the chapter. The next chapter will focus on the perception of food security in the Southern Africa and in South Africa, major indicators applied to measure dimensions of food security, the overview of Limpopo province's economy and agriculture sector and Limpopo during apartheid regime.

CHAPTER 3: THE PERCEPTION AND INDICATORS OF FOOD SECURITY

3.1 Introduction

The chapter focuses on the perspectives of food in Sub-Saharan Africa, South Africa and points out major indicator that are used to measure food security. The study further takes a look at the overview of Limpopo Province's economy and its agriculture sector as well as factors influencing food security in South Africa and other countries

This chapter also focuses on the land reforms in South Africa and the role of South African agriculture. Moreover, the chapter gives an overview of Limpopo province's economy and agriculture sector, Limpopo during apartheid regime. This chapter will also discuss the economic development pathways in Limpopo, descriptive profile of smallholder farmers and markets in the Limpopo Province Support for agricultural development, descriptive Profile of Mopani District and farming enterprises in the Limpopo Province.

3.2 Food security in Sub-Saharan Africa

Due to limited food production on the continent of Africa and a population growth rate of 3% annually, there is a high level of food insecurity in the continent (Tembwe, 2020). The similar source claims that from 84 billion persons in 2015 to 16 billion in 2019, Sub-Saharan Africa saw an increase in the number of people living in poverty. Africa's Sub-Saharan region has succeeded in reducing the number of hungry people by half (FAO, 2020). The FAO (2020) further demonstrates that although there are fewer individuals in Sub-Saharan Africa who are hungry, there remains a growing population in the region, whereby both the availability and access to food are threatened. According to Zuberi and Thomas (2018), the ecosystem in the aforementioned region degrades as a result of population growth. According to FAO (2021), a decline in the number of individuals who are undernourished in Sub-Saharan Africa was mostly due to increased production livestock and improved agricultural yields. According to FAO (2021), the sector of agriculture was essential to the growth of Africa and

was also recognized as a major driver of economic expansion, income growth, a rise in living standards, the abolition of poverty, and improved food security. A decrease in food prices both domestically and internationally, together with a successful economic recovery following 2008, also led to a decrease in the number of people who are undernourished. However, despite these improvements, nearly 400 million people still suffer from chronic hunger in Sub-Saharan Africa (Kidane et al., 2019). The flip side of it, Sub-Saharan Africa is thought to have the second-highest population of individuals who are food insecure, after South Asia, which has over 300 people in this situation (Fanzo, 2020). Rural poverty is prevalent in Sub-Saharan Africa and is significantly impacted by both poverty and hunger (Heinemann et al., 2021).

3.3 Food security from a South African perspective

Food security has remained central to the agenda of the South African Government, with national initiatives and programs declaring it a priority (Hendriks, 2014). Food security was a critical factor in the policies and strategies that shaped democratic South Africa; however, Hendriks, (2014) notes that the food security problem was already understood and interpreted differently by many governments throughout the decades. Food insecurity is defined as the occurrence of one or more of these variables (Magombeyi et al., 2016).

According to McLaren et al., (2015), even though the right to food is recognized in international human rights documents and section 27(1)(b) of the South African Constitution, which specifies that everyone has the right to adequate food and water, this right is frequently infringed. One of the issues confronting the South African government is harmonizing policies and programs to achieve and sustain universal food security (Altman et al., 2009). Muzah (2015) demonstrated that assessing food security is a complicated task and that no single measure can represent the whole gamut of food insecurity and hunger. In South Africa, food insecure households are confronted with a broad variety of developmental difficulties, including higher interest rates, poverty, urbanization, unemployment, price inflation, population growth, loss of employment, uncertain food production in the household and illnesses (DAFF, 2019). These unfavourable circumstances have exacerbated the predicament

of those suffering already to satisfy their most fundamental necessities in the household (Labadarios, 2019).

In South Africa, food security must be handled in the light of factors such as shifting patterns of macroeconomic concerns and population growth. Like any other developing countries, South Africa is undergoing a nutrition transition characterized by the under- and over nutrition coexistence and a significant malnutrition issue affecting public health (Steyn et al., 2019). The malnutrition severity and existence are an essential proxy measure of food access. Chronic nutritional deficiency manifests as stunting. According to the South African National Health and Nutrition Examination Survey (SANHANES), 2022), over 1 million children under the age of six are stunted as a result of severe malnutrition. Whereas 2.2% and 6.1% are underweight and wasted, respectively. Despite indications that programmes for food fortification have enhanced the South African children's micronutrient status, they have struggled to promote dietary variety as well as total micronutrient consumption; as a result, stunting continues to impact children at greatly (Labadarios et al., 2022).

South African households has witnessed the implications of COVID-19 over the past two years. The proportion of households with insufficient food access declined from 23.6% in 2010 to 17.8% in 2019 prior climbing to 20.9% in 2021. Likewise, the number of individuals with more restricted access to food decreased from 25.2% in 2011 to 19.5% in 2019 before climbing to 23.8% in 2021 (Stats SA, 2021).

The COVID-19 pandemic impact deprived numerous South Africans of their constitutional right to enough food and hindered attempts to reach the aims of the National Development Plan and the United Nations Sustainable Development Goals (SDGs) of "Zero hunger" by 2030 (Stats SA, 2020). Despite the fact that South Africa is food secure nationally, most of the household continue to experience food insecurity. Despite all international, regional, and national intervention, the country continues to endure intolerable food insecurity levels among households. Women, children, and the elderly, especially in rural regions, are the most prone to food insecurity.

3.4 Food security at a household level

Food security is seen as a fundamental requirement that households should prioritize when distributing their funds and resources, along with addressing their other demands (Carletto et al., 2013). The implementation of the food security idea at the family level, wherein the major focus is on the members of the home, is known as household food security. When a family is able to buy the wholesome food, they need for each member to lead a healthy and active lifestyle, it is said to be in a food-secure situation (Pinstrup-Andersen, 2019). While home may be regarded to have food security, not all of its members may have access to it. The household food security level has been seen to be impacted by price rises in the area of affordability. 11% of households in South Africa are food insecure, which has a severe impact because the poor spend a big portion of their earnings on food (Mazenda & Ngarava, 2022).

3.5. Factors influencing food security in South Africa and other countries

Food security in the world is influenced by a variety of variables. According to Oluwatayo (2019), factors such as education level, gender, cooperative participation, household income, household size, marital status and age are significant predictors of food security. The participants' ages have a positive link with their food security status, suggesting that as participants' ages increase up, so does their level of food security. Food security and marital status are positively correlated, therefore married participants had greater food security than unmarried participants. The association between education and food security is similarly favourable, showing that individuals with high levels of education had adequate access to food. The number of household members is inversely correlated with food security status, showing that participants with far more members in the household experience food insecurity compared to participants with fewer members. Additionally, compared to participants who are not collaborative members, 12 participants who are members report having greater food security. This is a result of the members' simple access to credit facilities to suit their needs (Oluwatayo, 2019),

The household size, income of the household and the size of the farm all have a big impact on the household's ability to feed themselves (Abu & Soom, 2016). In addition, it was discovered that the size of the household and the household head age have a detrimental impact on the household's level of food security in metropolitan settings. Household size has a negative impact because adding more family members gave the household head more obligations, especially if they completely depended on him or her. According to this, families with smaller households are more likely to have access to food than families with larger households. Dearth of off-farm revenue producing activities, lack of land, loan access issues, and poverty are some of the obstacles to attaining food security. According to Muche et al., (2014), household education level influences food security in a favourable way, suggesting that households with higher educational levels have greater food security. This is due to the fact that educated heads of the household are more sensitive to the utilization of technology for activities which aim to maximize production. The size of the family is inversely correlated with household food security, which suggests that a large family puts additional strain on that security because it necessitates higher outlays for extra food and non-food items.

Compared to female-headed, large-sized, illiterate homes, households with male household heads are more likely to have food security (Adebo & Falowo, 2015). According to Sekhampu (2013), household income, job status, age, and gender of the household head were determined to be significant characteristics that positively affect household food security. While other factors, such as the participants' marital status and home size, were discovered to have a negative impact on food security. The household's income is crucial since it affects how much money is spent on various essentials. The level of household income affects both the nature and scope of household spending patterns. A larger household necessitates higher food costs and more competition for scarce resources.

According to Mannaf and Taj Uddin (2012), the size of the farmer's household, his or her age, monthly agricultural revenue, and food spending all have a substantial impact on the farmers' level of food security. Elder farmers'

household had lower food security, indicating that a rise in the head's age causes a decline in food security. This is a result of family heads' declining output as they age. Larger families are more likely than smaller families to experience food insecurity. With increasing household size, there is a decline in the level of food security. Food security is ensured by a household's higher income because they will have easier access to food to meet their needs. Food security in the family is a result of increasing food expenditure since the household may be more food secure as expenditures rise.

According to Ali et al., (2016), the size of the household, the household's income, the respondent's age, and their level of education are the key factors that have the greatest impact on the food security of the household. Food security and household size have a negative association, suggesting that food security declines as family size increases. Overall production has a negative impact on food security since it raises the quantity on the market, which drives down prices and, in turn, household income. Farmers' incomes and levels of food security deteriorate when prices fall. According to Tefera and Tefera (2014), factors that affect food security include the farmer's educational background, the size of their household, their age, the amount of land they cultivate, and their nonfarm income. Older household heads are more likely to have secure food sources in their households. This is due to the fact that elderly head of households engage in a variety of non-farm jobs and earn money to spend on raising the level of food security in their families. The level of food security in a household rises as the farmer's years of schooling rise. Compared to households with fewer family members, individuals with a bigger size of the family are less likely to have access to food. Ownership of the larger area for household farming increases the likelihood of food security. The justification for this is that households with larger plots of cultivable land will have a better chance of producing enough food and income-generating crops. The increase in the non-farm income of agricultural households leads to an increase in food security (Gebissa & Geremew, 2022).

3.6 Food security prevalence status in South Africa

Although food production in South Africa has historically been self-sufficient on a household levels of food insecurity have been quite high for a very long time. The average household percentages that experience poverty and food insecurity, however, continue to be a serious nationwide problem. Rural areas, notably in the former homelands, are home to majority of poor households. Given that the vast of the poor reside in rural areas, it is conceivable that these households exist there as well. As a result, it is anticipated that agriculture will contribute significantly to the reduction of poverty. In rural areas, households could combat the problem of food insecurity by engaging in subsistence agriculture (Baiphethi & Jacobs, 2009). According to De Cock et al., (2013), most of the households in South Africa still experience food insecurity, despite the fact that on the national level the country experiences food security. Even though the nation is considered to be food secure with regard to the overall food availability, assistance for the agriculture industry that is anticipated on the sustainable utilization of resources and the empowerment of the trade agreements will be needed for the country's long-term secure of supply of food maintenance (Drimie & McLachlan, 2013).

The Integrated Food Security Strategy, developed by the government of South African, acknowledges a number of significant obstacles to food security (IFSS). There is currently no established system for tracking the level of food security for its citizens, and the nation still lacks comprehensive and recognised methodologies for measuring food security. Although there is insufficient clarity regarding the state of food security among households in the nation, Altman et al., (2019) contend that a sizable number of households in South Africa are food insecure. It may be difficult to precisely identify the benchmark figure, resulting in the inability to now detect improvements in food security.

In 1999, the Eastern Cape saw the highest levels of food insecurity out of all the provinces in the nation, followed by the Northern Cape, Limpopo, and North West province, all of which are located in rural areas. All of the provinces' levels of food insecurity had decreased by 2008, but the Eastern Cape continued to be the worst. Majority of households who are prone to food insecurity are those in rural areas since they buy most of their food rather than growing it themselves.

22% of participants said they worry about food shortage soon (Abdullah et al., 2017). This suggests that they had access to food and that the amount consumed was sufficient, however, that their income is unstable. Additionally, exactly 81% of the interviewees argued most of the time they have enough food, demonstrating that the condition of food security is realistically satisfactory, and people have access to food, whereas 19% argued that they do not. Furthermore, it was shown that majority of households remained malnourished, experiencing persistent food insecurity and were living under dire poverty (Abdullah et al., 2017).

The primary source of food consumption for households is self-production. Most of the households for the livelihood rely mostly on raising animals and growing crops, like that of community in Chabelane village. Food security is significantly influenced by domestic food production. Another source of food for households is the marketplace. Nevertheless, agricultures practiced by most of the households, and nearly most of them are net food consumers. Most of the households produce food that are enough to meet their nutritional needs all across the year. In order to pay for production costs and other household essentials, other households exchange some of their goods (Zakari et al., 2014).

3.7 Major indicators applied to measure dimensions of food security

The Household Dietary Diversity Score (HDDS), Coping Strategies Index and The Household Food Insecurity Access Scale are the indicators used to measure the lack of access to adequate food (Maxwell et al., 2013:17). 'HDDS is a standardized tool used to estimate household food security (Thorne-lyman et al., 2013:16). This measurement of food security is relevant to the study because one of the objectives of the study is to determine the prevalence of household food security, to provide a detailed picture of how food insecurity affects individual households, and how these households respond to food insecurity-related situations (Qureshi, 2007).

3.7.1 The Household Dietary Diversity Score (HDDS)

In 2006, as part of the Food and Nutrition Technical Assistance (FANTA) II initiative, the Household Dietary Diversity Score (HDDS) was produced as a population-level indicator of household food access (Swindale & Bilinsky, 2006). Household dietary diversity is defined as the different types of food ingested by a household for more than a specified period. It is a critical indication of food security aspects. A more diverse household diet is associated with adequate calorie and protein intake, a higher proportion of protein from animal foods, and a higher household income (Christensen, 2014). The rationale behind the significance of HDDS are as follow:

An important result in and of itself is a diet that is more varied. It is linked to several better results in areas including child anthropometric status. A more varied diet has a strong relationship with things like household income. Even in extremely low-income households, higher household expenses brought on by an increase in income are linked to higher dietary quantity and quality. At the household or individual level questions are asked about dietary diversity, making it feasible to investigate food security at the household and intra-household levels. HDDS-based questions provide quite simple questions. According to the field experience, it is simple to teach field staff to collect data on dietary diversity, and participants regard such queries to be neither very intrusive nor particularly demanding. These questions are normally asked to each respondent in less than a few minutes. As was already indicated, gathering information on dietary diversity enables analysis of the state of household food security. Households consume a variety of food groups, according to FANTA. By presenting the array of 12 food groups, HDDS represents a higher quality of nutrients and is used to analyse the socioeconomic status of a household. Foods consumed outside of the home are not considered by HDDS (Bilinsky & Swindale, 2010). Table 1.1 depicts the 12 groups of food.

Table 1.1: Different food groups for HDDS

A Cereals/Roots/Tubers B. Meat/ Poultry/Fish C. Vitamin A-rich Fruits and Vegetables D. Other fruits not Vitamin A rich E. Dairy F. Eggs G. Legumes and Nuts H. Oil and Fats	I G Other vegetables not rich in Vitamin A

Source: De Cock et al., (2013)

Most households in South Africa incorporate wild foods into their nutrient-dense diets (Bhandari, 2017). Wild foods are critical for food security and poverty reduction, and their collection is frequently inexpensive and timesaving, sparing households time and expense (Malongane & Mbhenyane, 2017). Additionally, the dietary needs of the rural households' supplement with a range of insects as well as wild meat and for sale and consumption, they gather wild fruits. It is critical to define adequate food security metrics to differentiate food secure households from food-insecure households and to describe the source of food insecurity (Hoddinott & Yohannes, 2002:43). The HDDS measurement tool is utilised in several developing nations, and it demonstrates a positive association between dietary diversity and nutrient sufficiency (Litt et al., 2011).

3.7.2 The coping strategy index (CSI)

The coping strategy index (CSI) can be referred to a set of questions used to determine the manner a family household manages to deal with a lack of access

to sufficient food. The coping strategy index is calculated by monitoring behaviour, namely the action that the households take whenever the food are not enough (Drysdale et al., 2019). The one who is tasked for preparing setting up or eating the meal typically identifies the coping strategies Short-term coping techniques are often associated with dietary behaviours (Ndobo, 2013). Chagomoka et al., (2016) noticed that trying to collect wild food and trying to sell wood were common practices in the rural areas of Limpopo Province. They also outlined 5 coping strategies along the rural areas as the most intense in periods of food insecurity, notably going an entire day without eating, having to borrow, using credit to purchase food, eating seed stock, and limiting adult consumption in favour of youngsters. Research done by Oldewage-Theron et al., (2006) in Gauteng (Vaal triangle) found that majority of female-headed families suffered money shortages in the month before the survey because their money was spent on food. These households' coping techniques included preparing a small range of meals throughout the preceding month and reducing sizes of the food portions (Oldewage-Theron et al., 2006).

3.7.3 The Household Food Insecurity Access Scale

The Household Food Insecurity Access Scale (HFIAS) is a constant indicator that investigates the occurrence of food insecurity in households during the preceding month (Coates et al., 2007). The measure is founded on the premise that food insecurity incidents may be identified, measured, and analysed by categorizing each household according to their food insecurity status (Christensen, 2014). The HFIAS emphasizes three major components of household food insecurity access, including food insecurity anxiety, poor food quality, and insufficient supply of food. The HFIAS is a sophisticated instrument for evaluating food insecurity in the household, consisting of general questions that are 9 in total (Coates et al., 2007). Question 1 covers worry and uncertainty around household food supply, whereas questions 2–4 cover quality of food, range, and preferences, and questions 5–9 tackle inadequate food consumption and its bodily repercussions. The questions Q2–Q4 and Q5–Q9 are ordered according to the level of food insecurity status severity (Coates et al., 2007). Households are awarded a score ranging from 0 to 27 depending on the

responses to the questions and the how many times occurrence takes place during the preceding 30 days (Musemwa et al., 2015). Nasrabadi et al., (2014) found that the HFIAS technique for evaluating household food insecurity generates reliable findings due to its internal uniformity, dependability and criteria validity.

3.8 Land reforms in South Africa

The Land Act of 1913 aimed to give white farmers more access to land than did native Africans. The second goal was to make native Africans poor by displacing them and forbidding them from engaging in any kind of farming activities. However, because blacks must work in order to survive, this has led to a pool of inexpensive labour for mines and white farm (Cruise, 2011). An extremely unequal pattern of property ownership resulted from the land dispossession that occurred under apartheid and colonial rule. In order to tackle the issues of inequality, a democratically elected government took office in 1994 and implemented a land reform program (Rugege, 2004).

Restitution, tenure reform, and redistribution are the traditional terms used to characterize the land reform of South African government initiative. Restitution focuses primarily on historical land rights as well as tenure reform with regards to different types of land holding. The goal of redistribution, on the other hand, is expressly to change the racial distribution of ownership of land (Binswanger-Mkhize, 2014). Land redistribution is frequently viewed as having the ability to significantly enhance the rural poor's quality of life and to support South Africa's economic growth (Jacobs et al., 2003).

In South Africa, the distribution of wealth and other assets was incredibly unequal, which was reflected in the disparity of ownership of land. Both the unemployment rate and the prevalence of poverty amongst the impoverished residents of rural areas are comparatively high (Pepeteka, 2013). The post-apartheid government's plans for rural redistribution and reparation included land reform as a key component. The program of land reform primarily designed as a tool for eradicating poverty. Through the Land Redistribution for Agricultural Development (LRAD) initiative, the redistribution scheme was reinstituted with a greater emphasis on the development of a commercial farming class

(Greenberg, 2009). Indigenous Africans in South Africa were intended to be forced into congested, poor reserved townships by apartheid regulations.

Agricultural inhabitants were forcibly removed from their houses and land on a huge scale (Department of Higher Education and Training, 1998). The Land Act was abolished, but it failed to tackle issues of inequality or land allocation. The goal of redistribution of land during Nelson Mandela's presidency was to give the poor and disadvantaged access to land for residential use only, not for growing food (Adams, 2000). the potential for land reform itself to reshape society, as well as the political aspirations and expectations of the public that encircle the South African issue of land. The studies were carried out to oversee and control a program of reform program that gave land restitution top priority.

The restrictions on land reform arise from the junction of social constraints severe demographic and ecological rather than from policy or program failings (Arrighi et al., 2019). The fact that more black people are still living in poverty today is one of the factors that fuelled the liberation fight. However, the research suggests that the most important issues in people's everyday lives are provision of essential services, housing and jobs (Ntsebeza, 2017).

3.9 The role of South African agriculture

South Africa is regarded as a rich in minerals and diverse country and it has a vibrant cultural diversity with a spectacular range of vegetation types, biodiversity, climates and soil types. The country allows farming activity like crops in winter and summer and together with animal farming (du Plessis, 2008). The South African government made a response by making a gradual shift towards a free market approach. This has resulted in policies to be oriented towards consolidating and supporting a productive core in agriculture (Greyling, 2018). The South African Agricultural Production Strategy (SAAPS) seeks to position primary agriculture production for the purpose of improving the national food safety and security. The rural economic growth and development can be fuelled to increase rural employment and poverty alleviation (Agriculture, forestry and fisheries, 2017). People depend directly or indirectly on agriculture for their employment and income. The agricultural sector has been identified as one of the sectors that have significant potential to create jobs for South

Africans. The Department of Agriculture, Forestry and Fisheries is committed to creating more jobs (Hart & Maliber, 2019). Genetic modification provides a way of meeting the growing demand for food without placing even greater pressure on scarce resources. A great deal has happened in this field since the proclamation of the GMO Act, 1997 (Act 15 of 1997) (Agriculture, forestry and fisheries, 2011). The GMO Act, 1997, which was implemented in December 1999, provides for the regulation of GMO activities in South Africa. The GMO Act permits the use of trails for commercial release in the country. The Integrated Food Security and Nutrition Program (IFSNP) aims to achieve physical, social and economic access to safe and nutritious food for all South Africans (Ntsebeza & Hall, 2007). Food security at household level had been negatively affected by the general global economic decline of the past years. The Land Bank is designed to assist agricultural bank and is guided by a government mandate to provide financial services to the commercial farming sector and agribusiness (Agriculture, forestry and fisheries, 2020).

3.10 Overview of Limpopo Province's economy and agriculture sector

The Limpopo province of South Africa is home to 9.9%, or approximately 5 million people, out of the 60 million South Africans (Statistics South Africa, 2021). The province of Limpopo consists of 5 district municipalities, namely Capricorn, Vhembe, Greater Sekhukhune, Waterberg and Mopani. It is the poorest province in South Africa, with 89% of its population living in rural areas (Woolard, Finn & Argent, 2009). Following the establishment of South African democracy in 1994, Lebowa, Gazankulu, and Venda formed Limpopo. A large number of people were restricted to rural Limpopo as a result of apartheid spatial settlement patterns (Cartwright, Gastrow, Lorentzen & Robinson, 2019). In today's world, rural homelands remain underdeveloped due to inherited underdevelopment. According to Lahiff (2018), segregation of class and social classes led to underdevelopment and worse poverty in the former homelands. With that being said, today in post-apartheid, Limpopo province's household livelihoods continue to be shaped by economic and social neglect in other former homelands including Venda.

The DBSA (2020) concluded that agriculture was the only sector in Limpopo with a comparative advantage due to its large multiplier effects. This means that agriculture and other industries have strong backward and forward links. Agricultural production contributes significantly to household food security and to economic development. There were 37.9% of Limpopo households involved in agriculture production activities during 2021. As a result of the COVID-19 lockdown in 2020, the agricultural sector experienced a growth in employment from 126 thousand people in the first quarter to 142 thousand by the third quarter. A pattern of a favourable weather and bumper citrus and harvests of maize are the reasons for the growth in employment.

3.11 Limpopo during apartheid regime

The apartheid regime robbed blacks in the former Bantustans (particularly rural Limpopo) of skills and land (Low, 1986). This set a ceiling on prospective revenues from rural agricultural or non-agricultural economic activity, whereby it has stayed insufficient and have consequently made poverty to trap the rural residents (Lahiff, 2000). Therefore, rural residents have migrated to substantially higher-paying urban employment which has nothing to do with agriculture. Labour markets from off-farm now is increasingly determining household job incentives, allocation of labour, and strategies for livelihoods (Kirsten & Rwelamira, 2003). Various source of income, with agriculture accounting for a fairly modest part, comprise of rural households' methods for livelihood. Households obtain their income from various sources: which can be production (agriculture, local handicrafts, and small-scale enterprises), trade, and remittances (Perret, 2003). In 2020, the number of registered farmers was 12 482, with 5 597 (44.8%) female farmers and 6 885 (55.2%) male farmers. With Mopani District Municipality being the municipality with the biggest total number of the registered farmers of (32.7%). In this province, the dominating agriculture activity is cropping farming, preceded by livestock farming. This research focuses on smallholder farmers in Greater Letaba municipality, Mopani District, and Limpopo province. Greater Letaba contains 114 smallholder farmers, majority of them are engaged in livestock farming as well as crop production.

In Limpopo province, during the apartheid era, the residents of Chabelane Village were planting maize as their livelihood, while some were into livestock husbandry, having goats and cattle, whereby they were selling their cattle and goats in exchange for cash. During the apartheid era, their livelihoods were not much affected because the villagers were allocated a piece of land for farming, and some were working at the farms outside the village for income. The solution to the land issue is to reverse the dark past of dispossession by recovering and rural land redistributing to the people of colour. The land issue is embedded in discourses about rights, social justice, and identity, all of which work in a group instead of a personal manner. The finding of minerals by a white minority in the 1880s resulted in a desire for cheap labour amongst black people (Walker, 2020).

3.12 Descriptive profile of smallholder farmers and markets in the Limpopo Province

The agricultural sector in the Limpopo Province is a vital engine of economic growth by virtue of its labour absorption capabilities and its status as source of income for thousands of smallholder farmers, hawkers, and street vendors. The sector contributes towards foreign exchange earnings and makes essential inputs into other manufacturing industries through forward and backward linkages. Agriculture is a significant employer of rural people in the Limpopo Province and plays a crucial role in reducing poverty (Makgobokwane, 2019). The study by Mvelase (2017) found that farming is the greatest contributor to household income in the Limpopo Province. However, the participation of smallholder farmers in commercial agriculture is still major cause for concern since majority are excluded from supplying to high-value markets due to a number of challenges. Most of the agricultural produce in the province is produced by both smallholder farmers and commercial farmers. Most of the smallholder farmers market their produce to informal markets (as most of the participants mentioned in this study), while commercial farmers market their produce to formal markets through take-off agreements. Due to the lack of agro-processing industries, most products produced in the province are marketed as raw products to local, national and international markets. As in the other

provinces of South Africa and in developing countries, smallholder farmers in the Limpopo Province are faced with common challenges such as lack of access to comprehensive agricultural support services. Although smallholder farmers are highly motivated to become prosperous farmers, unless they are well supported along the value chain by extension officers and receive financial assistance from the government, the dream of revitalising, expanding and strengthening the sub-sector will be shattered (Mashamaite, 2018).

The Limpopo Province is considered as one of the provinces in South Africa with more potential in terms of producing high-value agricultural products. Being one of the most important provinces in terms of agricultural production in South Africa, the province is divided into five districts, namely, Capricorn, Waterberg, Sekhukhune, Vhembe, and Mopani. All these districts contribute to the economy of the province through agricultural activities, albeit of a more commodity-specific nature.

3.13 Descriptive Profile of Mopani District

The Mopani district is the northern most region in the Limpopo Province and covers an area of 21 000 square kilometres. The district is divided into four local municipalities, namely Greater Letaba, Baphalabourwa local municipality, Greater Tzaneen, and Greater Giyani local municipality. The district is well known for subtropical fruits and horticultural production (GLM IDP 2021/2026).

The agricultural sector remains an important industry in the economy of the Mopani district. Horticultural production is a major part of the district's agricultural sector, with subtropical fruit being clustered in the centre of the Baphalabourwa municipality. Production of fruit such as bananas also takes place in the district and is concentrated in the Tzaneen areas. The main commercial products cultivated in the district are tomatoes, bananas, avocadoes, mangoes and cabbage. Small-scale farmers generally produce vegetables such as cabbage, chillies, tomatoes, green peppers, onions and pumpkins. Majority of smallholder farmers also produce staple maize crops together with groundnuts and pumpkins (intercropping) under dry land conditions, particularly during the rainy season. Agricultural production in the

district, as in many other regions, is highly dualistic, with agricultural activities being characterised by well-developed and large-scale commercial farms on the one hand and struggling small-scale and subsistence farming activities on the other. Mopani has a population of over 1.2 million and the poverty rate is estimated to be 64.7%. Despite being one of the fruit-basket districts in the province, majority of the population live below the poverty line in mostly rural communities (GLM IDP 2021/2026).

3.14 Farming enterprises in the Limpopo Province

The horticulture division, which includes the vegetable and fruit industries, contributes 60 % of total farming income in the Limpopo Province, followed by livestock with 28 % and field crops with 18 %. The provincial agricultural sector contributes 8.3 % to national gross agricultural income (National Development Agency, 2020). Farming enterprises are indicated in which highlight the dominance of the horticultural sector in the province. Agricultural production in the Limpopo Province is diverse, with majority of smallholder farmers tending to focus on the production of field crops, which is dominated by maize, particularly during the summer months. Other field crops grown, although not on a large scale, are grain sorghum, millet, beans and groundnuts under dry land conditions. These crops are grown simultaneously on the same field (intercropping). Vegetables are also grown by a few smallholder farmers who have access to water and irrigation infrastructure. The primary vegetables produced in the province today are tomatoes, potatoes cabbage, spinach, butternuts, beetroots, carrots, and etc (National Development Agency, 2020). Similarly, this study's findings in chapter 6 stated that most of smallholder farmers practice crop farming.

3.15 Chapter summary

The chapter has laid bare perception of food security in the Southern Africa and South Africa, in which it was shown that food security has remained central to the agenda of the South African Government, with national initiatives and programs declaring it a priority. Food security was a critical factor in the policies and strategies that shaped democratic South Africa. This chapter also

presented the manner in which food insecurity is prevalence in South Africa, whereby most of the households in South Africa still experience food insecurity, especially those in rural areas, despite the fact that on the national level the country experiences food security. Furthermore, major indicators applied to measure dimensions of food security which are Household Dietary Diversity Score, Coping Strategies Index and The Household Food Insecurity Access Scale was discussed.

This chapter has also discussed the issues around land reforms in South Africa and the role of agriculture. This study has also focused on the overview of Limpopo province 's economy and agriculture sector. Limpopo is a province that consists of 5 district municipalities, namely Capricorn, Vhembe, Greater Sekhukhune, Waterberg and Mopani. It is the poorest province in South Africa, with 89% of its population living in rural areas. This chapter also presented Limpopo province overview during apartheid regime, farming enterprises in the Limpopo Province, descriptive profile of smallholder farmers and markets in the Limpopo Province. Descriptive profile of Mopani District was discussed in this chapter wherein the Mopani District is the northern most region in the Limpopo Province and covers an area of 21 000 square kilometres. This chapter furthermore focused on the support for agricultural development, livelihood strategies and living standards whereby rural households in Limpopo obtain a large part of their incomes and devote a significant part of their resources (especially labour) to non-farm activities. Economic development pathways in Limpopo were also presented in this chapter. This study presented also poverty and inequality in Limpopo province whereby approximately 40% of the households in Limpopo are located in areas that are characterised by extreme poverty and underdevelopment (Local Development Agency, 2019). The next chapter precedes to present the theoretical framework adapted in this study.

CHAPTER 4 THEORETICAL FRAMEWORK

4.1 Introduction

Among many development thinkers and agencies, sustainable livelihood approaches have found increasing reference as key to poverty reduction and improving food security. This has been linked to increased realisation that previous developmental interventions have been at the expense of the environment. From the outset, the study recognized differences in the conceptualization of sustainable development. One underlying and common theme in the definitions centres on the need for addressing development goals without adversely impacting the environment. For example, Pearce (1986) sees sustainable development as a rational trajectory where people pursue and satisfy their current needs with consideration of those of future generations. Brundtland Commission also state that, it is “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED, 1987).

This may be interpreted to mean that we must be mindful that this world is not for us alone and that we are not the last ones to inhabit it. Declining global terms of trade, climate change and population densities above carrying capacity present a bleak prospect for smallholder agriculture as a fulltime livelihood for rural communities. Many rural areas continue to face chronic food insecurity, poverty and under-unemployment. There is growing consensus that rural economy is not based only on agriculture, but on a diverse portfolio of livelihood activities (Chapman & Tripp, 2018). Livelihood diversification is an important survival strategy for rural households, wherein while agriculture plays an important role, households are looking for diverse opportunities to increase and stabilize their household incomes, hence enhancing their livelihoods (Carney, 2018). Rural non-farm income comprises all non-agricultural activities which generate income to rural households either through waged work or in self-employment (Davis, 2019).

Taking diversification to mean the transformation of the household or rural economy into new, mainly non-agricultural sectors, offers two contrasting

perspectives in the discussion. Livelihood diversification can be referred to as a progressive and positive strategy of adaptation which can lead to accumulation by rural producers (Davies, 2019). Off-farm income is important as it is used to purchase farm inputs and investment, hence increase food security (Reardon et al., 1996:4). In this chapter a broad overview and a conceptual understanding of sustainable livelihoods is provided. It is not in the scope of this study to discuss different views on sustainable livelihoods, but it examines strengths, weakness and implications of the sustainable livelihood approach. The aim of the chapter is to position diversification of livelihoods as key to addressing the impacts of drought on household food security. The focus of this chapter is on the theoretical works adapted for this study. One theoretical work sustainable livelihood approach was adapted, and it underpin the research. The rationale therefore is to provide a nuanced understanding of the agricultural production, food security and livelihoods of smallholder households (like that of the smallholder farmer of Chabelane village). The theoretical works are expanded on in the following sub-sections.

4.2 Understanding the concept of Livelihoods

There are a number of definitions of livelihoods that have been put forward. Examples include; Chambers (1989: 7) who defined livelihood as ‘‘adequate stocks and flows of cash to meet basic needs’’. This was later expanded by Chambers and Conway (1992) who described livelihood as the capabilities, assets and activities required for a means of living. Though this definition does not clarify how these adequate stocks and flows of cash come about, Ellis (2000:10) in attempt to bring together various definitions defines livelihood as: “A livelihood comprises the assets (natural, physical, human, financial and social capital), the activities, and the access to these (mediated by institutions and social relations) that together determine the living gained by the individual or household.” In their work, Niehof and Price (2018) define livelihood in terms of a system, which can be conceptualised as having inputs (resources and assets), output or livelihood, purpose (livelihood adequacy for meeting basic need), activities (livelihood generation and the composition of the livelihood portfolio), agency (efforts of households and individuals to achieve livelihood

adequacy), quality (degree of vulnerability or sustainability of the livelihood, environment (context within which the livelihood system interfaces with other systems and institutions) and the locus which is the household).

Despite the many definitions of livelihoods available, the most widely accepted definition of a sustainable livelihood is that propounded by Chambers and Conway (1991 :5): “A livelihood comprises the capabilities, assets and activities required for a means of living: a livelihood is sustainable which can cope with and recover from stresses and shocks, maintain or enhance its capabilities and assets, and provide sustainable livelihood opportunities for the next generation; which contributes net benefits to other livelihoods at the local and global levels and in the short and long run”. From the definition a livelihood will encompass both cash and in-kind income, social institutions (kin, family, and community networks), gender relations and property rights required for sustaining a given standard of living. Social networks are important for facilitating and sustaining diverse income portfolios. This does not exclude access to, and benefits derived from, social and public services provided by the state such as education, health services, roads, and water supplies etc. which also constitute livelihoods (Zhang, 2019). However, Carswell et al., (1997: 10) notes that the “definitions of sustainable livelihoods are often unclear, inconsistent and relatively narrow. Without clarification, there is a risk of simply adding to a conceptual muddle…”

In summary, a livelihood comprises capabilities, material and social resources and activities required for a means of living which also considers the role played by structures, policies and processes in influencing the choice of 108 livelihood strategies by the rural poor. It is considered sustainable when it can cope with and recover from stresses and shocks maintain or enhance its capabilities and assets, while not undermining its natural resource base (Scoones, 2015). Taken together, these definitions reveal that the term livelihoods are a multi-faceted concept referring to what people do to make a living with the assets at their disposal and what they accomplish by doing it in a particular context (Niehof, 2004). The concept of livelihood is therefore about individuals, households or communities making a living, attempting to meet their various consumption and economic necessities, coping with uncertainties and responding to new

opportunities (de Haan, 2017). A livelihood strategy would include activities that generate income to a household. It not only captures what people do in order to make a living, but also resources that provide them with the capability to build a satisfactory living, risk factors they consider in managing their resources as well as the institutional and policy context that either helps or hinders them in pursuit of an improved standard of living.

4.3. Sustainable Livelihoods Framework

A livelihood plan is an action or collection of actions that a household participates in to earn an income. These actions might be agricultural or non-agricultural (Adi, 2007:18). A livelihood strategy is determined by the setting of fragility, which includes livelihood assets (human, physical, and natural, social capital, and financial assets) and shocks. The results of livelihood strategies include high income, decreased poverty, and improved people's well-being. The Sustainable Livelihoods Approach (SLA) provides a clear framework for comprehending poverty as complex multidimensionality on a local and global scale. It depends on a variety of disciplinary viewpoints and transcends sectoral borders (Scoones 2015). SLA had been applied in this study to assist in defining the context of vulnerability, challenges, and the livelihood strategies of the smallholder farmers in Chabelane village.

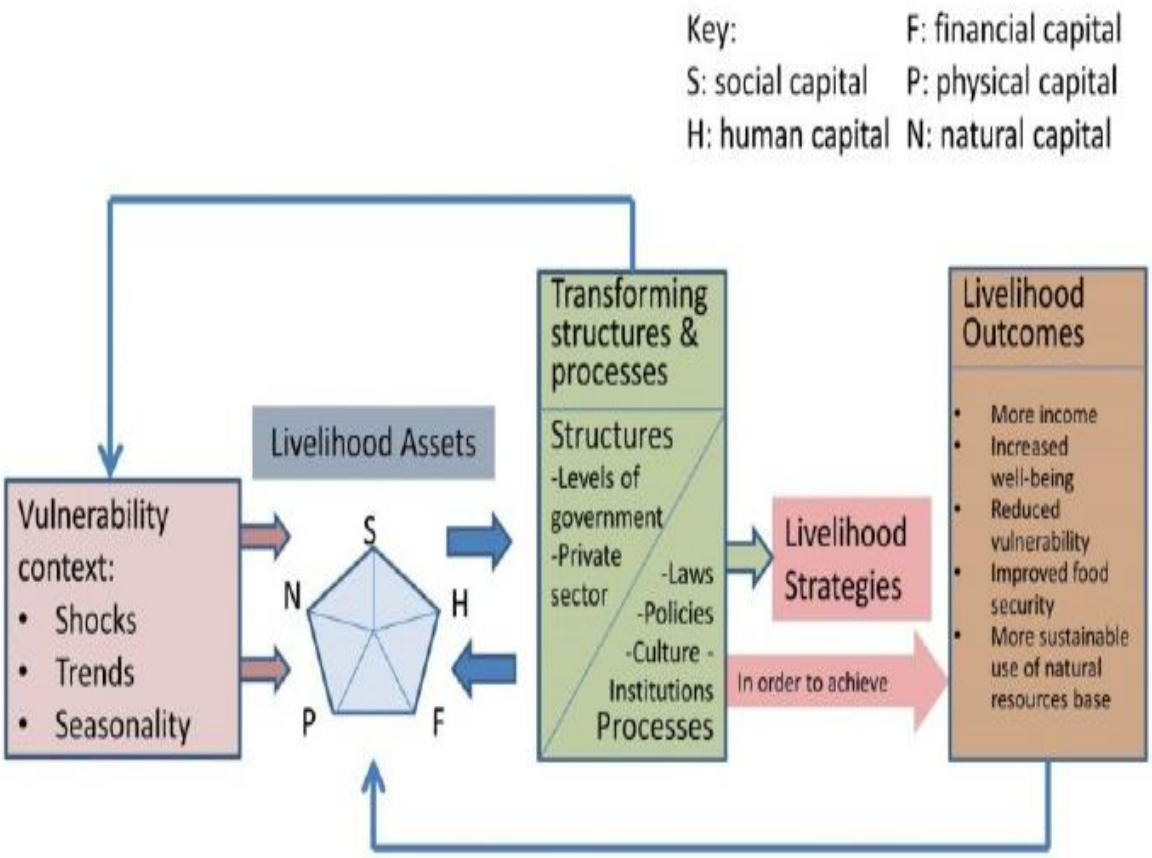


Figure 4.1: Sustainable Livelihood Framework (DFID, 1999)

In the following section, figure 4.1 will be discussed in detail to comprehend the concepts of sustainable livelihood.

4.3.1 Livelihood assets

Since the sustainable livelihood framework's central emphasis is on persons, it is essential to comprehend people's capabilities so to examine whether their assets are converted into livelihood that yields positive results (Woller, 2020). Individuals need a variety of assets so that they can attain priorities that they define themselves, and in livelihood framework these assets are critical components (Owen et al., 2018). To create income as well as meeting basic needs in the households, an asset are the only available resources whereby it also available to cope with shocks, pressure and to manage hazards (Woller, 2020). It is shown in the research that a bigger base of asset is often results into improved livelihood security and more opportunities of livelihood (Woller, 2020).

This signifies that the greater assets the household has, the more they are prone to have more alternatives for achieving their targets (Serrat, 2008). The poor household must frequently make exchange and decisions of livelihood assets which include the following:

Human capital pertains to a person's livelihood understanding and capacities, such as education, knowledge and skills, job aptitude, and adaptability. According to Bhandari (2013), education promotes information accessibility that improves capacity of the farmers to absorb data, hence the income will increase. Human capital, including the quantity and quality of workers available, is a key component in achieving and maintaining livelihood goals for rural area small-scale farmers (Bhandari, 2006). To accomplish farm tasks, many farmers hire a huge number of usually untrained family members.

• Social capital pertains to numerous "social resources that people depend on in achievement of their life goals" (DFID, 1999:45). It is produced by a connection of the family's household's social network, as well as by the links' trust and resource-sharing qualities. According to Pender & Gebremedhin, (2021)' research, smallholder farmers' participation in social networks may boost output while lowering transactional costs and enhancing land management. Collective action can help farmers take advantage of new market prospect brought about by greater economies of scale and enhanced negotiating strength during prices negotiations (Poli, 2015).

• Natural capital is described as the physical environment and the natural resource stocks that can be exploited by the household to increase or improve livelihoods (Woller, 2011). Trees and forest products, Land and agriculture, animals, wild foods, water and fisheries biodiversity, fibres and environmental services are some of these. Farmland ownership and access are essential for preserving livelihoods in rural agricultural societies. Finding illustrates that stable land ownership stimulates farmers to choose lengthy land investments, which results in higher earnings (Obi et al., 2012).

• Physical capital consists of the essential producer commodities and infrastructure required to sustain livelihoods, such like sufficient water supply, safe housing and buildings, accessible transportation, sanitization and

inexpensive electricity. Farmers that are positioned near such services have access to a variety of possibilities that are not available in numerous other regions. Additionally, accessibility to such services can inspire farmers to create more sustainable livelihood and upgrade their farming practices.

• The term "financial capital" can be described as the resources used by individuals to attain their financial goals and the accessibility of finances to implement various livelihood plans (Kollmair & Juli, 2019). It consists of informal credit and debt, savings, pensions, remittances and wages. Compared to smallholder farmers, financial capital is more given to large farmers and their livelihood improves a result of the capacity as well to employ these resources (Bhandari, 2018). Because of the lack the necessary security to get bank loans, majority of smallholder farmers are credit inaccessible.

4.3.2 The Role of structures and processes in shaping livelihoods

Transforming structures and processes are institutions, organisations, policies and legislation that shape livelihoods, determine access to various types of capital (DFID, 1999) and also determine how assets may be utilised. Institutional and policy processes operate within specific contexts such as the people's history, climate change and other trends and shocks. Transforming structures and processes are of central importance as they operate at all levels and effectively determine access, terms of exchange between different types of capital, and returns to any given livelihood strategy (Keeley, 2017). Kollimar and Gamper (2021) describe structures as the hardware (private and public organisations) "that set and implement policy and legislation, deliver services, purchase, trade and perform all manner of other functions that affect livelihoods" (DFID, 1999). Structures are the public and private sector organisations that set and implement policy and legislation; deliver services; and purchase, trade, and perform all manner of other functions that affect livelihoods (Serrat, 2008). Complementary to structures, processes constitute the "software" determining the way in which structures and individuals operate and interact. Processes embrace the laws, regulations, policies, operational arrangements, agreements, societal norms and practices that in turn determine the way in which structures operate (Shankland, 2019). Important processes for livelihoods include policies,

legislation and institutions and also culture and power relations. These may serve as incentives for people to make choices, they may be responsible for access to assets, or they may enable stakeholders to transform and substitute one type of asset through another (Kollimar & Juli, 2020). Both structures and processes do influence people to make livelihood choices. It is important to recognise that while structures and processes are vital in transforming assets and enhancing livelihoods, they can be restrictive if they are not representative and pro-poor (Ellis, 2000). Transforming structures and processes occupy a central position in the framework and directly feedback to the vulnerability context.

4.3.3 Livelihood strategies and activities

Livelihood strategies comprise the range and combination of activities and choices that people undertake in order to achieve their livelihood goals. Put differently, they refer to coping and adaptive strategies that are employed by farmers. Decisions on livelihood strategies may invoke natural- resource based activities, non-natural resource based and off-farm activities, migration and remittances, pensions and grants, intensification versus diversification, and short-term versus long-term outcomes, some of which may compete. This means they have to be understood as a dynamic process in which people combine activities to meet their various needs at different times and on different geographical or economical levels, whereas they may even differ within a household. Studies have drawn attention to the enormous diversity of livelihood strategies at every level-within geographic areas, across households and over time (DFID, 1999). A common manifestation of this is at the household level where a member of the household lives in different places, temporarily or permanently through migration. At the same time, this member engages in gardening and off farm work when they are in the household. Essentially, it is important to analyse households' and communities' strategies within their wider context (DFID, 1999).

4.3.4. From livelihood strategies to livelihood outcomes

Livelihood outcomes are the achievements of livelihood strategies, such as more income, increased well-being, reduced vulnerability, improved food

security and a more sustainable use of natural resources (DFID, 1999). These outcomes are usually a result of a combination of strategies people adopt at individual and community level and can show how people reacted to their context and utilised the various resources at their disposal. It is important to note that due the influence of structures and processes, different people and communities will combine resources differently to arrive at their desired livelihood outcomes. Therefore, the SL approach facilitates an understanding of the linkages between people's livelihood strategies, their asset status, and their way of using available natural resources.

4.4 Criticisms of the Sustainable Livelihood Approach

Ziga, (2018) point out that the poor often rely on a number of different types of economic activities for their livelihoods such that it is not any activity but their combined effect for the household economy that matters. In agreement with this, the SL approach depicts a variety of activities that people carry out, often in combination, to make a living (Ziga, 2018). The SL approach recognizes that when constructing their livelihoods, people make use of a multiplicity of assets, through proposing a more holistic view on which resource combinations are important to the poor. By focusing on the variety of factors, at different levels, that directly or indirectly determine or constrain poor people's access to assets, and their livelihoods at micro and macro levels, the SL approach enables an understanding of the underlying causes of poverty. Furthermore, it suggests that these constraints might be a result of formal/informal institutional and social factors at the local level, or the outcome of policies, economic processes, and legislative frameworks at the macro level.

The SL approach also pays attention to how people develop livelihood strategies to achieve certain outcomes in response to a particular vulnerability context. This enables development agencies to design support activities that build on the strengths of the poor. It also makes it possible to see how even the 'poorest of the poor' are active decision-makers, not passive victims, in shaping their own livelihoods. Finally, the concept of livelihood offers an appropriate basis for evaluating the socio-economic impact of projects or programmes which have poverty alleviation as one of their objectives, since it provides a more

realistic framework for assessing the direct and indirect effects on people's living conditions than for example, one-dimensional productivity or income criteria. However, one of the weaknesses identified in the SL Approach is its silence on how to identify the poor as a necessary prerequisite for targeting of interventions. To address this, a whole battery of methodological tools is necessary in such as social analysis, participatory poverty assessments, gender analysis, stakeholder analysis, institutional given that poverty is a highly variable phenomenon necessitating the need to first acquire a basic understanding of the overall economic, social, cultural, and institutional context. Secondly, the framework highlights the importance of social relations and institutions for livelihoods (Ellis, 2020) but fails to recognise that social assets are difficult to observe (Bebbington, 2019). There are instances where relations of inequality and power reproduce poverty at the local level. Informal structures of social dominance and power within communities, influence people's access to resources and livelihood opportunities. In other words, criticism is on how the approach fails to acknowledge social relations and institutions that act from the household to the community and external to the community (Ziga, 2018).

The livelihoods approach has also been criticised for its insufficient focus on gender, power relations and human agency (Ziga, 2018). Individual or group action is influenced and modified by each other's action as well as by the 120 institutional arrangements forming the context of their action. Individual or group action affects and influences existing institutional arrangements and actions (Ziga, 2018). One of the major challenges for operationalizing a sustainable livelihoods framework is how to quantify, compare and measure capital assets. The breaking down of people's livelihoods in terms of assets may have only a superficial value as not all assets can be generalized and expanded in an incremental fashion (Ziga, 2018). Baumann and Subir (2001) suggest that political capital be given equal status with other capital assets. However, it could well be argued that a sound definition of social capital would necessarily include a consideration of power and political relationships. The framework is also silent about the relationships between assets, of how the assets may change over time, or whether having high levels of one particular asset may compensate for low levels of another. In light of the aforementioned strengths and weaknesses,

I strongly believe that though SLA provides a good opportunity for analysing livelihoods and encourages participation among vulnerable people it does not provide universal solutions. As a model, the SLF does not represent the full diversity of livelihoods, which can only be understood by qualitative and participatory analysis at the local level. Effective application of the SLA and the framework requires appropriate modification and adaptation to suit local circumstances and priorities. In response to these objections, Scoones (2009) adds that it is difficult for a livelihoods viewpoint to investigate all issues faced by the rural area citizens, and that some challenges may require alternate approaches. However, he maintains that the livelihood viewpoint provides a unique starting point for an integrated examination of highly changing rural, complex situations (Scoones, 2009).

4.5 Livelihood strategies

The importance of employment generation as a crucial tactic for helping the poor escape poverty was heavily highlighted in development theory at the beginning of the 1970s. To tackle poverty and increase food security, nevertheless, increased focus has subsequently been focused on diversification livelihood, or the concurrent pursuing of diverse economic activities through various household members (Owen et al., 2018). In basic sense, a person's methods for pursuing their means of subsistence are referred to as their livelihood strategies. according to Owen et al., (2018) various task enables resilient spirit among households during uncertainty and unexpected shocks times, which plays a vital role in minimizing vulnerability (Owen et al., 2018). Informal and formal occupation, borrowing money, home and garden work, remittances from domestic and foreign migration, raising animals are all examples of livelihood strategies. Several households may eventually decide to relocate in order to benefit from opportunities in different locations or to broaden their sources of income in to expand their asset base. Adato and Meinzen-Dick (2002) also contend that the processes, institutions and policies that either limit or facilitate people's capacity to efficiently utilise the resources to realize their livelihood goals have an impact on the kind of livelihood outcomes that individuals choose to employ.

4.6 Sustainable Livelihood outcomes

Livelihood outcomes are defined as desired results of implementing strategies of livelihood, such as greater income, enhanced welfare, decreased vulnerabilities and enhanced food security (FAO, 2003). Understanding livelihood outcomes and the circumstances wherein people use particular livelihood strategies can assist us in comprehending better why people use them (FAO, 2016). According to Owen et al., (2018), a livelihood is viable if it enables individuals to enhance their standard of living in terms of their exposure to shocks and trends, welfare and income whilst making sure that their tasks are consistence with maintaining the base of natural resources.

4.7. Relevancy of the sustainable framework on rural agriculture

The Sustainable livelihood can be referred to as a people-centred strategy that recognizes the necessity of putting individuals at the centre of their own progress by emphasizing what individuals possess, their plans, and their capacity to react to trends and shocks (Owen et al., 2018).

According to the SLF, beneficiaries are crucial in determining and putting first the requirements (Owen et al., 2018). Examining the many livelihood options used by the impoverished demonstrates how they actively participate in making decisions that affect their own well-being. The SLF's comprehensive approach makes it easier to comprehend the poverty cause by concentrating on the various barriers that prevent individuals from accessing resources, which has an impact on the livelihood of the people. These limitations could be the product of macroeconomic structures, such as regulatory frameworks, laws, or policies they may emerge from social issues at micro stage. The SLF is a crucial framework for analysing poverty, institutions, resource availability, and the various livelihood alternatives that individuals choose. Understanding the interactions between various micro and macro elements and the way they impact the poor people's livelihoods is essential to the SLF. Policymakers and researchers can better comprehend the varied manner whereby the destitute are impacted by the numerous vulnerabilities, institutions and structures they experience by comprehending the interactions between diverse elements at the micro and macro levels (Hebinck & Bourdillon, 2018). Adato and

Meinzen-Dick (2019), on the other hand, highlight that by comprehending the distinct strategies in which policies and structures influence the destitute, development initiatives can better their strategies for intervention and advance sustainable development.

According to SLF, farmers' livelihood is embedded in various factors including natural/environmental (land), physical (means of production), human (knowledge, skills and availability of labour), social (access to important institutions such as market) and financial resources. To operationalize the variables under this study to suit the variables in SLF, natural capital was made equivalent to land size, human capital equivalent to extension services, social capital equivalent to market access and financial resource equivalent to capital invested. In this view, it was thought important to understand how the households' livelihood outcome is the precursor of factors that smallholder farmers utilize the livelihood capabilities and assets to achieve the desired livelihood outcomes in terms of increased household income and assets ownership. This theory is a relevant theory, and it has been used in similar previous studies (Mvelase, 2019; McLeod, 2001; Lowe and Schilderman, 2001). In this context of the study therefore, if such assets and capabilities are rationally used there is a likelihood of crop and livestock smallholder farmers to improve both food security and livelihood in Chabelane village.

4. 8 Chapter summary

The chapter has outlined and discussed the theoretical bodies of work adapted for the study. Using the SLF approach, the research is able to focus on smallholder households' endowment of capital, livelihood strategies in which these capital assets are employed, and the level of well-being assessed subjectively. These were also linked to other production, socio-economic and food security characteristics of the smallholder households. Analysis of other issues relating to the effect on smallholder households, of macro-economic processes as well as environmental change and conditions were consolidated in the research using the political economy and political ecology approach. The next chapter will focus on the research methodology of the study.

CHAPTER 5

RESEARCH METHODOLOGY

5.1 Introduction

The chapter outlines the research's methodological procedures. This study had been qualitative in nature. This chapter discusses the research method, design, study area, population and sampling method. In addition, the data collection, and data analysis and ethical considerations which was adhered to in this research will be discussed. The chapter ends with a summary.

5.2.1 Research Methods

This research employed a qualitative research method. Qualitative research employs a variety of interpretative tools to deduce, describe and translate certain occurrences that occur in the natural world, and therefore can be summarized as a type of descriptive research (Creswell, 2009). The qualitative research approach was employed in this study because “it situates the researcher in the real world and incorporates interpretive behaviours that make the world visible” (Flick, 2014:10). The qualitative method enables the researcher to investigate the issue in question and develop a thorough understanding of the study's basic issue (Creswell, 2013).

Qualitative research has a number of qualities, including that its data are descriptive and presented in pictures or words instead of figures (Creswell, 2009). The qualitative research focus is on the participants' experiences and views and the manner which they make sense of their lifestyle whilst simultaneously paying attention to both the method and the results (Creswell, 2009). Text and picture data are used in qualitative research, which also uses a variety of inquiry methodologies. It entails the gathering of information using the participant interviews, observation of behaviour or review of documents (Creswell, 2009). It is a method for examining or comprehending the meaning that individuals or organisations assign to a societal or human problem (Creswell, 2009). Making meaning of and identifying patterns in

words is the fundamental goal of qualitative research in order to get reliable results and conclusions yet not jeopardizing the value of the research (Leung, 2015). Qualitative enables a complete analysis of the examples, providing for the explanation and description of effect and causes as contrast to its effects and causes demonstration (Blackstock, Kelly & Horsey, 2007).

The qualitative method employs a variety of data collection techniques, including participant interviews, as in this research. According to Burns & Grove (2003:19), a 'qualitative method is a systematic subjective approach used to explain and give meaning to life experiences and situations.' This method allowed the researcher to interact with participants in their natural environment. It also enabled the researcher to view incidents through the viewpoint of the participants. The advantage of qualitative research is that it provides detailed knowledge on issues associated with the design, administration, and assessment of language interpretation (Chalhoub-Deville & Deville, 2008).

5.3 Research Design

A research design can be understood as a data collection and analysis approach that helps the researcher in resolving the study problem (Flick, 2018). This research employed a case study design. According to Bowen (2009), a case study is a type of research that stresses knowledge of the basic dynamics and consists of a single care setting. A single case study in this research helped the researcher in comprehending the smallholder farmer's contributions towards household food security. A case study assisted the researcher in comprehending everyday activities through the eyes of the participants, in Chabelane village, Limpopo Province.

The case study method employed in this research enabled the researcher to gain a thorough comprehensive of small-scale farmers, the prevalence of food security, and the challenges encountered by smallholder farmers. The case study method also permitted a researcher to investigate an event within its setting while utilizing numerous types of data. This guarantees that the study's focus is seen from a variety of perspectives, enabling for the discovery as well as comprehension of the phenomenon's various facets (Baxter & Jack, 2008).

In a related study conducted in Tanzania, Daudi (2015a) employed a case study methodology. According to the author, this is a complete approach that enables a researcher to carefully examine various facets of the event.

Two methodologies that direct case study methodology were noted by Baxter and Jack (2008). According to Stake (1995) and Yin (2006) these approaches were to ensure that topic of interest is thoroughly investigated, and the phenomenon's core is found. Consequently, the case study technique is founded on a constructivist paradigm, which maintains that reality is contingent and relies on one's perspective, according to the approach taken by Yin (2006). This method enabled collaboration between the study's participant and the researcher. Additionally, it gave participants the chance to share their experiences and articulate their perspectives on reality, which helps the researcher understand better the behaviour of the participants (Baxter & Jack, 2008:36). The researcher gave smallholder farmers the opportunity to speak about their experiences and express their tales in order to gain a better understanding of the smallholder farmers and their role in ensuring household food security. The advantage of using a case study is that it enabled the researcher to show the evidence gathered through a variety of methods such as interviews (Yin, 2018).

5.4 Study Area

This research was undertaken in Limpopo Province, South Africa, formerly known as Northern Province from (1994-2002), which is located in the northeast of South Africa. The province is known for its plentiful agricultural area and is among the primary agricultural production regions in the country, recognised for its livestock, fruits and vegetables, grains, and tea (Stats SA, 2019).

The study is limited to Chabelane village. Chabelane Village has a population of approximately 3543 people (GLM IDP 2021/2026). It is under Greater Letaba Municipality (GLM), GLM is a Limpopo Province Category B municipality located in the Mopani District. It is the smallest municipality in the district (National Government of South Africa, 2012). Greater Letaba Municipality was established in 1990 and formed during the municipal elections of the year 2000.

Modjadjiskloof is the headquarters of this municipality. The municipal territory encompasses 132 rural communities (GLM IDP 2021/2026).

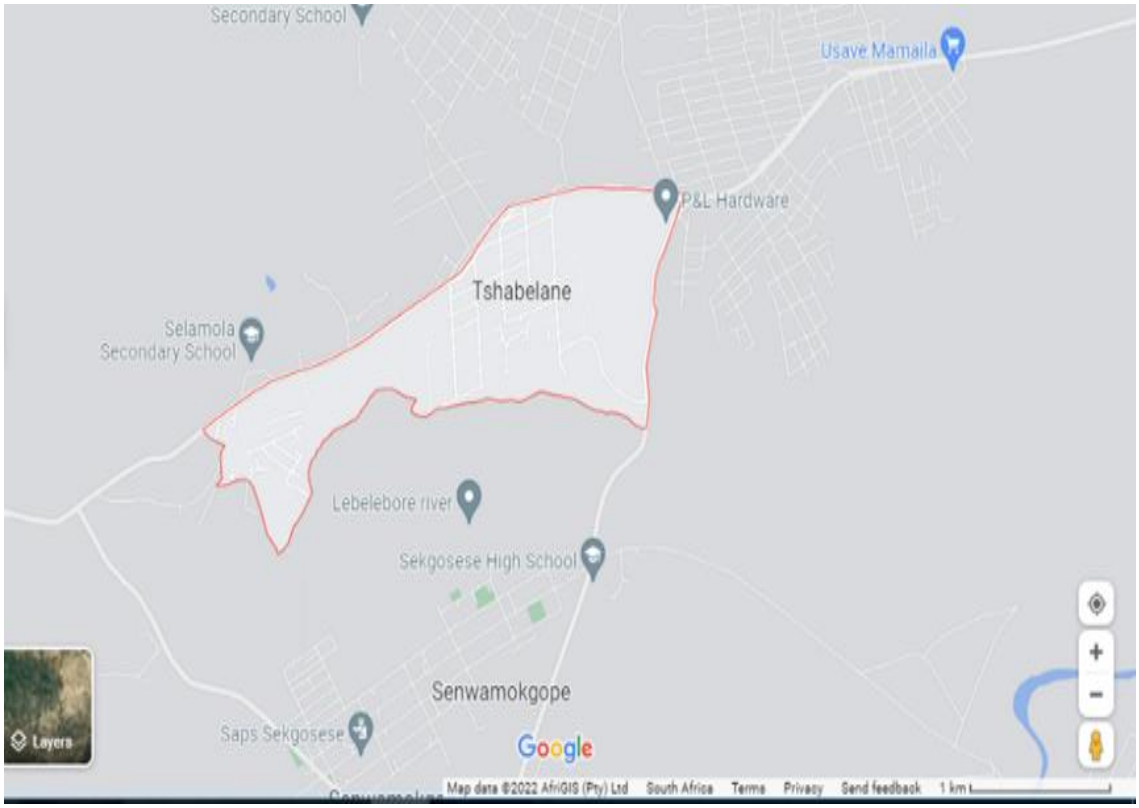


Figure 5.1: Map of Sekgosese area depicting previously spelled Tshabelane village today spelled as Chabelane village

Greater Letaba Municipality is split up into four local municipalities namely, (Figure 5.2).

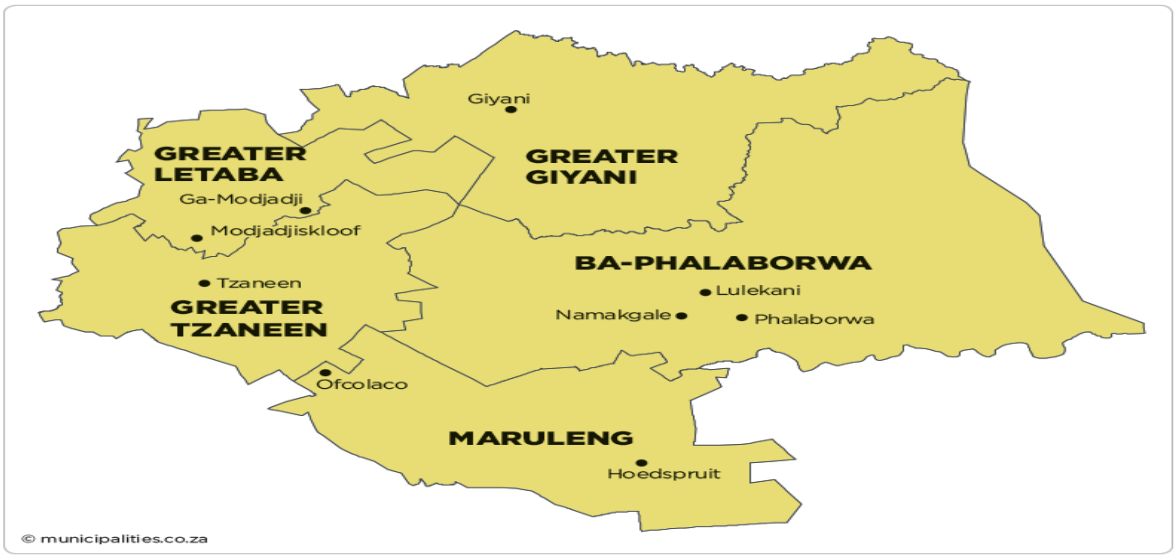


Figure 5.2: Map of Limpopo province showing the district municipalities within Mopani District. (https://municipalities.co.za/map/1129/greater-letaba-local-municipality)

Four local municipalities of category B make up the Mopani District: Greater Giyani (leading in agriculture), Greater Letaba Local Municipality (leading in agriculture, tourism, and small-scale mining), and Greater Tzaneen (leading in agriculture, forestry, tourism, and small-scale mining) (GLM IDP 2015/2016). Phalabourwa leads in mining and tourism. Greater Letaba Local Municipality leads in agriculture. The Greater Letaba local Municipality is the sole subject of the current study. In the 131 rural villages that fall under the GLLM's purview, 94% of the population lives on land that is state-owned under the control of local traditional authority. Mamaila-Kolobetona in the north, Modjadjiskloof in the south, Makgakgapatse in the east, and Sekgopo in the west are regarded as the entrances to the municipal regions. Prospects for agricultural by-products are created by readily accessible natural resources including tourist, nature preserves, lakes destinations and close vicinity to vibrant economic activity. Approximately 16% of the GDP of the GLLM district is attributable to farming. In particular, the agriculture industry keeps growing as a source of jobs in the town and is a strong competitor for the title of major employer.

The Mopani District, which has four local municipalities, employs almost over 23% of its workforce in agriculture (Integrated Development Plan, 2014). Smallholder farmers, who have the ability to boost the economy and yet are hampered by a shortage of resources and funds, consequently, need financial support. These farmers are recipients of state land reform programs like land redistribution for agricultural development. The most important constraint restricting agricultural growth and productivity in the GLLM is the water supply. Due to its location inside the dry savannah sub-region, this also applies to majority of the Limpopo province.

The Mopani District, which has four local municipalities, employs almost over 23% of its workforce in agriculture (Integrated Development Plan, 2019). Smallholder farmers, who have the ability to boost the economy and yet are hampered by a shortage of resources and funds, consequently, need financial

support. These farmers are recipients of state land reform programs like land redistribution for agricultural development. The most important constraint restricting agricultural growth and productivity in the GLLM is the water supply. Due to its location inside the dry savannah sub-region, this also applies to majority of the Limpopo province. Majority of the land in the municipalities northern and North Western regions has little agricultural potential, both in terms of non-arable and arable land, as well as land with a moderate to low potential for foraging. All of these areas fall under tribal jurisdiction. Although there is little room for agriculture in GLLM, there is little room for additional growth in these areas of the municipality, therefore grazing is possible on majority of land.

5.5 Target Population

According to Lawson (2015), a target population is the total group of individuals who possess the necessary data to comprehend the study topic. According to De Vos et al., (2011:223), the term "population" defines the study units' parameters. It alludes to those people in the cosmos who have qualities that are important to the research. The population of a study, according to Bachman and Schutt (2011), is made up of the components that the researcher actually concentrates on and draws samples from, it's not just some wider collection that the researcher truly hopes he might have investigated. In this study, the target population consisted of smallholder farmers who stay in Chabelane Village.

5.6 Sampling

Creswell (2014) defined a sample as “a subgroup of the target population that the researcher plans to study for the purpose of making generalisations about the target population”. This study employed quota sample to choose a representative sample of smallholder farmers. Quota sample entails grouping the population of the research into segments (Agbenyegah, 2013). In this study the target population was divided into strata, and to create the sample, quotas were computed for each group using non-random selection protocols. The following procedure has been carried out in order to choose a quota sample: First, the population was divided into strata; second; to determine a quota for each group based on pertinent or available data; third, gather data with a predetermined number of cases according to the quota; and fourth, compile all

the data to produce the final sample. The usage of quota sampling ensures that the sample group contains specific traits of the population the researcher has chosen (Dudovskiy, 2016). Quota sampling has the advantages of being less expensive and more expedient than probability sampling methods (Bryman & Bell, 2015).

5.7 Sampling Size

Sample size can be described as several units from which the participants are selected, to be included in the study (Lavrakas, 2008). In selecting the sample size, the general rule of thumb was utilized. This study selected 50 smallholder farmers to participate in this study. The whole sample frame of the smallholder farmers was taken from the database of the GLM. The database has two cohorts of smallholder farmers, the males and females. From the database, a group of 50 smallholder farmers was selected randomly.

5.8 Data Collection Tools

Kabir (2016:55) defines data collection as the "process of acquiring and assessing information on relevant variables in a systematic manner that allows one to answer research questions".

Qualitative research involves the process of collecting, analysing and interpreting nonnumeric data from sources such as documents (data that are in text form), observations, images, positioning or nonverbal communication (Onwuegbuzie, Gerber & Abrams, 2017). Some of the characteristics of qualitative research are that they occur in natural settings and data emanating from them are descriptive, reported in words or pictures rather in numbers (Creswell, 2009). Qualitative research centres on the perceptions and experiences of participants, and the way they make meaning of their lives while it also focuses on both the process that is taking place and the outcomes (Creswell, 2009). Qualitative research relies on text and image data, drawing on various strategies of inquiry. It involves the collection of data by researchers through the examination of documents, observation of behaviour or the interview of participants (Onwuegbuzie and Leech, 2007a; Creswell, 2009). It is

a means whereby the meaning individual or groups attribute to a human or social problem is explored or understood (Creswell, 2009).

The main purpose of qualitative research is the making sense of and recognizing patterns in words so as to come up with valid findings and conclusions without compromising its quality (Leung, 2015). It allows for a thorough study of cases, making provision for explaining and describing cause and effect, as opposed to proving cause and effect (Blackstock, Kelly & Horsey, 2007).

This study employed semi-structured, face-to-face interviews to collect data about the contributions of smallholder farmers toward household food security, challenges, and prevalence of food insecurity in Chabelane Village, from the smallholder farmers in the area of Chabelane. A semi-structured interview, according to Packer (2011:43), is one that includes fundamental questions that point towards a particular direction. This method assists the researcher to get in-depth information from smallholder farmers in the village.

In the Chabelane village, 50 smallholder farmers were interviewed. The researcher firstly asked the permission from the chief of the village to conduct the research. Thereafter, the researcher interviewed the participants from the comfort of their home. With each participant, the interview took 15 minutes with each participant. The interviews took place between December 2022 and March 2023. All the participants were smallholder farmers who practiced smallholder agriculture in the village. The interviews were scheduled at convenient times according to the availability of the participants. Participants were allowed to speak their minds using English language or Sepedi language (the local language) during the interview sessions. Interview guides were used during in-depth interviews with open-ended questions. Through this tool, the participants were given a chance to express their ideas as well as personal stories related to the subject. Additionally, open-ended questions allow the interviewee or researcher the liberty to delve deeper to learn further about the subject under investigation (Turner III, 2010). The researcher was able to obtain data saturation by probing, which enabled for further information requests. With the participants' consent, audio-record were used to record the interviews,

and notes were taken during each interview in the field. This was done in order to make sure the researcher recorded all thing said using audio-taping and making field notebook notes on crucial information.

5.8.1 Observations

Observations involve looking and listening in a systematic and meaningful way (Smit & Onwuegbuzie, 2018). This is important because it allows the researcher to capture the missing pieces that interviews cannot fully comprehend. Observations consisted of observing smallholder farmer's farming area, checking prices of the fruit and veggies sold by smallholder farmers among many other things. This was captured with note taking and through pictures.

5.9 Data Analysis

Durcevic (2020) defines data analysis as a "process that focuses on tools and strategies for extracting insights relevant to the business's core goals." Thematic analysis was used for data collection in this study. According to Caulfied (2019:111), this strategy is used to discover common themes (concepts, and patterns) in a collection of texts, such as interview transcripts. It entails reading and evaluating all material obtained to code, organise, and link diverse concepts (O'Connor & Gibson, 2003).

Data analysis can be described as a technique of making sense of the data collected (Simon, 2011). The steps taken by the researcher to derive meaning from the findings are outlined as follows. After data was directly transcribed and English language was used when translating. The data were analysed using a thematic analysis. The act of detecting, analysing, and reporting themes that arise from the data is described as thematic analysis (Braun & Clarke, 2006). A theme can be utilized for organizing a series of often occurring answers to the questions of the study as well as to discover significant subjects in the data (Turunen, & Snelgrove, 2016). First, the recorded interviews were transcribed verbatim, and these were reconciled with the fieldwork notes to make sure that there was no omitted data. Editing and familiarization with the data was thereafter done by going through the data and iteratively reading the scripts several times. Subsequently, the edited data was loaded into Atlas.ti

version 8 software for analysis. The following steps were thereafter taken in the analysis process: 1. Initial codes were generated by highlighting connected ideas and systematically assigning potential codes using Atlas.ti software. For the coding process, In Vivo coding and open coding using process codes and descriptive codes were used (Saldaña, 2015:66). 2. With due consideration and being conscious of the research question, the generated codes were assigned into categories. The themes were then assigned as well as sub-themes. 3. The themes which formed the basis of drawing meanings from the data were reviewed to ensure coherence. 4. The identified themes were thereafter named based on their meanings. Themes were thereafter exported from Atlas.ti software to produce the report. Below is table 5.1 that shows the three major themes with a variety of sub-themes that emerged through the analysis. They will be thereafter extensively discussed in chapter 5 for findings and discussions.

5.10 Data Storage

In this study, the researcher made use of pictures, a tape recorder during interviews, therefore the data collected was stored in a password-protected computer and no one will have access to it except the researcher and the supervisor. The data is stored for a period of 15 years and will be discarded after this period.

Table: 5.1: Themes and Sub-themes

Themes	**Sub- themes**
The prevalence of household food security status	Food consumed per day for the past 7 days Smallholder farmers' grocery expenditure per month Smallholder farmers' food supplier source

Contributions of smallholder farmers toward household food security	Job opportunities Broaden local economy Increased food supply Increase power purchase parity Generates income
Challenges faced by smallholder farmers in Chabelane village	Water shortages Financial challenge Lack of access to market Lack/ poor resources Poor infrastructure Lack of knowledge on soil type Lack of farm inputs Technological barriers

5.10 Method to ensure Trustworthiness

The usage of and emphasis placed on the ideas of validity and reliability is one of the differences between qualitative and quantitative studies (Kumar, 2011:184). The terms "authenticity" and "trustworthiness" are sometimes used to describe and demonstrate reliability and validity in qualitative research. Conformability, Credibility, dependability and transferability are the 4 aspects that Guba and Lincoln (in Kumar, 2011:184) claim that in qualitative it promotes trustworthiness. These factors also in qualitative study represent validity and reliability.

5.10.1. Credibility

Credibility, in the words of Trochim and Donnelley (in Kumar, 2011), is demonstrating that the findings of qualitative research are credible or trustworthy from the viewpoint of the study participants. It is thought that the participants are the greatest judges of how well the results of the study accurately represent their thoughts and sentiments since qualitative research investigations study the perceptions, experiences, feelings, and beliefs of individuals. Credibility is a substitute for internal validity that aims to show that the inquiry was carried out in a way that assures the participant has been appropriately recognized and defined, (De Vos et al., 2011). The researcher employed an interview plan for both the focus group discussion and the one-on-one semi-structured interviews to establish credibility. With the use of the interview guide, open-ended questions were asked of the participants.

5.10.2 Transferability

According to Trochim & Donnelley, in Kumar, (2011) Describe transferability as the extent whereby the qualitative findings of the research can be used to different contexts or environments (Shurink, Fouché, and De Vos (in De Vos et al., 2011) suggest that the researcher should consider whether the study's conclusions may be applied to different contexts. External validity or generalizability it is considered as an alternate.

The researcher focused on gathering and summarizing the observations and data in this study utilizing rich, detailed information based on the participants' perspectives. These were deemed pertinent in an investigation of the contributions of smallholder farmers in Limpopo province South Africa, and other locations dealing with such circumstances, and this will guarantee that the research is transferrable in investigations of the contributions of smallholder farmers in Chabelane village.

5.10.3 Dependability

The idea of reliability in qualitative research is quite close to the concept of dependability (Trochim & Donnelley in Kumar, 2011:185) assert that it is

focused on the question of whether repeating an observation would yield similar outcomes. According to De Vos et al., (2011:420), the researcher has to consider the process' logical presentation and level of documentation. As an alternate to reliability, dependability is mentioned, when the researcher tries to take circumstances that changes in the phenomenon being investigated into consideration. This study followed a thorough research design and procedures of data gathering, data analysis, and sampling that were approved scientifically throughout.

5.10.4 Conformability

The extent that the findings can be verified or confirmed by others is referred to as conformability (Trochim & Donnelley, in Kumar, 2011:185). In quantitative research, conformability and reliability are equivalent concepts. The only way the findings may be compared is when if both researchers has adhered to the same procedure (Kumar, 2011:185). Lincoln and Cuba (1999, in De Vos et al., 2011:421) emphasize the importance of determining whether more research might support the research's conclusions. Through this, they shift the focus of judgment from the researcher's intrinsic qualities (objectives) to the facts themselves. The issue is whether the researcher offers an audited-based proof to support the conclusions and interpretations. Therefore, the data was actively and systematically evaluated in order to establish the reliability and consistency of the original data as well as the interpretations that the participants assigned to their experiences of smallholder farming. The researcher used her supervisor's views to check the results and audit the entire study procedure.

5.11. Ethical Consideration

Ethical considerations in research “are a set of principles that guide your research designs and practices” (Lewin, 2011:65). The study adhered to the University of Pretoria's faculty of humanities ethical requirements. It has ensured that the appropriate permissions and procedures for conducting the study are achieved while respecting the traditions and beliefs of the people. The study was conducted in accordance with the University of Pretoria’ ethical research standards. The study was conducted immediately after obtaining approval from

the University of Pretoria Research Ethics Committee (HSSREC, the Faculty of humanities committee. See appendix C for the ethical clearance certificate which was released to the researcher in August 2022. Greater Letaba Municipality as well as Mamaila Kolobetona Tribal Authority also issued a gatekeeper's letter (see appendix B) to allow the researcher to interview the community members in Chabelane Village.

Each participant signed an informed consent form to participate in the research study during the process of data collection. The researcher informed the participants about their rights in the study as well informing them about the study's objectives before they can give their consent.

Participants were not coerced into providing information; they participated freely and voluntarily. The participants were assured that they will not experience any emotional or physical harm. Since the researcher is from the same village as the participants, the researcher did not take any sides and participants were rest assured that their opinions will not be used against their will. The information collected from the participants were held confidentially and are used solely for this study.

Taking of pictures was done with sensitivity to the privacy and dignity of people. Pictures taken in this study did not reveal the identity of people, the written consent was acquired from the farmers before taking them or their farm product/ resources a picture.

The participants' names were not revealed rather pseudonym was used instead. The data collected in this study was only shared with the supervisor and was kept safe in a password-protected computer. All the information collected will be destroyed after a period of five years.

5.12 Chapter summary

This chapter presented the research methodology employed in this study, whereby semi-structured interviews was used to gather data and thematic method was used to analyse data. This study was qualitative in nature and case study design was employed. To choose the participants, a non-probability

sample method was employed. The study sampled 50 smallholder farmers. The study area of this study was Chabelane village. The ethical guidelines that were adhered to in this study to protect the participants was discussed in this chapter. The following chapter presents the findings and discussion of the study.

CHAPTER 6 DATA ANALYSIS

SOCIO-ECONOMIC CHARACTERISTICS OF SMALLHOLDER FARMERS

6.1 Introduction

To provide an overview of the community under study, this chapter covers the socioeconomic characteristics of the sampled smallholder farmers' households, in Chabelane village. Socioeconomic characteristics are quantifiable factors which offer a direct or indirect indication of a group's social and economic state. Household characteristics are major factors of economic activity, livelihood strategies, and household decisions. Socioeconomic characteristics are also significant in determining the susceptibility of various households to economic, political, and social, psychological, cultural shocks. This chapter describes the household size, age, employment status, gender, and head of the household gender of Chabelane village's smallholder farmers. It also discusses the farm size and the farming area of the smallholder farmers, types of agricultural farming they practice, and an analysis of the various reasons why smallholder farmers in this study area engage in smallholder farming.

This chapter presents findings that had been derived from semi-structured interviews with 50 smallholder farmers. Further, the purpose of this study was to investigate the contribution of the smallholder farmers towards household food security in Chabelane Village, Limpopo Province. Firstly, the chapter begins by describing the smallholder farmers' demographics and socio-economic characteristics and will conclude with a chapter summary.

6.2. Demographic details of the participants

According to Makhura (2018), the participants' demographic profile is a significant component in any study since it influences some decisions and actions made by participants regarding environmentally friendly farming. According to Makhura (2018), it is critical to consider characteristics such as gender, employment status and household size when examining smallholder farmers' practices of sustainable agricultural because they are essential to practices of sustainable agricultural. According to Siulemba and Moodley

(2014), gender and age as the socioeconomic factors impact decisions to embrace techniques of sustainable agriculture. Demeke (2018) and Siulemba (2017) recognise that sustainable agriculture requires an advanced level of education for effective execution as well as administration of environmentally friendly practice agriculture. Kotile and Martin (2019) and Sikwela et al., (2018) emphasize the significance of the farmer's household size in determining the application of the practice of sustainable farming. According to Chisasa (2014), the age distribution of smallholder farmers participants is asked to reflect age specialization and recognized trends of interest in agriculture.

The researcher considered various characteristics of the participants which were significant towards the understanding of the contribution of the smallholder farmers towards household food security. The tables below present the characteristics of the participants, namely, gender, household size, household head gender, employment status, and source of income. The demographic details of the participants are presented below.

Table 6.1 Gender

Gender	Frequency (N=50)
Male	19
Female	31

The foregoing table depicts the gender of the participants who took part in the study. The study interviewed 50 smallholder farmers of which majority were female followed by Males. The FAO (2019) and Thamaga-Chitja and Morojele (2019) indicate that in Sub-Saharan Arica, 80% of active smallholder farmers are females. Thamaga-Chitja and Morojele (2019) further indicate that over 2 million of these come from Southern Africa. Aliber and Hart (2009) and Thamaga-Chitja Morojele (2019) state that in South Africa, poor people enter into smallholder farming to obtain extra food, and female's farmers are

responsible for almost all the productive activities in farming. Women are increasingly resorting to smallholder subsistence agriculture to help the deficit of their households' food needs.

According to the FAO (2019) and Thamaga-Chitja and Morojele (2019), women perform majority of the productive labour in subsistence and smallholder agriculture as a result of their cultural and traditional responsibilities. According to Thamaga-Chitja and Morojele (2019), this is related to domestic duties by women, that in villages women culturally are expected to perform these duties. These cultural and traditional limitations expand more to women above domestic duties, as women are ought to do domestic jobs such as farm job to provide for their household members while their husband who are males are in urban areas looking for a job or working. The reason why majority of the smallholder farmers in Chabelane village are women, is because most of the women in this village are widows hence, they are breadwinners, and they have to ensure that their households have food. Table 6.2 below shows the age of the participants.

Table 6.2 Age category

Age category	**N=50**
18-25 years	5
26-30 years	6
31-40 years	26
41-50 years	10
51+	3

Majority of the participants were between the ages of 31-50 years old followed by the participants aged between 18-25 years old and lastly the total participants above 51 years of age. What can be deduced is that smallholder farming is

mainly practiced by older people in Chabelane village. What can be deduced from the age dynamics is that despite the old age group of the participants, the participants are productive in the farming sector.

This is corroborated by Pienaar (2014), who similarly claims that elders are primarily involved in agriculture since they acquired expertise from their forebears, implying that their predecessors taught them how to farm when they were young. As a result, they continue to farm in order to alleviate poverty in their household, both through selling farm produce and growing for household use.

Table 6.3. The household size of the participants

Household size	Frequency N=50
1	0
2	0
3	4
4	7
5	8
6	10
7	14
8+	7

According to Table 6.3 this study found that majority of the household size of the participants was between 5 and 6 members followed by a household size of between 3 and 4 members. Many households in the study area have an average of 5 members, whose nutritional needs require a wider variety and sufficiency of food regularly. The consequence is that, in comparison to smaller homes, larger households frequently demand more food and may be forced to adopt a wider variety of food coping mechanisms. A household's food needs are influenced by the number of people living there, and the type and quantity of labour available for income-generating activities such smallholder agriculture is also impacted.

As a result, the level of food security experienced by households in this research area is influenced by household size. Similar findings were made by Olayemi (2019), who discovered a connection between food security and household size. This is due to the fact that overall food cost grows along with the size of the household. Additionally, Jacobs (2020) discovered that larger households are predicted to consume greater quantities of food than smaller ones. As a result, growing families typically put more emphasis on consuming than they do on production through labour. Because of this, household size fluctuates according to the level of food security. According to Amaza et al., (2019), the probability of food insecurity increases as the proportion of inactive people in families rises, increasing the load on those who are actively involved in providing food. Therefore, in this study, larger households have a detrimental effect on food security.

This study was also interested in finding out about the gender of the head of the household. Table 6.4 below shows the gender of the head of the household.

Table 6.4: Gender of the head of the household

Gender	Frequency N=50

Male	15
Female	35

Table 6.4 depict that majority of households were headed by females, while few were headed by males. Based on the above data, Chabelane village is dominated by females who are heads of the household as they account for majority of the total sample. The reason why the village is dominated by female headed families is because most of these females are widows. In every society, gender affects roles and obligations, resources and authority for both women and men. Numerous studies indicate that families headed by women are more likely than those headed by men to experience poverty and food insecurity (Kassie et al., 2019). This finding was corroborated by Frayne et al., (2019), who found that in South Africa's three major cities, households led by women experienced greater levels of food insecurity than households headed by men. Due to their lower incomes, women are more likely than men to experience food insecurity.

Males are paid more than females for comparable employment, therefore female-headed households are more likely to be poverty (Barros et al., 2018). This is the main reason why female-headed homes in metropolitan Brazil must be destitute. Moreover, women have been particularly vulnerable to the economic downturn due to sociocultural restrictions on their ability to actively engage in agricultural operations (Kabeer, 2018). Furthermore, the researcher was also interested in the employment status of the smallholder farmers in Chabelane village. Table 6.5 below depicts the employment status of smallholder farmers.

Table 6.5: The employment status of the smallholder farmers.

Employment status	Frequency

	N=50
Employed	7
Unemployed	12
Self-employed	31

From table 6.5 above on the employment status category, it was found that majority of the participants were self-employed, few participants were employed, and others were unemployed. The participants who were employed were observed to be mainly working for the government and other projects that were ongoing in the area or government. Very few participants were employed. Perhaps, this is due to the fact that the area is a rural community and that not many job opportunities are available. These findings are parallel with the findings by Machete (2020) who in his study found that majority of participants were self-employed followed by those who were unemployed. The researcher wanted also looked at the smallholder farmers' source of income since they indicated different employment statuses. Table 6.6 below illustrates the source of income of the smallholder farmers.

Table 6.6. The source of income of the smallholder farmers

Source of income	Frequency N=50
Salary	7
Remittances	22
Farm income	13

Wage	0
Social grant	8

Table 6.6 depicts the main sources of income among the participants. The study found that majority of the participants depends on remittance, followed by social grant, farm income, and salary income and no one depends on a wage income. These results indicate that farming is still the main source of income among the targeted population and people in rural areas generally. These results are consistent with those of Stats SA, which shows that the impoverished people in rural areas used a range of livelihood strategies to meet their needs. These strategies included salaries and earnings, followed by social subsidies, corporate income, and pension remittances (Stats SA, 2022).

6.2 .1 Reasons for engaging in smallholder farming

For the purpose of this study, the researcher was interested in identifying the possible reason why the participants are practicing smallholder farming. Majority mentioned that they are into smallholder agriculture for household consumption, for extra source of income, while few said they are into agricultural farming because of passion. The participants alluded as follows:

I practice farming because I want my household to have food because I don't afford some of the things from the shop. At least if I can buy meat at the shops and other things like tomatoes, maize meal will come from my farm (Participant 8, 2022).

Other participants similarly to participant 8 said:

I practice farming because I want to have lot of food. I was inspired by my neighbours and I don't think I will leave this farming practice because it keeps my feet since you can see am old now. It also helps me to get healthy food without cost (Participant 26, 2023).

To see my family having healthy food. And I do this also because the food is expensive, I can't depend on buying from shops everything. I will make sure that

*this continues from one generation to another. I will teach my grandchildren to keep this farm functional (*Participant 28, 2023).

It is evident that the participants do not want to see their household members sleeping on an empty stomach, they do what they can to feed their families as well as the community by selling their farm output. The justifications provided by the participants for their involvement in smallholder farming support the claims made in literature by Ramanyimi (2019) and others regarding the rationale behind the practice of smallholder farming by rural households. This is because people practice agricultural farming for a various reason.

Other participants mentioned that they practice smallholder farming because of the passion and the love they developed for farming in the process:

I practice farming because my grandfather taught me how to be a provider for my family and the community as a whole. Then I grew a love for agriculture, now I farm out of love. This is my family legacy, it will leave on, passed from one generation to another (Participant 27, 2023).

Participant 7 goes on to say that: *I love doing what makes me feel good, I feel I am passionate about farming, and this started way back in high school. I do this type of farming because I am passionate, and it helps me to realize my potential* (Participant 7, 2022).

These findings are similarly with that of Hendrick, (2014) who found that most of the smallholder farmers turned to agriculture faming because of passion. Which grew and made them love what they do and start to consider it as a way of living.

Other participants said that farming helps them with extra income, hence they ventured into agriculture:

*Farming helps with extra money, I do it to have extra income, I sell to the community and outside the area what I produce from the farm so that I can get income to pay for electricity and do other necessities which is the other source of income I cannot meet (*Participant 5, 2022).

Since I tried to start planting crops, I realised that I can also start business of selling the harvests. That's when I realised that I could start practicing a serious farming to get extra income for my household. And indeed, it worked for me (Participant 3:2022).

I practice farming because I need extra income to pay some of the bills at home as well as to help my grandchildren with school fees (Participant 46:2023).

According to Christen and Anderson (2020), agrees with the findings, between 3 and 3.5 billion farmers make a living from this kind of farming. This may suggest that the individuals involved opted to grow their own food as a means of augmenting their earnings rather than acquiring everything from the marketplace.

Masuku (2013) support this idea by pointing out that, agriculture in rural community is a major source of income and that it needs to be utilized as a cooperative approach to reduce food insecurity in these places. Therefore, growing crops for both personal use and commercial gain is a sensible option for a large number of individuals. As a result, both the household's ability to generate income and its food security may increase. Moreover, the study indicates that smallholder farmers have the capacity to grow and market their agricultural inputs to enhance their own well-being as well as potentially contribute to a more robust and plentiful food supply (Livingston et al., 2020). Similarly, in this study in chapter 8, it revealed that smallholder farmers contribute towards robust food supply through farming. According to Dorward (2021), agriculture as a food source is the most direct way for household agricultural production to be converted into consumer production since the nutritional level of smallholder farmers' household food consumption is usually impacted by what they plant. For households engaged in agriculture, dietary variety and crop diversity have a connection since a significant amount of the product produced by smallholder farmers is consumed at home (Msaki, 2010). As dietary diversity and quality improves, household food security consequently continues to improve.

6.2.2 Types of agricultural farming

The research findings on the type of farming practiced by smallholder farmers in Chabelane village revealed that, field crop farming is the biggest category of farming in the study area of Chabelane village. The findings show that majority of the participants are practicing crop farming whereby they are growing cabbage, Green leafy vegetables spinach, maize crop, onions, tomatoes, oranges, lettuce, spinach, chilies, green beans, baby marrow, sweet potatoes, ground nuts, pumpkins, and beetroot. Other participants mentioned that they are into both crop farming as well as livestock farming, whereby they own livestock, namely: cattle, chickens, goats, and pigs. From this category, it was found that their livestock ranged from 5 -15 livestock. The participants responded as follows:

*I am a crop farmer, am not into livestock farming because I do not have any livestock at the moment. I plant vegetables which includes cabbage, onions, chilies, maize, sweet potatoes, beetroot, lettuce, baby marrow, and pumpkin. I plant vegetables because I want to eat healthy and fresh food (*Participant 10, 2022).

I do crop farming only in my yard; however, I will be venturing into livestock soon. I plant maize crops, ground nuts, and green leafy vegetables (Participant 19, 2022).

*Most of the time in my farm I plant spinach, tomatoes, and maize and I have also an orange tree. I only do crop farming, other farming ideas I have not yet thought about them (*Participant 3, 2022).

The findings show that majority of smallholder farmers are still practicing mostly crop farming than livestock farming. In crop production, households are engaged in additional strategies for enhancing food security and food availability in their households. The crops grown by smallholder farmers are intended for domestic consumption, and it is possible for the household to become either partially or completely food insecure (Mutisya et al., 2016). Rose (2008) asserts that the development of staple food crops has a role in ensuring the food security of households. Vegetables, maize, and beans are only a few of the many crops that may be grown in South Africa (Gbetibouo & Hassan, 2005). This is because majority of the country's soil is appropriate for producing these kinds of crops.

Similarly, in this study in chapter 6, the findings showed that majority of smallholder farmers are planting vegetables and maize. Figure 6.1 below depicts the pictures of crops planted by the smallholder farmers in Chabelane Village.

Figure 6.1: Picture depicts the maize crop cultivated by smallholder

Figure 6.2: The picture depicts the spinach and onions cultivated by smallholder farmers in Chabelane Village

Figure 6.3: These are the green peppers planted by the smallholder farmers at Chabelane village

This study also found that other smallholder farmers in the village are practicing both livestock farming as well as crop farming. The smallholder farmers described their farming as follows:

Am practicing livestock farming as well as crop farming. I own 15 chickens, 5 cattle, and 6 goats. I plant spinach, beetroot, beans as well as tomatoes (Participant 2, 2022).

In my farming area, I have various crops, and I also have chickens. I do both crop and livestock farming. I plant onion, spinach, sweet potatoes, maize crop, and cabbages (Participant 2, 2022).

I practice crop and livestock farming. I have cattle, pigs, and goats. I also plant spinach, cabbage, green paper, tomatoes, oranges, sweet potatoes, and maize (Participant 5:2022).

A household that mostly depends on livestock may be able to boost their access to food and income by either selling the animals for a profit or by eating the animals themselves (Maziya et al., 2017). It can result in very little or considerable food insecurity in the home.

Livestock is seen as an aspect of security and a means of coping during crop failure and other disasters (Kang'ara et al., 2018). Since livestock is a commodity and can be used as a reserve that can be converted into money when required almost all rural households in nations that are developing owns some livestock (Ali & Khan, 2019). According to Kassa et al., (2020), a number of research studies have shown that households that own cattle are more likely to engage in ecologically friendly farming practices and have sufficient food security. Bashir et al., (2021) found that an increase in small livestock increases a household's probability of being nutritious by about 51% in rural Punjab, Pakistan.

According to this research, having animals will improve food security. Households' ownership of livestock was represented by the quantity of tropical animals they own. Using conversion factors, each domestic animal was translated into a corresponding tropical animal.

Subsequent investigation indicates that majority of farmers in the study region choose to grow a range of crops, such as maize and other vegetables, which serve as a dependable source of food for their household. In the studied region, cow production was a part of the agricultural activities of smallholder farmers. Most respondents claimed to possess cattle, chickens, pigs and goats.

In addition to being easy to care for, livestock can be exchanged for money or used by households as a source of essential nutrients. cattle farming households can increase household income and ensure food security by selling animals for profit or for usage by their cattle (Maziya et al., 2017) see chapter 2 of the literature review. Taruvinga et al., (2013) showed that there exists a relationship between households with small livestock and high food diversity in their research on the association between small livestock ownership and dietary diversity. The pictures below depict the livestock that small-scale farmers in Chabelane Village own.

Figure 6.2: The pictures depict some of the livestock (chickens and cattle) owned by smallholder farmers in Chabelane village

6.2.3. Farm size and area

Availability of land for farming is an important determining factor in the success of smallholder agriculture and the study had been interested in where the farming areas were located. The researcher was interested in knowing whether the participants farmed on the stand they resided on, on another site outside their compounds, or whether they farmed on both. Majority of the participants

indicated that they farm inside their yards since they have a huge stand, and their farming area is between 100-500 meters square. Few participants said they do their farming outside their homes; they further indicated the size of land they use for farming is 1 hectare of land.

I do my farming inside my yard, I have about 300 meters square, which I use for crop farming, (Participant 1, 2022).

I use my stand to cultivate crops and other space I erected two kraals for the livestock. The farming area is approximately 100 hectares. I started this because I was bored but now, I see is helping me to get a few tomatoes, giggling… (*Participant 40, 2023).*

The farming area I have is 300 meters square which has my livestock, is inside my yard, not outside (Participant 24, 2022).

My farming area is about 500 meters square. I do my farming here at home because the stand is big enough to also plant my crops (Participant 15, 2022).

The findings indicate that some of the smallholder farmers had small farm sizes because they farm at their home stand, and this is not surprising because a small plot of land is what characterizes smallholder farmers as indicated in the literature review (Chapter 3). The size and scope of their operations currently place restrictions on smallholder farmers in the study region. Smallholder farmers have unsustainable small farms and low-quality land, according to Baiphethi et al., (2009). The results are consistent with those of Mashamaite (2014), who discovered that most participants utilized portions of their less than 500 square meter home stands for farming. In most cases, smallholder farmers run their fields under ambiguous customary land ownership. Because of their erratic land tenure systems, they are unable to make the most use of the land. Insecure property rights, for example, do not encourage farmers to invest in land, which would increase production (Tenaw et al., 2019). Land entitlement is an important source of income since productive property may help rural households meet their food demands and sell what they produce to potential niche markets (Obi et al., 2018).

When farmers gain fresh land, their involvement in agriculture may increase; yet, when they lose land, it is likely to decrease. The production of a farm can be positively or negatively impacted by its size. This bolsters the assertion made by Hendricks (2014) that small-scale farmers still produce 25% of what commercial farmers produce, and that most land transfer has been ineffectual and unproductive. Other participants stated that they farm outside their yard and not inside their house stand, they said:

*My farming takes place outside my yard, which is located 100 meters square from where I stay, the farm size is 1 hectare (*Participant 4: 2022*).*

I do practice farming outside my home place. The land area is big, I was given it by my grandparents. Actually, it is my family's inheritance. The land is 1 hector (Participant 16, 2022).

Where I plant my maize crops is not far from my yard, I take 4 minutes or 3 minutes to get there. It is a 600-meter square area I inherited from my grandmother (Participant 42:2023).

The viability of smallholder agriculture is significantly influenced by the availability of land. These findings indicate that the participant' farming area took place outside where they stay, and the farm size was big to allow them to have different farming activities.

Lerman (2020) asserts that a larger farm may encourage farmers to increase productivity, which would increase household incomes and increase their desire to engage in the sale of agricultural products. This study found that smallholder farmers with at least one hectare of land might yield higher harvests than those with smaller plots. Increased size of farms may therefore motivate farmers to enhance their output, which would raise incomes for households. The study's conclusions highlight the importance of land and farming area. The household farm determines how much production a home produce. Furthermore, owning land will prevent a household from growing its output, especially if the household does not inherit land or does not have the money to purchase a site (Ghonemy, 2018).

6.3 Chapter summary

This chapter provided a descriptive analysis of the socio-economic characteristics of the sampled smallholder farmers. The chapter addressed the typologies that emerge among smallholder farmers' households based on the identified household characteristics. These characteristics included the household income, household size, employment status and gender of the household head, farm sizes, and farming area. It further focused on the source of income and reason for engaging in agricultural farming and the type of agriculture they are practicing. The next chapter focus on the first theme of the study namely the prevalence of household food security status of the study area.

CHAPTER 7

PREVALENCE OF HOUSEHOLD FOOD SECURITY STATUS OF CHABELANE VILLAGE

7.1 Introduction

In South Africa, a person was considered impoverished in 2022 if their monthly income was less than R945. Furthermore, according to the national criteria for South Africa, those with a monthly food budget of R663 were deemed to be below the poverty line (Galal, 2022). Despite an adequate national food supply and successful reductions in hunger and poverty in the years following 1994, household food security and optimal nutrition at the individual level remain problems in South Africa (StatsSA, 2022). Stunted growth and other forms of malnutrition, such as obesity and hidden hunger (micronutrient deficiencies caused by a lack of dietary diversity and quality), as well as the nation's consistently high levels of undernourishment, demonstrate this (StatsSA, 2022). Consequently, the purpose of this study was to ascertain how common food insecurity was in the households of smallholder farmers in Chabelane village.

According to StatsSA (2020), South Africa currently has one of the greatest wealth inequalities in the world. Because of the persistent financial gaps across sub-population groups, the nation has static household food insecurity levels and nutritional difficulties among sub-population groups like women, children, and rural households, majority of whom are from low-income families (StatsSA, 2020).

As evidenced by the 8 % stunting prevalence among children under five, malnutrition is a problem in South Africa and other sub-Saharan countries, according to the FAO, IFAD, and WFP's 2018 assessment on the "state of food insecurity" in the globe in 2015. Consequently, some communities might not have access to the nutritional meals required for an active daily existence.

According to Du Toit (2014), the problem with food access in South Africa is really that people don't have enough access to healthful meals at home. Food insecurity among South African households appears to have increased, according to reports (Van Den Berg & Raubenheimer, 2015).

However, there has not been much research done in South Africa to estimate the prevalence of food insecurity and household perceptions of the issues it raises. As a result, not much is known about how often food insecurity is in Chabelane Village, Limpopo province, at the household level.

Looking at measuring food insecurity in South Africa, there exists a robust association in South Africa between food insecurity vulnerability and household poverty. Since evaluating food security at the international and national levels is a very subjective process, it is ideal for there to be no predetermined standards that serve as a benchmark (Headey & Ecker, 2013). In a similar vein, some proponents have suggested different ways to measure the phenomenon, especially those working at the home level.

The Household Food Insecurity Access Scale-related conditions (HFIAS) or indicators of food insecurity is a prominent tool for measuring food insecurity and assessing both individual and household food security. The Food and Nutrition Technical Assistance Project (FANTA) of the US Agency for International Development (USAID) developed the third version of the HFIAS in 2007.

The HFIAS is a simpler approach to assessing food access markers of family food security or insecurity, claim Coates et al., (2007). Evaluating food security at the household level in South Africa is challenging since it involves eating patterns and certain crucial assumptions about poverty. Moreover, not enough focus has been placed on the topic of quantifying the household-level measure of food security. Because of this, specialists have used a range of indicators for food security measurement (Hendriks, 2005). As stated by the World Food Summit (1996), "Food security 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." This is generally the case. This is the FAO definition that is most frequently cited.

A food security analyst claims that measuring food insecurity is commonly used to gauge food security (Simon, 2012: 8). Since it might be difficult to measure food security, food insecurity is typically looked at or studied (Simon, 2012: 8). Similar to this, food insecurity is evaluated by examining a range of food security

indicators, such as food balance or sheet food intake (utilisation, access, stability and availability) due to the intricacy of its causes. Data on consumption, spending, and nutrition factors are used to calculate food security at the household level (Headey & Ecker, 2013: 328). However, assessing food security at several levels, especially the individual level, is essential to identifying the factors that might have contributed to food insecurity and choosing appropriate courses of action. In this context, a food security analyst from South Africa named Hendriks (2005) noted that the different analytical approaches used in the field of food security research complicate an empirical assessment of food security or insecurity at the household level.

Hendriks (2005) pointed out that one nation without extensive and comparable empirical data on family food security was South Africa, which made it difficult to determine how vulnerable households were to the phenomenon. According to Hendriks, the empirical research on food security in South Africa is severely limited because there are no time-series data sets or comparison studies, which makes it impossible to estimate precise changes in food security in the country. In addition, the nation required nationally representative food security surveys for the general public as well as monitoring systems for food security (Hendriks, 2005). This section discusses the first theme that emerged from the data analysis as follows:

7.2 Theme 1: Prevalence of households' food security status

According to Stats SA, (2015) Limpopo province has a high degree of food insecurity, with majority of households (8.2%) having insufficient access to food. The cause of their food insecurity is unknown, although it might be a result of a lack of resources, which prevents people from producing or consuming food that are enough (Boussard et al., 2006). Food security at the household level is the result of a number of socioeconomic conditions (Mishra, 2013). According to Devereux and Maxwell (2001), the level of household food insecurity is considered as a livelihood failure due to insufficient means to obtain food rather than a problem of food supply.

In contrast to food-secure families, smallholder farmers' households had a higher frequency of food insecurity, according to an analysis of the prevalence

of food security status in households. This was because these households did not have enough food for consumption.

Despite a satisfactory national food supply and successful reductions in poverty and hunger in the years following 1994, family food security and optimal nutrition at the individual and household levels remain problems in South Africa (StatsSA, 2022). This is illustrated by the chronic malnutrition that stunts growth, along with other forms of undernourishment that are believed to exist in the country, such as hidden hunger and obesity (micronutrient deficiencies caused by a lack of dietary diversity and quality) (Devereux & Waidler, 2017). Furthermore, since South Africa adopted constitutional democracy, the country's policy development has been based on the goal of eradicating poverty and inequality (See chapter 3 of the literature review).

The Household Dietary Diversity Score (HDDS) was used in this study to quantify the prevalence of food security in households. To categorize families into food secure or severe prevalence of food insecurity groups, the average household's dietary variability was used. If the household had three meals a day and more than five different meal kinds per week, it was considered to be in a state of food security. This occurred because, households with higher HDDS scores consumed a greater variety of foods from various food groups. In this study, 12 food groups proposed by FAO (2006) were adopted Labadarios et al., (2009). The 12 food groups are as follows: cereals, roots and tubers, vegetables, fruits, red meat, eggs, fish, legumes, nuts, and seeds, dairy products, oil and fats, sugar, and beverages, they were used to classify every kind of meal. Two dietary types (less than five food groups and five or more food groups) were created using the HDDS results.

7.2.1. Sub-theme: Food consumed per day for the past week (7 days)

In this study the participants were asked to recall the type of food they consumed in the past 7 days as well as how many meals they had in a day to determine the food security prevalence among them. In this study few participants indicated more than 5 types of food under the 12-food group that contains a variety of nutritional dietary food. They also indicated that they consumed 3 meals a day (breakfast, lunch and supper). While majority of the participants

stated that they ate 2 meals a day (breakfast and supper while others are lunch and supper) and they had less than 5 types of food that they consumed in the previous 7 days. During the interview with the smallholder farmers, they alluded as follows:

*In a day I consume 3 times, I consumed breakfast, bread with butter, milk, eggs, tea, and bread, sometimes I eat porridge. Then around 13: 00 I would go back home from the farm to eat maize meal, green leafy vegetables (morogo) and on other days I consumed fish because you see we are old people we need to eat food that will make our body strong…giggling…. For supper, I consumed samp on Thursday, and on weekend, Sunday I cooked rice, pumpkin, beetroot and chicken meat, sometimes with green leafy vegetables (morogo). On other days I consumed maize meal, sausages and paw paw as my favourite fruit (*Participant 6: 2022).

*I consume 3 times a day, in the morning I consumed maize meal, green leafy vegetables as my breakfast. Which is the supper food I did not finish the day before because I know I won't have money for bread. I save a supper meal for the morning. You know maize meal in the early hours of the day it can hold your stomach for the whole day, which is better than buying bread every day. During supper, I consumed maize meal and tin fish and other day I consumed beans and pork (*Participant 19: 2022).

This finding is in accordance with Machete (2020)'s research findings which suggested that nearly 7 in every 10 participants had consumed 3 meals in a day. The study found that few of the households had 3 meals a day (breakfast, lunch, and supper) in the past 7 days and they consumed more than 5 foods from each food category, this means that only few of the participants were deemed food secure in this study. This finding indicates that only few of the households in this study area were able to access and consume a variety of food from either crop farming, livestock farming, or purchasing food from the shops. Majority of the participants also indicated that they consumed 2 meals a day, which are lunch and supper. They had mentioned the following:

The way things are expensive, I consume 2 times a day, lunch and supper only. For lunch, I consumed a maize meal, inkomazi, and on other days it was beans,

peach from my neighbour's garden, tomato relish and red meat. For supper, during the past 7days I consumed monawa (green leafy vegetable) and maize meal. (Participant 10: 2022).

*Ahm...around 13:00 which is my lunch time, I consumed rice, butternut and fish. Other days I consumed samp with beans. Supper it was maize meal, beef, and cabbage. Is only two times in a day that I have a meal (*Participant 38: 2023).

*I consume twice a day; I consumed chicken meat and maize meal. The other days it was maize meal and eggs, tin fish, chicken feet, cabbage and fried fish and spinach. On Sunday I cooked rice and beef stew (*Participant 4: 2022).

As other participants indicated that they consume 2 meals which is lunch and supper. Other participants also had 2 meals however, only breakfast and supper. They did not have a lunch meal *(*Participant 30: 2023).

*I consume 2 meals times a day, during the past 7 days I consumed bread with eggs, juice for breakfast and supper I consumed maize meal, pork and tin beef. I prefer to skip lunch because I take my breakfast later after 10:00, by lunch time I was still full (*Participant 48: 2023).

I consume twice a day, during the week I remember having porridge for breakfast. I then have supper, because food is expensive these days. I remember having fish, maize meal, and cabbage and other day I cooked chicken necks and weekend it was maize meal, goat meat and rice. (Participant 30, 2023).

I consume 2 meals a day. Breakfast, I had bread with butter, tea and watermelon from my own farm. Supper it was Beef meat, samp and other days it was maize meal, pork and green leafy vegetables (Lekushe/morogo) (Participant 21, 2023).

The findings like those mentioned above indicated that most of the participants consume 2 meals a day (breakfast and supper), whereby they consume food that belongs to the different food categories such as maize, meat, fish, dairy, oil and fats, beverage, legumes nuts and seeds, vitamin A rich vegetables and fruits. The smallholder farmers only indicated that they ate less than 5 different types of food in the past 7 days from the different food categories, meaning they experienced severe prevalent of food insecurity. Similarly, the findings by

Machete (2020) found that nearly 3 in every 10 participants reported having 2 meals a day (lunch and supper only). Also, According to Alpízar et al., (2020), smallholder farmers account for approximately 67.7% of food insecurity worldwide, primarily because they purchase more food than they sell. This is because in most cases, smallholder farmers practice farming mainly for household consumption and not for sale (Refer to chapter 2 of the literature review.

As suggested above by the participants who had 2 meals which is lunch and supper. Some participants had also mentioned having 2 meals however, it was breakfast and supper, and they did not have a lunch meal.

The findings also indicate that majority of households in the Chabelane village consumed starchy foods, such as maize meal and rice. Majority of the participants consumed milk, while a smaller percentage of the participant consumed egg. Majority of participants also consumed beans and fish; other participants indicated that they consumed dark green leafy vegetables (i.e., spinach, cabbage, lekushe/morogo); while few of participants indicated that they consumed oranges and watermelon; and finally, majority of participants consumed chicken meat. These staple foods are rich in minerals, vitamins, and fibre. These finding along with the fact that most of the participants consumed chicken meat, pork, and eggs, indicate that majority of smallholder farmer's households consume a diet rich in vitamin A-rich foods.

Empirical study indicates that eating a lot of veggies protects against a number of infectious diseases (Boeing et al., 2012). The reason for the high intake of these meals could be attributed to the fact that majority of farmers throughout the study period planted leafy green vegetables. Due to their widespread cultivation and use, these veggies can be found in the diets of practically every household.

The results of Ruel et al., (2004), who discovered that these vegetables are common in sub-Saharan Africa, are compatible with the high consumption of tomatoes and green leafy vegetables (cabbage, spinach, and morogo). These vegetables are usually consumed with the staple food (rich in carbohydrates) or

used as gravy, beans and meat in meals (Smith & Eyzaguirre, 2007). The reason for low fruit intake among the smallholder farmers could be that it was not yet the season for most of the fruits such as mangoes and grapes.

The households which had less than 3 meals a day were deemed food insecure in this study since the meal they had in a day did not meet the nutritional food diet for their entire household. Mostly this situation happens in large households whereby the little food they have is not enough and they cannot afford certain food.

According to Beyene and Mequanent (2010), majority of breadwinners in these large households are elderly who struggle to feed their families nutritious meals.

7.2.3. Sub-theme: Smallholder farmers' grocery expenditure per month

In this study the researcher wanted to know how much the smallholder does farmers spend per month on food groceries. Therefore, it was found that majority of the participants in this study spend between R700-R800 on food groceries per month. While other smallholder farmers indicated that between R1200- R1500 is used for household food groceries per month. Only few smallholder farmers indicated that they purchase R1600- R2200 groceries every month. Participants alluded as follows:

Every month end when I do my groceries, I spent between R700-R800 of the money I get from my son. I also supplement it with the one I get from selling the produce (Participant 10: 2022).

I will estimate because I don't spend same amount every time, I can say R700. Yaa because I just stay with my 2 grandchildren and my wife only (Participant 42: 2023).

Food is expensive in this day; I normally don't buy much by the market because I have a farm that produce most of the vegetables. I spend approximately R800 (Participant, 4: 2023)

Other participants said they spend between R1200-R1500 for food groceries:

I spent R1200 most of the time. I don't buy much because I get other food from the farm, and I also depend on grant. The money is not enough to buy everything I need at the shop (Participant 1: 2022).

For the household food expenditure, I spend approximately R1200 and sometimes R1500, yaa…I have a big family and provided that am working for government, and I can support them. However, we do plant other vegetables and fruits to avoid spending unnecessarily (Participant 18: 2022).

Other participants indicated that they spend beyond R1500 on food groceries:

I have big family, and you know in villages, extended families they visit often and because of that I make sure I have enough to cover them, I spend R2500 for groceries most of the months (participant 23: 2023).

*R2000 when I go with my daughter, she chooses almost everything in the shop, giggling, however I tell her the limit is R2000. If is more should be R2200 (*Participants 43: 2023).

Majority of the participants could only give an estimate about their expenditure for the households. The findings indicate that majority of the participants are experiencing severe prevalence of food insecurity since they spend as little as R700 to R800 per month for household food. Only few smallholder farmers indicated that they spend R2000 or more on food groceries.

Therefore, a key factor in assessing whether a household has enough food to consume depend on how many meals it consumes each day. There were also smallholder farmers who were not selling their output rather they were practicing smallholder farming for household consumption (refer to chapter 2 of the literature review). They expressed themselves as follows: There were other smallholder farmers who expressed that they don't sell their harvest or output mainly because they only practice farming for their household consumption.

I don't sell my harvests, I do this type of farming for my family to have more food since you can also attest, food is more expensive in these days. I don't want my family to suffer, that's why I do this farming (Participant 40: 2023).

Uhmm…I don't really intend to sell, I plant crops for my family, my grandchildren to have healthy food which are the shops are expense to get. I don't sell any of my harvest (Participant 48:2023).

I once tried to sell, but not anymore because I no longer produce much because of the insects since I don't have enough money to buy the chemicals (Participant 21:2022).

The harvests I get from my farm I don't sell them because they are too much harvest. My farming space is not big hence I do farm only for my family to supplement the food we buy (Participant 28: 2022).

I don't sell my harvests, I do this type of farming for my family to have more food since you can also attest, food is more expensive in these days. I don't want my family to suffer, that's why I do this farming (Participant 15: 2023).

It is clear from the smallholder farmers' remarks above that a sizeable portion of the population depends on smallholder agriculture for their household's food needs. This data is consistent with that of Ngigi (2011), who discovered that 77% of the households in South Africa, 85% of households in Kenya, 76% of households in Botswana, and 75% of households in Zimbabwe are able to avoid staying hungry because they practice subsistence agriculture for household consumption.

7.2.4. Sub-theme: Smallholder farmers' food supplier source

In this study the researcher asked the smallholder farmers about where they get most of their food from. Therefore, it was found that majority of the smallholder farmers' food source is from the shops/market as well as their farms which they use as a supplement. Only few smallholder farmers indicated that they don't depend much on market/shops but on their farms for food. They remarked:

Most of the time in my family we consume food which we buy from the shops around this area, but I supplement them with few foods from my farm. From the shops I just buy mostly what I did not plant in the farm (Participant 32: 2023).

*I buy from the market, sometimes if not most of the time, my crops are not of a good quality. I tend to just do away with them and rather go and replace the beetroot with the one at the shops (*Participant 15: 2022).

I can't say that the food I have in my house right now are from the farm. I planted few crops and most of the time I get little harvest, so I buy from the shop most of the time (Participant 34: 2023).

I buy food at the market every time because I only have spinach and tomatoes in my plot (Participant 28: 2022

Other participants stated the food they consumed are mostly from their farm:

*I consume food from my own farm mostly because I love spinach and pumpkin too much, I rather grow food in my farm than buying at the mall. Even though the food is not enough from the farm, I make sure that we all consume in the house because we don't have much to buy every food at the mall (*Participant 41: 2023).

We consume most of the food that comes from the farm. We take the maize that we plant to the milling firm so that they can be processed to a maize meal or samp. These two staple foods last us for 8 months. *And we don't pay much, only R180 for the processing (*Participant 37:2023).

Few smallholder farmers indicated that they depend on their farm produce for food. The foregoing indicate that majority of the participants consume food that comes from the market/shops and food from their farms are used as supplementary food. It is evident that majority of participants depend mostly on food from the market more than food from their own farm, and they use the farm food for supplement (Refer to chapter 3 of the literature review). This indicate that food from their own farming area is meant for supplementary, to attain and meet food requirement in the household. This study's findings are similar to that of Mvelsase (2017) who found that majority of the participants depended mostly on food from the shops rather than their own farm produce.

7.3. Chapter summary

This study contributes to the body of knowledge on the prevalence of food security status among smallholder farmers in Chabelane Village, Limpopo province. Awareness about smallholder farmers' experience of food security status in Chabelane village is critical as this phenomenon negatively affects their dietary diet as evidenced by the study. This study has indicated that few participants had 3 meals a day and they were able to recall more than 5 food they consumed in the past 7 days from the 12 food groups. This has deemed them food secure compared to majority of participants who had 2 meals in a day and recalled only less than 5 foods they consumed in the past 7 days from the 12 food groups. This has deemed them experiencing severe food insecurity. This study also sought to know how much the participants spend on food groceries as well as where they buy their food from. It was indicated in this study that most of the participants buy most of their food from the shops/market and the farm produce are used as the supplement. Only few participants indicated that they depend mostly on their farm produce for food. Majority of the participants indicated that they spend less than R1500 every month for groceries and few participants indicated that they spend over R1500 for groceries because they have large household size. In conclusion, results from the study reflect that food insecurity is high among smallholder farmers' household in Chabelane Village. The following chapter focus on the challenges faced by smallholder farmers in Chabelane Village.

CHAPTER 8

CHALLENGES FACED BY SMALLHOLDER FARMERS

8.1 Introduction

This chapter provides the qualitative assessment of the challenges faced by the smallholder farmers in Chabelane Village. The findings on the challenges experienced by the smallholder farmers are analysed and discussed in this chapter using themes and sub-themes.

8.2 Challenges faced by the smallholder farmers in Chabelane Village

Smallholder farmers are faced with various challenges that impede their growth and ability to effectively contribute to food security, relative to the commercial farmers. Smallholder farmers' challenges vary from system constraints, allocation constraints to environmental-demographic constraints (Kirsten et al., 2002). The sub-themes in form of challenges faced by the smallholder farmers in Chabelane Village are as follows:

8.2.1. Poor/lack of resources (machinery and irrigation system)

A lack of resources refers to a shortage, absence, or dearth of something needed or wanted. Majority of the farmers lack physical capital, which consists of technical tools like computers, machinery, structures and irrigation systems. Majority of smallholder farmers rely on simple tools or regional implements like machetes and hoes and their production methods are mainly based on rainwater. It has been demonstrated that having access to water for irrigation reduces poverty in the smallholder agricultural sector because they are able to irrigate their crops to grow (refer to literature review chapter 3) (Sinyolo et al., 2014). The researcher in this study asked the participants about the challenges they face as smallholder farmers. Majority of the participants indicated that the most pressing challenge they are faced with is poor/lack of resources. They further said this is in the form of lack/poor tractors, poor farm machinery and poor/lack of irrigation systems which is an impediment on the level of production.

The following stance by the participants confirm that the smallholder farmer had no tractors for farm operation:

*I don't have a tractor to cultivate the huge hector farm that I own. I have to pay for that tractor machine to come and cultivate for me and this person does not play when they charge us. This is a problem because I end up cultivating a small part of the farm because of a lack of farm resources or machinery (*Participant 26:2022).

Another participant stated the issue of poor farm machinery, which keeps on breaking during farming process affects the farming process. The participant said:

I have tractor for cultivating the land but every 10minutes I have to stop ploughing using the machine, to give it time to rest. The reason being that this machine or tractor is not functioning well. I inherited it from my grandfather, I fix it now and then. This is really affecting our productivity because sometimes the tractor just stops working (Participant 38:2023).

These above-mentioned narratives from the farmers indicate that productivity is affected in the area which can result into food insecurity. This is because of the fact that the participants had traditional or simple farming resources which are, in most cases, poor. They were also some participants with lack of farm resources. These findings are similar to Machete (2021)'s study stating that, smallholder farmers sector is widely characterized by low productivity levels and lack of or poor resources. Whereby most of the farmers lack resources such as food storages and other machineries for farming (Refer to literature review chapter 3).

In this study findings, irrigation resource was also mentioned as one of the challenges that impedes the smallholder farmers' progress. Irrigation is defined as the artificial application of water to the soil for the purpose of crop production in supplement to rainfall and ground water contribution. There are modern and traditional irrigation methods. Morden irrigation include drip irrigation system and sprinkler irrigation system. Traditional system of irrigation includes Furrow irrigation and others (Mosha, 2018). In this study majority of the smallholder

farmers indicated that they have poor irrigation systems while some they use old ways to irrigate. The following stance support the foregoing:

Challenges…I don't have proper irrigation system to irrigate the crops. I do it the old way, and for a farm like the one I have, is bit huge and need drip irrigation system. I use furrow-and-sprinkler method every time (Participant 11:2022).

My biggest challenge is irrigation, I don't have the adequate resources for irrigation. I just fill up buckets with river water to irrigate and is tiring, a farmer must have necessary resources for irrigation (Participant 37:2023).

Another participant stated that they have drip irrigation method, however, is not in good condition because the irrigation system is old:

In the farm I have drip which I use for irrigation, and it saves time than to use bucket to irrigate. But since is old it gives me problems. I need to fix it now and then for it to work properly (Participant 46:2023).

As a result of the problems encountered by the smallholder farmers such as the above-mentioned issue, the government needs to play a role in supporting the smallholder farmers with resources. This study found that the Department of Agriculture played a part in assisting one smallholder farmer in Chabelane village with irrigation system but now is no longer in a good condition (Refer to literature review chapter 3). The smallholder farmer said:

I use drip for irrigation, I was given by the Department of Agriculture I think in...2005. It was a donation I asked for since I presented to them my business proposal and how this farm makes impact in the community and outside the community. That's when they decided to help but now is not in good condition (Participant 42:2023).

These findings revealed that majority of the smallholder farmers were using old or traditional furrow-and-sprinkler method, since it is less costly than the more expensive modern method of drip irrigation or the centre pivot system, which conserves water. Only few farmers interviewed indicated that they were using the drip system for irrigation. Without this resource, smallholder farmers will find it difficult to produce on a sustainable basis. According to Khandker & Samad (2018), investing in rural infrastructure projects like irrigation systems should be

prioritized since they can boost rural economies and have a positive effect on small-scale agricultural. This implies that when the smallholder farmers have resources such as good irrigation methods, that will assist them to grow quality crops that are able to sell in the formal market.

The kind of irrigation system used by smallholder farmers in their farming operations is the most crucial aspect of irrigation infrastructure to be discussed. It is commonly recognized that the newer irrigation systems are more effective at watering than the older ones. According to Antunes et al., (2017), the irrigation system is the primary task required to guarantee the sustainability of small-scale agriculture and to bolster the environmental system's existence so that small-scale farmers can carry on with their operations (Refer to literature review chapter 3). Livestock and farming systems that depend more on rain are part of these activities. Mosha (2018) noted that in order to maintain the output of their small-scale agricultural sector, farmers in rural areas face insufficient or non-existent irrigation systems (Refer to literature review chapter 3). Given a shortage of funding, smallholder farmers are the only ones who are capable of purchasing irrigation facilities; most smallholder farmers are unable to afford irrigation systems. The picture below depicts the image of the poor tractor used by smallholder farmers in Chabelane Village

Figure 8.1: The picture depicts poor tractor used by smallholder farmers in Chabelane Village

8.2.3. Water Shortages

Water is regarded as a scare resource in South Africa today. Households, industries as well as agriculture sector are experiencing this reality.

This study explored the challenges experienced by smallholder farmers and majority of smallholder farmers stated that they are faced with a problem of water shortages. Water plays a critical role in the success of smallholder agriculture. Smallholder farmers said that they use municipal tap water for irrigation and the water is available only twice a week. The smallholder farmer further said that the young people in the village they steal water pumping machines that is located 100m away from the households. This situation tends to worsen water shortages and affects the smallholder farmers' irrigation process. Some of the farmers said they even use tanks to store water for irrigation in their farms. However, it is not enough for the whole cultivated land (Refer to literature review chapter 3). Other participant indicated that they get water from the river nearby their farm for irrigation. They expressed themselves as follows:

Water is a problem that am facing right now, the pumping machine when there is load shedding the machine will stop pumping water, and bear in mind this water is pumped twice a week. Our crops are affected too much (Participant 50, 2023).

Another participant also said she get water from the river nearby her farm for irrigation:

Water is an issue in this area, the water I use to irrigate I get from the river nearby my farm. I use a bucket to store the water and use it to irrigate (Participant 37, 2023).

Another participant goes on to say he save water in the JoJo tanks for irrigation. He expressed himself as follows:

*In my farm I have two JoJo tanks which I use to store water, but since I have 1 hector land for farming. These tanks are not enough when the water machine is not working for almost 2 weeks. Is hard to irrigate my crops (*Participant 35, 2023).

Other participants stated that they are faced with water problem as a result of young people who steals the water pumping machines in the area. The participants said:

You won't believe what the young people of this village do, when the municipal fix the water machine at about 100m from here we are, they go and steal the machines. This happens every time they come and fix. And when this machine is stolen, we struggle to access water through the taps at the farm. This is a big challenge because I don't afford the JoJo tank to store water. I ended up ploughing only few crops because of limited access to water (Participant 12, 2022).

This community reels because of water issue. The young people in this area steals the water pumping machines often. When the municipality install a new one, they go again and steal. However, the municipality officials keep on telling us that they will look in to the matter to address it (Participant 5, 2022).

It is evident that water scarcity affects crops severely by causing stunted growth, poor germination, poor yield and low-grade produce. This situation has a negative impact on the food security status of the households, since a number of the participants said they were facing a decline in yields.

Majority of the farmers in rural areas suffer from a lack of water access/disruption. This is confirmed by Stats SA (2021) stating that 56% of the general population of the Limpopo province experiences water interruptions as a result of drought. Therefore, the food production of the smallholder farmers will be affected if this is not attended to. Below is the picture of one of the smallholder farmers using water from the river to irrigate the crops.

Figure 8.2: This image depicts the smallholder farmer irrigating the crops using water from the river.

Figure 8.3: This picture depicts JoJo tanks that smallholder farmers use for water storage

8.2.4 Financial challenge

In agricultural sector, the issue of finance is often a topic that the farmers do not leave unturned. Some of the farmers if not most of them have financial challenges, especially the smallholder farmers compared to their counterpart. Commercial farmers most of the time tend to get more support than the smallholder farmers. Which makes the smallholder farming sector not able to possess some of the farm inputs they need which hampers their farming productivity (Refer to literature review chapter 3). In this study it was found that most of the participants have financial problems. Most of the participants said that there are so many things they need to buy for their farms, but when they go

to different banks, they are denied loans. In addition, few participants said that they do not know how to write proposal for funding and that has impacted their funding request. The following are the views of the participants:

I wish I knew how to write proposal for funding because some organisations when we request funding, they need proposal. I don't know what that is and where to start. I just decide to leave it and continue with what I have (participant 32: 2022).

I have been to various place for funding, but they need business proposal, and I don't have it. I don't know how to write it even (participant 32: 2022).

Other participants indicated that they try hard to seek funding and they do not get anything. They further specified that financial issues they are facing is affecting their farm productivity because with the little they make it doesn't even buy farm equipment they need:

I try by all means to reach out to the places I believe they can assist me with funding, but I really don't know if am going to the correct places or not. I sometimes think I go to wrong places hence they don't provide us with finances to maintain our farms (Participant, 20:2022).

The challenge I have now is finances issues. With the little money I get from selling my farm output, I can't buy myself a tractor in 6 months. I need to get at least a loan to add to the one I make. But when I go to banks, they deny me the loan (Participant 5, 2022).

According to the findings, majority of the smallholder famers are denied loans from the financial institutions, as they lack information on how to access financial support and to write funding proposal. Access to financial support by smallholder famers has been found to be a challenge. Similarly, some of the challenges smallholder farmers have when trying to receive financial help are, according to Chimucheka and Rungani (2013), inadequate business strategies, shortage of financial deposits, ignorance about funding proposals, and a lack of collateral security. Another participant said she depend on grant, and she don't make enough income from the farm to maintain it:

Financial issues are one of the huge problems in farming, if you don't have enough to maintain your farming, that's where problems start. I depend on grant, with the little I get from the farm I use to buy seeds. Problem starts when my grandchildren will need me to buy for them things, they need at school sometimes. Then I have to take the money I need to buy seeds and assist them. Then I will not have enough left to maintain my farm (Participant 7, 2022).

Similarly, to participant 7 another participant said:

I depend on social grant to do most of the things at the house as well as in the farm. Money is a problem on our side to maintain all these. I would sometimes sacrifice and buy farm fertilisers because I will have problem when the crops are not growing the way I want them. (Participant 8, 2022).

In addition, other participants stated that they need more labourers, but they don't have enough finances to pay the workers, and some participants indicated lack of finances to buy farm inputs:

…most of the workers don't want the harvest from the farm as a salary, I also understand that they need to buy other as a result of finance issues, we end up hiring few labourers, yet we need more in the farm. Financial assistance is needed so that we can hire more workers and pay them using money not the harvests (Participant 44, 2023).

Ya…I have financial problem concerning this farming. Yes, I sell I do sell my output, but the money is not enough to buy farm inputs needed. I sometimes ask one of my cousin fertilisers (manure) but hai…You can see that this person is tired of giving out for free since he also wants to use them (Participant 28, 2022).

The foregoing indicates that most of the participants experienced a lack of finances to buy farm inputs, to pay workers and that negatively impacted their farm production. The income smallholder farmers generated from the farm they indicated that is not enough to buy them the big agricultural technologies needed on the farm.

Despite the fact that agriculture is the main industry in African economies, less than 4% of all commercial bank loans are made to this industry (Chimucheka &

Rungani, 2013). Financial institutions frequently decline to provide loans to smallholder farmers for a variety of reasons, including the absence of viable collateral, high transaction costs brought on by remote clientele, uneven demand for financial services, a discrepancy between investment requirements and anticipated revenues, small farm sizes, diseases, pests and individual transactions, high covariate risks, inadequate communication and transportation infrastructure, resulting from fluctuating price risks, rainfall and other difficulties (Adesina et al., 2012). Microfinance institutions (MFIs) help satisfy smallholder farmers' and SMEs' unmet demand for financial services (Refer to literature review chapter 3). These institutions were established to offer deposits and credit facilities, but they haven't been able to increase agricultural financing for a variety of reasons. These include having small capital bases, high interest rates, small pay-out sizes that aren't sufficient for investment, and being situated in urban areas when majority of farmers are in rural areas. Furthermore, it is common for microloan repayment plans to be out of rhythm with the seasonality of farming and the periodicity of farmers' income transactions.

Furthermore, access to credit has historically been a barrier for farmers, as noted by Kongolo & Dlamini (2021:102). According to Gordon (2021), farmers face difficulties in trying to boost productivity or enhance modern input since banks and/or trade unions do not provide them with loans as a result of lack of collateral because they are unemployed and live-in poverty. In addition, financial organisations require a husband's approval before lending money to a woman. Typically, farmers are left with insufficient funds to purchase herbicides, better crops or insecticides. Consequently, farmers would accumulate ridiculous debts from loan sharks, and if the crop fails, they have no means of paying back the money. Encouraging current agricultural inputs, therefore, in the absence of financial institutions may lead to poorer revenue and greater volatility (Mhazo et al., 2021).

According to Kuwornu et al., (2021), timely acquisition of production credit can enhance smallholder farmers' opportunities to purchase productive inputs such seeds, as insecticides, tractors and fertilizers, hence augmenting their output and ameliorating the food situation within their households. Agricultural

households with loan availability might augment their output by acquiring advanced farming technology or inputs, hence augmenting household income. The findings support those of Fawole and Ozkan (2017), who contended that a farmer's access to credit facilities improves the household's level of food security.

This suggests that smallholder farmers will be able to purchase the necessary tools, seeds, and other agricultural inputs. It will eventually increase their farming area productivity and increase the amount of harvest they can sell or utilize for domestic usage. To finance their farm input, a credit would be extremely beneficial to their farming. According to Opportunity International (2012), despite the fact that majority of Africans work in agriculture, the continent is unable to sustain itself since most farmers lack access to farming inputs and other technologies, primarily because of a lack of finance.

Consequently, one resource that is seen to be necessary for a farm to succeed is money, and in order for the government to support smallholder farmers as well, agreements with banks must be reached.

8.2.5 Lack of knowledge about soil type

Healthy soil is essential for a strong and sustainable agricultural sector (Nkonya et al., 2016); a more abundant and healthy food supply is derived from healthy soil (FAO, 2015). Therefore, it is critical that smallholder farmers understand how to maintain their soil in order to prevent erosion and ensure that they produce high-quality crops. In this study, it was found that the smallholder farmers are faced with a lack of knowledge about soil type they use for farming, and this can affect food security. The participants said the type of soil they cultivate on is sandy type of soil and it requires them to buy more manure to have their crops grow and be of good quality. The participant said:

…you know the soil we use for cultivating is more like sand. It requires more manure, and we don't have enough. So, we need at least expertise who can come and check the soil for us to determine what else we can do about the situation for our plant to grow well (Participant 15, 2022).

Another participant said:

There are challenges in farming because first of all you will get a farming area, spend money or even borrow and then realize the soil is not good enough, then the harvest will be of poor quality (Participant 3:2022).

The soil that the participants use for cultivating is sandy, the soil needs more manure to be fertile. Generally, sandy soils require nutrient status improvement, and the participants find it challenging as they said they don't have enough manure. This issue compromises food production in the area, therefore without proper knowledge of the soil type, most of the smallholder farmers might have low productivity because they don't have an idea of more types of crops that can grow on the type of soil when they want to engage in crop diversity. This study findings are similar to those of NRSC, (n.d) which found that about 99% of the Chitokoloki smallholder farms had soils with a sandy texture (Refer to literature review chapter 4). According to Nkonya et al., (2021), the soil is an essential component of resilience and long-term agriculture; the healthier the soil, the healthier and more plentiful the food supply (FAO, 2020).

Other smallholder farmer stated that as a result of sandy soil, she uses fertilizers to make their crops grow well:

Actually, the soil is not fertile without fertilizer, you need to apply fertilizer to make it fertile… We do that (to increase production) by applying fertilizer then when the crops start growing, we then start to raise the soil higher so that the crops can come up (Participant 37: 2023).

The above quotes reflect the status of the soil that participants noted is not in the best possible condition. Farmers plough the land more and add more fertilizer in an effort to boost production. In other words, they intensify the use of the land, albeit not in a sustainable way because of the overreliance on fertilizer use.

In cultivated soils, nutrient mining—which is primarily brought about by insufficient fertilizer inputs and nitrogen export from crop harvests—poses a significant problem for soil deterioration (Lal, 2018). Due to the extensive soil deterioration caused by this recurring problem, agriculture in Sub-Saharan South Africa is no longer a viable endeavour (Lal, 2018). Degradation of the soil poses a serious risk to farmers' biodiversity, food security, livelihoods and the

ability to reduce poverty. Research indicates that soil characteristics have a major role in determining the obstacles faced by smallholder farmers.

8.2.6 Lack of access to formal market

In South Africa, there are 2 main types of marketing: informal and formal. Numerous obstacles impede smallholder farmers' ability to reach established markets and take advantage of market opportunities. Smallholder farmers cultivate traditional crops intended for household consumption and sell their excesses at informal markets because they have inadequate connections with official markets (Sukand et al., 2020). The importance of market access to farmers cannot be overstated. Access to market for farmers entails being able to procure farm inputs, services as well as the ability to supply agricultural produce to purchasers (Refer to literature review chapter 3). For smallholder farmers, access to markets contributes positively to higher income, improved livelihoods and poverty reduction. Where access to market is lacking or not guaranteed, this negatively affects productivity with attendant implications for income generation and livelihood security. In this study, the participants stated that they had no idea on how to access formal retail stores to sell their products. One of the participants explained as follows:

I sometimes get good quality spinach, pumpkin, baby marrow, and cabbage, lettuce, tomatoes, and sometimes I don't. The problem is that I don't know how to access those big formal retail stores. I just settle for the community members and street vendors in Mooketsi and Elim area (Participant 7, 2022).

Another participant said that the issue that exacerbate this matter is a lack of knowledge on how to market their farm output as well lack of knowledge about market prices or value of their products. They said:

Uhm…what I can tell you is that access to information concerning the marketing is a serious issue. As you see me now, I don't know the market price of some of the products I produce today or what is needed the most out there. If we can get assistance or someone to inform us about such knowledge, we will be fine, that my thoughts (Participant 11, 2022).

The findings concur with literature that indicate that access to markets is a challenge to the growth of the smallholder agriculture sector. The household's transaction expenses will go down when smallholder farmers gain access to market data. Their level of market involvement increases with the amount of market information they possess (Makhura, 2001). Smallholder farmers in this study area reported having high-quality veggies, but one of their challenges is getting them into formal markets. They also mentioned that they lack the knowledge to get their produce into formal retail establishments. In order to provide information on how to access the formal market, information centres at the national level should give priority to the smallholder agriculture sector.

The inability of smallholder farmers to reach official markets is seen as a barrier to their development. It was discovered that smallholder farmers faced difficulties getting access to markets, particularly official markets. The results are consistent with research demonstrating that the expansion of the smallholder agriculture sector is hampered by market accessibility (Barret, 2008). The decision of a farmer to engage in agriculture is heavily influenced by the availability of markets. By creating revenue, markets where farmers can sell their goods are essential to household food access. It promotes output diversification and expansion among smallholder farmers, hence raising farm revenue. These limitations prevent them from creating a surplus that may be sold, which restricts their ability to investigate potential markets. A farmer's transaction costs will decrease with increased market knowledge, resulting in higher market involvement (Makhura, 2001). In summary, these farmers don't have enough knowledge about national product prices, quality standards, the ideal locations and hours for selling their goods, or prospective customers.

The findings of this study are also similarly to those of According to Magingxa, Alemu, and Van Schalkwyk (2009), a primary cause of smallholder farmers' continued poverty despite having excess production is their inability to reach formal markets. According to Almond and Hainsworth (2005), field extension agents frequently fail to give smallholder farmers the support and training they need to access market data because they lack market knowledge. According to these authors, the government ought to work with the private sector and open

up markets by utilizing the infrastructure of value-chain that is already in place (Almond & Hainsworth, 2005).

Ortmann and King (2007) use two instances to show how difficult it is for rural farmers to gain entry to high-value markets and how important infrastructure investment is to lower these kinds of transactional costs. They do, however, also contend that producer collaboration may strengthen bargaining power and make markets more accessible. They emphasize that through coordination and initial funding, the government should support these group initiatives (Ortmann & King, 2007). According to Biénabe et al., (2011), producing "high-value food" and "quality food" presents smallholder farmers with yet another way to reach markets. They contend that organic and high-value crops are labour-intensive and need constant care while being produced. They contend that smallholder farmers would do well to produce these crops. According to Biénabe et al., (2011), they criticize certification programs that are pushed by South Africa's dominant retail sector for being burdensome and favouring large-scale manufacturers who can afford to comply with the requirements of the programs.

8.2.7 Poor infrastructure

Despite being widely known, South Africa's inadequate infrastructure, especially in rural regions, has not been thoroughly studied in terms of its effects on local food security (Perire et al., 2014). Infrastructure is crucial for sustainable poverty reduction in addition to being a vital component of development, particularly in rural areas (Ahemachena & Chakwizira 2013). Farmers today experience lack of infrastructure especially storage facilities, dilapidated roads. In this study, it was found that smallholder farmers are faced with a poor infrastructure problem such as poor fence and poor roads (Refer to literature review chapter 3). Other smallholder farmers said they stay few meters away from the tar road and during rainy days is a problem for a bakkie to collect their farm outputs to the local market, because of the muddy road. The participants during the interviews mentioned that:

The poor roads are a problem, especially when is rainy, the cars or bakkies can't even reach where I stay because it becomes the road because muddy. It affects our transportation of our produce (Participant, 12:2022).

I find it difficult to transport my vegetables during rainy season. I have to walk carrying my vegetables to the tar road to get the bakkie that is transporting my vegetables (Participant, 2:2022).

These findings indicate that poor infrastructure such as poor roads can impact the farming process. According to Jari (2009), bad road conditions, such as those that are frequently obstructed during the rainy season, have a negative impact on the product transportation. It will be challenging to sell fresh product within the time frame required if roads are in poor condition and travel times are lengthy.

FAO (2017) agrees that the lack of infrastructure that smallholder farmers report affects the agricultural sector's ability to store food, operate tractors, install irrigation systems, and use other machinery, all of which have an effect on output. Greenberg (2013) argues that these problems are caused by the government providing the commercial farming sector with extra support to keep up with global markets. In addition, Machethe (2004) notes that smallholder farmers are primarily found in isolated locations far from markets. Machethe (2004) agrees that these farmers lack physical infrastructure, such as good condition roads to transport their produce to markets; instead, they primarily use public transportation to get their produce to the nearest markets. Lepheane (2007) notes that transport contractors are reluctant to work with smallholder farmers because of the poor condition of feeder access roads to and from farms. As a result, inadequate infrastructure has been identified as an aspect in the high transaction rates of smallholder farmers. (Machethe, 2004).

Below is the image of the type of the road that the smallholder farmers experience during rainy days in Chabelane village. However, the tar road construction is in progress in Chabelane village.

Figure 8.4: This picture depicts the road of Chabelane village during rainy season

Other participants indicated that they are faced with a situation where animals destroy their ripped fruit on the trees. They further stated that as a result of lack of proper fencing in their farming area, young people from the community steals their fruits when they see them ripped.

I am devastated whenever I go to pick up some oranges and find that the monkeys have just eaten half of the fruit and left such huge damage on the fruits as a result of the poor fence I have. I tried many things to do something that can chase them away but with no change. Sometimes it is not the animals but the thieves, they come in the night and take the crops that are of good quality and when we arrive in the morning, we find that we don't have good quality produce for selling. The loss is too much, we need help (Participant 39:2023).

With agreement with participant 39, other participants elaborated that:

I don't have a strong fence for my farm area here at home. When the mangoes and oranges are ripe, the children in the community they steal them through the fence. I then tend to be left with little fruits to sell (Participant 19:2022).

Most of the time when am in my farm, I would see monkeys trying to come and destroy my crops. I would try to fix my fence for them not to jump over but the next day I would find that they damaged the fence because is not the quality one (Participant 32: 2023).

From the aforementioned study results, they are similar to the study findings of Mazibuko and Oladele, (2020) who established that majority of smallholder farmers lack or have inadequate infrastructure, which leads them to a great loss due to theft and damage. Due to their lack of adequate infrastructure, such as fences, smallholder farmers are frequently forced to sell at busy times when prices are lowest (Ghura & Leita, 2019). Therefore, adequate fencing is important in the farm, because most of the farms are ambushed by the thieves and animals such as monkeys that destroy the crops.

8.2.8 Technological barriers

In this study, technological barriers can be defined as the incapacity to utilize technological instruments like gadgets. In emerging nations, in agriculture digitization is accelerating (Odini, 2014). The goal of digital technology is to assist farmers and communities to recover from stresses and absorb shocks that farmers experience by strengthening linkages along the agricultural value chain. In this study, the researcher found that majority of the smallholder farmers does not make use of technologies as a result of language barriers, lack of access to information technology as well as lack of education about the agric-tech systems (Refer to literature review chapter 3). They expressed themselves as follows:

The challenge am facing currently is that I have no access to information technology, and I want to be connected to international market for trading. I would just hear from people when I am at the agriculture shops to buy seeds, that there is something like that. I really wish to part of it (Participant 14, 2022).

Other smallholder farmers also agreed with participant 12 that they are having challenges when it comes to technology, yet it is beneficial to their farming practices.

Uhmm…technology is a challenge this side, some of us yes, we are old, but if we can be taught how to operate technological system for our farming business advancement it will be good. I want to have my own application where I can sell online to people who are far, but because I don't know how it operates or to read the language is a problem (Participant 39, 2023).

You know…we have cell phones, smart cell phones. But we don't have competencies for it. I mean to say I can't search agriculture information, monitor my output or sell online using smart phone or Agric-tech system. All is because I don't know how this phone function besides answering calls. Maybe if we can be taught about Agric-tech system we will adapt (Participant 50, 2023).

Technological advancements have always played a significant role in the growth of agriculture and will continue to have an impact on how smoothly operations operate throughout the agricultural value chain. Quick communication and information sharing can result in significant cost savings. Because e-commerce makes it possible to buy and sell goods online, it can be a useful tool for reducing transaction costs in the agricultural industry (Odini, 2014). However, smallholder farmers in Chabelane village indicated that they have a problem on this matter. The findings further revealed that most of the smallholder farmers in rural areas such as Chabelane village are poor and have no access to information technology, with majority being poorly linked to international trade due to technological barriers.

Smallholder farmers' lack of access to technology has a negative effect on their ability to access markets globally, locally and nationally. It is imperative to highlight that it may prove complicated to take the technological innovations that are applied in developed countries and match them to smallholder farmers in developing countries due to the prevailing financial constraints, as well as lack of human capital and technological know-how. The process is neither smooth nor inexpensive. It will require immense investment and commitment from all parties involved: government, private sector, and farmers themselves. The findings of this study are consistent with those of Nmadu et al. (2013), who discovered that language and illiteracy were the main obstacles preventing Nigerian small-scale farmers from using digital technology to obtain commercial

information. Odini (2014) found that low literacy rates, a lack of technical competence, and insufficient access to information services are among Kenya's small-scale farmers. Consequently, they don't have enough knowledge.

It is hard for farmers to get hold of new and useful technology, and even those who do tend to be hesitant to use them. There is also the problem of insufficient facilities for processing and storage. Moreover, some Agro-processing companies' antiquated technology and equipment prevent them from achieving optimal production (Onwualu, 2012), which has a negative impact on the production of agricultural products utilized as raw materials in these fields.

According to Sikwela and Mushunje (2013), one factor undermining the demand for output in rural South Africa is inadequate agricultural technology. The following are some strategies recommended by Buah (2011) that can be used to encourage the usage of new technologies: training sessions, workshops, and seed exhibitions where farmers can observe varieties that are enhanced. community involvement programs; planned on-site demonstrations to encourage farmer participation.

8.2.9 Lack of farm inputs

Farm inputs need to be easily available, reasonably priced, and of good quality in order for agriculture to prosper. Fertilizer's agrochemicals and seeds are essential to assist smallholder farmers in poor countries to raise their output and income (World Bank, 2013; FAO, 2013). This study's finding revealed that lack of farm inputs which includes herbicides, chemicals, fertilizers, seeds, and manure are the challenges faced by the smallholder farmers. Smallholder farmers stated that these are barriers to their farm production and ultimately food security. Participants explained as follows:

…insects are a problem on own yard crops, they are doing a lot of damage to the crops. And we used to get herbicides freely to spray on our crops to avoid this insect as well as fertilizers but now we no longer get them. Currently, I don't afford them because I need to buy them more often (Participant 23, 2023).

Another participant goes on to say:

I struggle to find farm inputs such as seeds. I have to travel 17 km to buy from the strangers because around this area there are no agriculture market to get the proper farm inputs. I spend lot of money to travel whereas I should have used the money I use for traveling to buy enough seeds for my farm locally (Participant 41, 2023).

These findings indicate that farm inputs play an important role in crop yields. The affordability and accessibility of herbicides, seeds as well as fertilizers is a problem among smallholder farmers since they are used to getting them for free. When the situation is like this, it tends to affect the way the crops will grow because the smallholder farmers might buy or apply fertilizer and herbicides that are not good for the growth of the crops. The participants further mentioned that there are no farm input suppliers in Chabelane village, and they have to travel about 17 km to purchase farm inputs. This study finding is consistent with the study by Etwire et al., (2013), who found that the lack of high-quality farm inputs, such as carefully chosen seeds, limit agricultural programs. Lack of farm inputs is no doubt that is affecting production of smallholder farmers (Refer to literature review chapter 3). The participant stated:

We don't get enough (produce). You see fertilizer, herbicides and pesticides all these, finishes our money. We tend to go for cheap ones, and they compromise the quality of our vegetables (Participant 2: 2022).

In the similar vein, another smallholder highlighted:

You know farm work needs a lot of things we have challenge of fertilizer, chemicals, you see that is pesticide, we have challenge of insects, and you see fertilizer is very expensive and that's a problem, if you take a small portion of land, it consumes a lot of fertilizer and even what you have gotten so there is no gain (Participant 45: 2023).

The above quotes underline the fact that farm input access is a challenge to farmers. Farmers need inputs to help in land preparation and cultivation which apparently are in short supply. Over the years, government used to assist in providing these inputs for farmers, but this is no longer taking place due to government budget constraints (DAFF, 2022).

Smallholder farmers believe that because farm inputs are expensive, they are unable to grow enough crop due to a shortage of input and budgetary restrictions. Increased farm input utilization is thought to boost yields and provide wealth to sub-Saharan African farmers (Belt et al., 2015; Sheahan & Barrett, 2017). The difficulty with agricultural inputs in this study concurs with Sheahan and Barrett's (2017)'s conclusion that low usage of modern farm input defines African agriculture, while variance exists among nations. Adjognon, Liverpool-Tasie, and Reardon (2017) corroborate the latter idea by noting that input purchases are rising in several sub-Saharan African nations. However, this analysis confirms that smallholder farmers do not receive adequate inputs.

Smallholder farmers frequently lack access to pricey inputs like fertilizers, chemicals, and machinery since they are thought to be inherently poor, which accounts for their labour-intensive production techniques (Van Zyl & Vink, 2017). Lepheane (2017) reports that in certain instances, project funders have demanded that smallholder farmers furnish collateral in order to get the financing necessary for them to buy inputs. Since these farmers were unable to meet this need, the provision of farming supplies at reasonable prices had to be given priority in farmer support programs.

8.3 Chapter summary

The chapter has presented challenges smallholder farmers face. It is evidence that smallholder farmers are being laid back by many challenges confronting them. Considering the resource endowment of the participants, it can be concluded that smallholder farmers are not in a position of pursuing and sustaining their livelihoods strategies because of lack of resource endowment. The major challenges found in this study are that smallholder farmers are faced with shortage of finances, water, technological barriers, lack of access to formal market, lack of farm inputs and lack of knowledge about soil type. Furthermore, it was also mentioned that they had poor infrastructures such as poor fence and road which affected their produce and marketing respectively. The next chapter focus on a last theme, the contribution of smallholder farmers towards household food security.

CHAPTER 9

THE CONTRIBUTION OF SMALLHOLDER FARMERS TOWARDS HOUSEHOLD FOOD SECURITY

9.1 Introduction

This chapter presents and discusses the study findings on the contribution of smallholder farmers towards household food security in Chabelane village, Limpopo province. The purpose of this chapter is to indicate the important role that smallholder farmers play towards household food security. This chapter is presented according to the main themes and sub themes that emerged during data analysis.

9.2 Contributions of smallholder farmers towards household food security

The agricultural sector is regarded as the largest contributor to the economies of most of the African countries and accounts for over 30% of the continents' Gross Domestic Product (GDP) (Nyange et al., 2011). Agriculture also accounts for a significant percent of employment, the number of people employed in agriculture, hunting, forestry, and fishing amounted to approximately 868,000 in 2021. This is an increase of 17.3% compared to 2018 (See chapter 2 of the literature review) (Statista, 2022). Agriculture is regarded as one of the key sectors of economies in most developing countries. Below are the contributions of smallholder farmers towards household food security in Chabelane Village.

9.2.1 Increased food supply

The researcher wanted to fathom the production proportion that smallholder farmers make in the farms. Most of the smallholder farmers said they harvest enough for their household consumption and for selling, while others said their harvest is too much. The participants expressed their views as follows:

My harvest is enough because the soil I plant on does not requires certain vegetables. I buy other things from the shop. Ya…what I plant, and harvest is enough for that time to spear me from buying other vegetables from the shop which I can plant here and harvest. (Participant 35, 2023).

My harvest is enough and am able to supplement with the food from the shops. (Participant 12, 2022).

My harvest is enough, even though I would want to have too much but I won't have a place to store some of the harvest. But I don't want to lie, they are enough for my family and to sell to the community in the area and outside this area (Participant 13, 2022).

Other few smallholder farmers had different amount of harvest from other smallholder farmers. They expressed themselves as follows:

My farm is huge, and the food I produce in every season is too much. (Participant 1, 2022).

I get too much output because I plant too many crops, I do this because I want to supply the street vendors at Gauteng province as my main priority (Participant 29, 2022).

This study further found that majority of the participants indicated that they had little harvest from their farms.

Most of the time my harvest is little because I would have to discard some of the crops that are not of good quality (Participant 50: 2023).

Since I use a small space for crops and another for livestock, my harvest is little, is not much that I can sell. Is only for my family (Participant 5: 2023).

The harvest from the farm I can say is too little. I cultivate maize and in the winter season I cultivate vegetables, from these seasons I get little harvest because I have problems with people who steal in my farm. I hen left with little to harvest (Participant 1, 9: 2022).

The findings indicate that majority of the participants produced little harvest from their farming space. Few of the participants produced enough food from their farming area. Other few participants managed to produce too much food as a result of the big farming space they use. This means that smallholder farmers played a critical role in increasing the food supply in some of the households in the study area either as supplement to the food they bought or solely depending on their own farm output. It also means that they have access to food, as they produce more and enough food from their farm. According to Wiggins et al., (2013), smallholder farmers are the main financiers of smallholder agriculture. This is because most of the smallholder farmers does not receive any financial support from the banks (Refer to literature review chapter 3). Their production process is both dynamic and intricate.

In the developing world, over half a billion small farms produce nearly one-fifth of all food (Wiggins et al., 2013). It ought to be noted that smallholder farmers make the most of ecologically and climatically delicate landscapes, hillsides, and floodplains to support their livelihoods, monetizing the land that large-scale farmers might otherwise find unprofitable.

In low-income nations, smallholder agricultural development can be a great strategy to fight hunger and reduce poverty. It can boost food production, enhance rural incomes, and decrease food prices, making it easier for the poor and vulnerable to get food and significantly enhancing their food security. Since many people who experience food insecurity work in agriculture, its consequences may be felt immediately. The consequence is to keep working to expand agriculture, especially small-scale family farms, in order to combat localized poverty (High Level Panel of Experts on Food Security and Nutrition (HLPE), 2013).

According to DFID (2018), increased food supply, gives smallholder farmers more opportunities and, by reducing food price shocks, gives consumers additional food options at affordable costs. Improving the sector increases the likelihood of resolving hunger and food insecurity in most rural areas because smallholder farming employs the bulk of the population in these areas (Machethe, 2004). But achieving this goal will require the smallholder agriculture

sector to become more active and productive (Machethe, 2004). Growth in agriculture can also lessen the occurrence of food shortages across the entire stages by improving the quality and diversity of household diets, increasing the overall amount of food available, and providing disadvantaged people with economic opportunities (Oni, Maliwichi). The findings of this study are similar to (Matebeni, 2018), who found that agricultural growth have the ability to reduce the prevalence of food shortages at all levels through increased overall supply of food for poor people and improved dietary diversity and quality of food consumed by households (Matebeni, 2018).

9.2.2 Broaden local economy by supporting local business

This study was also interested in where the smallholder farmers' produces are sold. Most of the participants indicated that the food they produce they sell to the spaza shops, and car drivers by the roadside, while some were meant for household consumption. The participants explained as follows:

After each harvest I take half first for household consumption and another half I sell to the community members who just come by my farm to purchase. And the income I receive it helps me a lot in the household to pay the debts and to buy other food. (Participant 34, 2023).

Other participants with livestock stated they sell their livestock farming to their community members as well as outside their community.

I sell the produce to the spaza shops around and I also transport the vegetables to Mooketsi where street vendors are selling there 24/7 and Elim. When people have ceremonies, I also sell my livestock to them and sometimes I slaughter them. But for livestock such as chicken I get customers mostly on Sundays or during social grant days, I go to the taxi rank to sell. (Participant 43, 2023).

I sell the beef meat from my cattle's here in Chabelane village, but mostly during funerals and parties. I sell to people outside of this area maybe once a year. That's if my relatives in Tzaneen ask for a beef meat (Participant 33:2023).

The chickens I have I sell them at wholesale marketplace where many people pass by, I have a bakkie which I made a nice cage to put the chickens inside for display (Participant 32:2023).

I have pigs and mostly on weekend people come and buy here at home the pork meat, I don't have the market place yet where I can sell to, I just sell it from my home (Participant 42:2023).

The smallholder farmers with livestock they mentioned that sell their livestock meat to the community members for income. Most of the participants were able to sell what they produced and reserved some for-household consumption. This finding indicate that smallholder agriculture currently lacks access to formal market where they can sell their farm output. They sell to the community members around the Chabelane village and outside Chabelane village.

Other participants stated that they don't sell anything to anyone because they have a small area for farming. They said:

The farming area I have is not too big, I just grow few crops for my family to have food. I don't sell anything I harvest (Participant 8: 2022).

I am not selling anything from my harvest, I am doing all I do for my family. But am hoping to soon start expanding so I can start selling (Participant 9: 2022).

Other participants said that they sell their harvest to the spaza shops in the area. Meaning that they supply the spaza shops and street vendors around the village to sell to the community.

My grandchildren sell the produce to the spaza shop owners. The somalin's shops do buy and like our products. I sell to the few street vendors at wholesale market centre (Participant 42:2023).

These findings indicate that smallholder farmers play an important role in food security through broadening of the local economy. Smallholder agriculture is crucial to the total household income. The participants said that they sell their produce to the spaza shops, street vendors as well as to the community inside and outside the village. What the smallholder farmers do as stated above, they broaden the local economy as they support local businesses. The smallholder farmers indirectly boost their economy as the money they receive will be circulated/used within their own area. However, it is imperative for the smallholder farmers to access formal and reliable formal market. FAO (2017) states that continued market access could support smallholder farmers' efforts

to fight poverty and hunger in their communities since they will be able to sell their produce to formal markets for a higher price (Refer to literature review chapter 3).

9.2.3 Job opportunities

The researcher was also interested to find out about the number of people employed by the smallholder farmers on their farming area. One of the key elements of smallholder production in most rural areas is labour intensity. Few smallholders interviewed have large farms and it requires more labourers to toil the land they indicated that they hire 4-8 labourers to assist. The smallholder agricultural sector has been recognized as one of the most important sectors in employment creation in most of the developing countries (Baiphethi and Jacobs, 2009).

In the majority of developing nations, the smallholder agriculture sector has been acknowledged as one of the most crucial for creating jobs (Baiphethi & Jacobs, 2009). Research indicates that boosting productivity in smallholder agriculture can hasten output for smallholders and generate jobs for majority of rural family members, both off on and the field. In most smallholder farms, the need for labour for land preparation, planting, weeding, and harvesting grows with increased agricultural productivity on the farm (DFID, 2004). It was clarified that smallholder farmers are becoming more likely to use hired labour from their neighbourhood, which creates more job opportunities for the underprivileged in the area. The participants said:

My farming area is 1 hectare and all alone I won't make it to cultivate and harvest everything within a short time. Most of the time I call 5 or 6 young boys to come and assist me. They do help me because when it is time to harvest, I have to do so quickly so I can start selling urgently as street vendors require the season stock… What I like about these young boys is they don't demand too much, I just give them some of the harvests as a way of showing appreciation, and sometimes I give my workers money. (Participant 30, 2023).

I have adults whom I work with on the farm every day, there are 8 but sometimes if I need more labourers for the season, I hire additional 2 workers. After I sell the harvest from the farm, we take the money and buy things that are needed

on the farm first, secondly, we pay ourselves and lastly, we take the remaining money and save it (Participant 17, 2022).

I have 4 extend family young boys who assist me during harvest season. I do give them something, sometimes the tomatoes and sometime money. During cultivation I don't call them because I hire a tractor to plough and after that amount left with so much work to do (Participant 31, 2023).

Other participants said:

Most of the time I work with my wife and my 2 daughters because my farming space is not big space. 3 of us can do a wonderful job. (Participant 41, 2023).

Since I don't have big area, I cultivate alone even during harvest I do all that alone. (Participant 5, 2022).

For me farming is not a big task, my farming space is not big, I work the area alone (Participant 2, 2022).

The findings depict that few of the participants had not more than 3 household members helping during the farming season. While majority of the participants employed between 8 and 10 workers because they have a big farm to cultivate and irrigate while others employed less than 7 workers. This shows how smallholder farmers contribute to the creation of jobs. Many researchers concur with the results of the study that smallholder agriculture creates jobs and that there is a positive correlation between the two. As a result, they view the industry as the primary employment source for those without jobs (FAO, 2017). Also, Scholes (2022) discovered that in 2019, 5.3% of South African workers were from the agriculture industry. DFID (2004) reports that when smallholder farmers become wealthier, they are more likely to replace home labour with paid labour, creating more work opportunities for the underprivileged. Furthermore, through connections between agriculture and the larger rural economy, raising the productivity of smallholder farms also helps the impoverished find new, well-paying occupations off-farm (Refer to literature review chapter 3) (Baiphethi & Jacobs, 2009). Increased employment both in and out of smallholder farming can benefit the rural labour market by raising farm earnings and facilitating poor people's access as well as purchase of food from marketplaces (DFID, 2004).

Many scholars agree with the study's conclusions that there is a good correlation between smallholder agriculture and job development, and as a result, they view this industry as the primary means of employment for the underprivileged (FAO, 2017). For example, Oni et al., (2013) at the local municipality of Thulamela in the province of Limpopo discovered that over 22% of full-time, permanent jobs were generated by smallholder agriculture (Refer to chapter 3 of the literature review). According to Matshe (2009), intense livestock and horticultural agriculture that flourishes in rural regions can create jobs, add value to goods, and generate a decent return on investment. In order for the industry to have the ability to create jobs, it must fight income poverty, which deals with relative poverty, and enable vulnerable individuals to go from absolute poverty to a higher quality of life. Self-employment prospects can also be found in rural agriculture, since families can labour like any other employee and still receive compensation in the form of sales income. Below is the picture of the farm labours.

Figure 9.1: The picture depicts the labourers working in the farm in Chabelane village.

9.2.4 Generates income

The study was also interested on how much smallholder farmers generate from selling their farm output. Majority of the participants indicated that they generate between R650 and R700 from selling their harvest in a month, while others mentioned that they generate more than R2800-R6000 from selling their livestock such as pigs, chickens, goats, and cattle. Only a few said that they did not generate any income because they did not sell any of their total output but consumed them in their households instead. Smallholder agricultural production is critical towards achieving household food security through increased income for majority of the rural poor household. Whereby this income may provide households with the ability to purchase food from market to supplement with the one they harvested in their farm to meet their food needs. During the interviews with the participants, they explained as follows:

...after I sell the pieces of the slaughtered pig, I get about R2800, but if I sell cattle, I get R6000. These two animals' prices differ, and I can take 6 months without having a customer to come and buy cattle, but with pigs and goats, I get a lot of customers. After selling, that's when I check what I need in the household and buy using the money and also pay debts (Participant 44, 2023).

Other participants said that by selling the fruits and veggies, they get R650-750 and with livestock they get approximately R2000.

The fruits and vegetable I sell to the community who pass by my farm, in a day I make R650. When I take the products to the street vendors, I get 750 a month. I also sell chickens within the community. I sell the slaughtered ones for R70 and not slaughtered by R60 and I get a profit of R2000 (Participant 24, 2023).

The participants emphasized that they generate income from selling their products, the smallholder farmers were able to generate income from their harvests and livestock. Aref (2011) asserts that a major factor in rural households' capacity to make money has been smallholder farming. They could have made more money than they do now if they had access to a legitimate market, but as it is, their revenue was not very high. Weggins (2013) provided

support for the findings, stating that smallholder farmers' households typically make money through selling their farm produce. Smallholder farmers can purchase more non-food items and vary their diets with more income, which often translates into higher-quality food (Refer to literature review chapter 4). For instance, as commercial production is frequently linked to higher food output and incomes, providing people and families with greater access to nutrient-dense foods, smallholder farmers who grow cash crops can improve their food security as well as nutrition. Agriculture-related economic growth may additionally boost access to education and health care, either nationally or at the household stage (Wiggins & Keats, 2013). Expanding operations and integrating production and processing greatly enhances income creation on small farms. This frequently occurs with goods that are significant to regional cultures and food market.

9.2.5 Increase power purchase parity

The researcher further was interested on what smallholder farmers do with the income they generate after selling their farm produce. The study found that few of the smallholder farmers use their farm income to pay their labourers, while majority of the participants said they buy things such as food for their household, as well as investing. While others indicated that they use the income to pay debts. The participants expressed themselves as follows:

The farm income I receive I use it mostly to buy the farm inputs and food at home. Is not much but I can at least do these things since are important to me. (Participant 33, 2022).

I priorities, I buy farm inputs, groceries and assist my grandchildren with it when they need something at school, I use t to buy for them (Participant 3, 2022).

Most of the time, uhm… I used to buy few groceries and that's it (Participant 3, 2022).

I buy seeds fertilisers and with what a left with I buy some of the things needed at home (Participant 37, 2023).

Another smallholder farmer said that they do not get any income from the farm harvest because they are not selling anything from their farming space:

I don't sell any of my farm produce. I use my own money from SASSA to buy seeds and plant for my household (Participant 49, 2023).

I don't sell anything; therefore, I don't make any income from my harvest. The money I get from my son I buy what I need in the farm (Participant 34, 2023).

Few of the participants said they use the farm income to pay the workers as well as using the income for their personal and farm needs:

I use it to buy fertilizer and seeds. I then pay the workers but not always the money involved, I give them the harvests sometimes. The amount am left with I invests (Participant 23, 2022).

I pay the workers, I buy farm inputs because I will need to plough again then pay some of my debts (Participant 42, 2022).

Firstly, I make sure that I pay my labourers because they assist me a lot. Thereafter, I buy seeds and pay my debts since sometimes I ask someone to assist me with the tractor without paying at the same time (Participant 10, 2022).

It is apparent based on the study findings that majority of the farmers use their farm income to buy the necessities they need in the household as well as buying farm inputs such as fertilizers, seeds and others for farming. Other smallholder farmer mentioned that that they use farm income to pay the workers, investing and to pay debts. According to Aliber (2005), among rural households, agriculture can account for as much as 15% of total household income, and as much as 35% for the poorest quintile. Even though smallholder farming is thought to account for up to 40% of household income in majority of developing nations, it also provides impoverished people with the means to purchase food for their households from markets, improving power purchase parity and household food security (Refer to literature review chapter 3) (Averbeke & Khosa, 2017). The other results in this study indicated that the income generated through agriculture is mostly directed to food production and investment for the future use. The other findings also showed that farm income is directed to ensure farm sustainability and continuity by using it to purchase farm resources. This indicates that the smallholder agriculture operation can generate surplus income which can be saved after attending to the basic

household needs, which shows that the farming operation can attain sustainability.

smallholder agricultural output is essential to ensuring household food security for majority of the rural poor people, since it increases income, which may enable households to buy food from the market to supplement and satisfy their needs. Almost 70% of rural residents depend on this industry for their livelihoods. Most of them find work as a result of the industry, and the household makes money by selling some of the excess harvest (Refer to literature review chapter 3) (Fenyes & Meyer, 2003). Despite this, not many smallholder farmers were able to employ people on their fields. Given its substantial contribution to food production as well as other macroeconomic growth indicators like job creation and welfare enhancements, smallholder agriculture's critical role in South Africa is evident and cannot be overstated.

9.3 Chapter summary

Considering the contributions of smallholder farmers towards household food security, it can be concluded that smallholder farmers are in a position of pursuing and sustaining their livelihoods strategies because of the manner in which they contribute towards food security in their household. Participants further indicated that they contribute towards household food security through increased food supply, job creation, power purchase parity, broadening local economy, generating income through selling of the farm outputs. Findings from this study are consistent with the findings of several related studies on the contribution of smallholder farmers towards household food security.

CHAPTER 10

SUMMARY OF FUNDINGS, CONCLUSION AND RECOMMENDATIONS

10.1 Introduction

This chapter present the conclusions and recommendations drawn from the data analysed on the contributions of smallholder farmers towards household food security in Chabelane Village Limpopo province, South Africa. This chapter begin by providing a summary of the findings per objectives of the study. Secondly, conclusion will be drawn from the study findings. Lastly, this chapter will provide recommendations based on the findings of the study.

10.2 Summary of the findings

The study sought to investigate the contributions of smallholder farmers towards household food security in Chabelane village Limpopo province, South Africa. An informal village with subpar living conditions makes up the study area. Given the prevalent food insecurity and poverty in the region, it is challenging for majority of households to thrive. Families who rely on the SASSA grant and families with many unemployed persons live in the study region, where employment and other opportunities are scarce. Chabelane village is a region that consists of majority of rural informal settlement. Residence in this study area find it hard to access food for their household members.

The following was the research objective that this study aimed to investigate:

- To assess the prevalence of food insecurity status among households in Chabelane Village.
- To determine the extent to which smallholder farmers contribute to household food security in Chabelane Village.
- To investigate the challenges faced by smallholder farmers toward household food security in Chabelane Village.

In this study a quota sample technique was used to select the participants to be interviewed. All 50 smallholder farmers were interviewed using a face-to face

interview. The smallholder farmers list was obtained from Greater Letaba Municipality, they were then called to be informed about the interviews that will take pace. The data was then transcribed and analysed using thematic analysis. It is however important to highlight the profile of the selected participants. In terms of the demographic details of the participants, the study findings revealed that majority of the farmers were females rather than males. This simply means that most of smallholder farmers in Chabelane Village are females. The participants were mostly adults, elderly and young people, this imply that majority of youth are not involved in the smallholder farming. Furthermore, it was found that agriculture remains the major income generating activity practiced by smallholder farmers in the study area. However, other income generating activities in the study area include remittance from relatives, social grant and salary.

This study found that majority of the smallholder farmers practice farming for household consumption, because of passion as well as for extra income. Few of the smallholder farmers mentioned that their farming takes place outside their yard while majority of them said inside their yard. This is because the yard/stands of Chabelane are huge. Most of the smallholder farmers indicated that they practice crop farming such as cultivation cabbage, spinach, lettuce, beans, beetroot amongst others. Few smallholder farmers said they practice livestock farming whereby they own pigs, cattle's, chicken and goats. The smallholder farmers in this study indicated that they have a farm size between 100m to 1 hector. This section summarises the significant primary findings of the study as per the specific objectives of the study.

Research objective 1: Prevalence of household food security status

The objective 1 derived from the question, what is the prevalence of food among the smallholder farmer' household?

The aim was to explore the prevalence of food security among smallholder farmers' household. In addressing objective one, the HDDS tool was adopted to determine the prevalence of the food security status of smallholder farmers' households. The HDDS results showed that majority of the smallholder farmers 'households experienced low dietary diversity. The study found that there was

a high food insecurity prevalence among majority of the households. Moreover, the food groups that were most commonly consumed were starch, vegetables, meat and fish. Majority of the smallholder farmers' household predominantly consumed maize meal during the week prior to data collection. The data indicate that starchy food, such as rice, samp and maize meal was seen as desirable and a staple food among the smallholder farmers' household. It was also found that majority of the smallholder farmers' household had 2 meals a day while few had 3 meals a day. It was also found that majority of the smallholder farmers spend between R700-R800 on food groceries per month. Which is too little to take care of a large household that some of these smallholder farmers have. Most of smallholder farmers do not afford nutritious food for their household members.

Research objective 2: Challenges experienced by smallholder farmers in Chabelane village.

One of the major challenges that was experienced by households' in Chabelane village was lack of access to market. This study revealed that majority of the smallholders did not have access to formal market. They only sold their farm outputs to the community members, spaza shops and street vendors. They did not have enough information on how to access formal market that will draw them a lot of income.

The study also found that some of the participants had financial problems. The participants did not have enough money to buy farm inputs such as fertilizers, chemicals and herbicides. It was also found that when they go to the bank to ask for a loan to buy machinery such as tractors for ploughing, they are denied the loan. The smallholders find it difficult to plough their farming area without their own tractors or poor machinery.

Majority of the participants in this study area of Chabelane village revealed that they are facing the issue of water shortages. It was revealed by this study that majority of smallholder farmers find it difficult to irrigate their crops. They use municipal water which they provide the water twice a day in a week. Sometimes the young boy in the community steals the pumping water machines which results into a worse scenario. Other smallholder farmers decided to have water

tanks and others have borehole in their farms but still the tank water does not last long. Only few smallholder farmers specified that they irrigate their crops using the water from the river nearby their farms.

In this study, few smallholder farmers indicated that they have poor resources challenge such as poor machinery, poor irrigation system, Smallholder farmer in this study said that in every 10 minutes he needs to fix the machinery to work well. This can in the long run affect the production and the machinery or irrigation system stops working.

This study further found that smallholder farmers experience poor infrastructure looking on poor fencing of their farming area and poor roads. It was revealed that as a result of poor fence, the monkeys destroy their crops and that resulted to have little output as some crops were damaged. As for poor roads, participants revealed that during rainy days is hard for them to deliver their fruits and veggies since the bakkie to transport the harvest is not able to enter their streets due to muddy roads. Other smallholder farmers indicated that their resources such as irrigation system and machinery are poor.

This study revealed that smallholder farmers had a challenge of lack of farm inputs. They indicated that they used to receive fertilisers and herbicides from the government, but they are no longer receiving them, and they have no idea why they stopped. The study further revealed that majority of the smallholder farmers have no money to buy fertilisers and that affect their crops since they get to buy cheap fertilisers that are not suitable for their crops which resulted into poor quality of crops. Other smallholder farmers stated that they find it difficult to get farm inputs locally such as seeds. They revealed that they have to travel 17 km using the money they were supposed to buy enough seeds for traveling.

It was revealed in this study that the smallholder farmers experience poor or lack of resources. It was indicated that some had no tractors, and some had poor tractors whereby when they cultivate a farm of 1 hectare, they have to stop time and again to make the tractor to rest because it does not function well. A study by UNCTAD (2015) substantiates that smallholder agriculture farmers are

deprived access to various infrastructure of the market; machinery such as irrigation among others. Smallholder farmers who are using rainwater were also found using hand hoes implement to plough the land, and, this affects the quantity of production (UNCTAD, 2015).

This study revealed that majority of the smallholder farmers in Chabelane village they experience technological barrier as a challenge since most of them were elders, they don't understand English. The study further found that majority of the smallholder farmers have lack of access to information technology which can enable them to connect to international market for trading. The smallholder farmers in this area indicated that they lack education about the agric-tech systems, because they can't use their smart cell phones to search for agriculture information or sell online because they don't know how agric-tech works through their cell phones.

Research objective 3: The contributions of smallholder farmers toward household food security.

Objective 3 derived from the question, what are the contributions of smallholder farmers toward household food security?

The aim was to explore smallholder farmers' contributions toward household food security. The study found that smallholder farmers contribute toward job opportunities, whereby they hire young people or adults and family members to assist them at the farm during harvest and cultivating time. The labourers were paid using cash and some with the harvest from the farm.

This study further found that there was an increase of food supply to some households as a result of the smallholder farmers' contribution. Few of the smallholder farmers had enough proportion of harvest also other few smallholder farmers had too much harvest from their own farm to supply their family consumption and to sell. Therefore, this means that at these few households, smallholder farmers played a role in increasing food supply as they depended mostly on the farm output to supplement the food they bought from the shop.

In this study it was also found that smallholder farmers in Chabelane Village, they contribute toward broaden local economy by supporting the local businesses. The smallholder farmers were selling their fruits and veggies to the local businesses such as spaza shops and 24 hours Mooketsi street vendors. They were also selling their livestock meat to the community members and to the street vendors.

This study also revealed that the smallholder farmers play a role in generating income. Majority of the smallholder farmers said that they sell their farm output to the community members, spaza shops, and the street vendors, which in return they get an income from selling their farm output. This study found that majority of the smallholder farmers got an income of between R650-R700 from selling their harvest in a month, while few smallholder farmers said they generate more than R2800-R6000 a month.

This study on the contributions of smallholder farmers towards household food security revealed that the smallholder farmers play a role in increased power purchase parity. This was seen when some of the households was able to use the income, they get from selling their farm output to buy other necessities from the market. They were also able to pay their debts as well as to buy farm inputs such as fertilizers and seeds.

10.3 Summary of secondary data

Based on the study findings, Masuku (2013) pointing out that, agriculture in rural community is a major source of income and that it needs to be utilized as a cooperative approach to reduce food insecurity in these places. The secondary data on the prevalence of food security status of the smallholder farmers in Chabelane village revealed that food security at the household level is a result of a number of socioeconomic conditions (Mishra, 2013). According to Devereux and Maxwell (2019), the level of household food insecurity is considered as a livelihood failure due to insufficient means to obtain food rather than a problem of food supply.

Despite smallholder farmers' prevalence of food security status, smallholder farmers contribute toward household food security, Weggins (2013) state that

smallholder farmers' households typically generate income through selling their farm produce. Oni et al. (2013) at the Thulamela Local Municipality in Limpopo province discovered that over 22% of full-time, permanent jobs were generated by smallholder agriculture in the municipality. Smallholder farmers in Chabelane Village, amongst other challenges, Machete (2021)' study findings revealed that, smallholder farmers sector is widely characterized by lack or poor resources. Most of the smallholder farmers lack resources such as food storages and equipment for farming. Access to credit has historically been a barrier for most of the farmers especially smallholder farmers (Kongolo & Dlamini (2021). According to Gordon (2021), farmers face difficulties in trying to boost productivity or enhance modern input since banks and/or trade unions do not provide them with loans as a result of lack of collateral because they are unemployed and live-in poverty.

10.4. Future research direction

Based on the findings of the study on the contribution of smallholder farmers towards household food security in Chabelane village, future research should aim to explore the type of commodities that favour the environmental conditions of the study area and increase food production and sustain households' food security. Similarly, a study could be done covering a wider geographical region in the three municipalities of Limpopo (Baphalaborwa, Greater Tzaneen and Greater Giyani) while assessing the impact of government programmes on food security. A comparative study in relation to food security could be done covering all food security intervention programmes such as land care, livestock and crop farming programmes in the study area.

10.5 Contributions of the thesis

Specifically, the contributions of this thesis can be categorized into three; empirical, methodological and theoretical. Empirically, the thesis contributes to existing body of knowledge in agrarian, rural development, food security and livelihoods studies by linking smallholder productivity to livelihoods and food security of smallholder households. Quite a number of studies have focused on any of the three phenomena, but the study has not examined the entire three phenomena. Hence, the study bridges this gap in research.

Methodologically, the thesis utilizes a qualitative research method helps to understand in detail the experiences of smallholder farmers. It effectively allows for linkages or connections of resonating findings to be made.

This study theoretically engaged with a number of academic concepts in order to analyse the contributions made by smallholder farmers towards household food security in Chabelane village, Limpopo province. The livelihoods approach was utilized to identify the prevalence of food security, the contributions of smallholder famers and challenges to the development of smallholder farmers. The Sustainable Livelihood Framework (SLF) has provided the key components necessary for analyzing livelihoods of individuals and groups of smallholder farmers in terms of capital assets, human assets, livelihood strategies and livelihood outcomes as the key elements for assessing the contribution of policy intervention in the production and marketing process.

10.6. Recommendations

It would be vital to consider ways to strengthen smallholder farmers' contributions to household food security in rural areas and showcase the sector's significance. The recommendations based on the study findings are discussed as follows:

10.6.1 Increase the farm size

It was discovered that farmers' farm size increased the likelihood that farmers' household would have enough food. As a result, the study suggests that regional government representatives must facilitate smallholder farmers' access to land for agricultural production. This entails expanding the size of the farmers' farms through the implementation of programs like expanding land for cultivation, relocating, and renovating abandoned land for agricultural use.

Large households are more likely to experience food insecurity in Chabelane Village because of the increased need for food among a large family. In order to maintain long-term food availability in the households and to increase production levels and revenue from diverse sources, it is advisable that households with more members be encouraged to participate in a variety of food security intervention programs.

10.6.2 Agricultural information

The farmer's age influences the household's level of food security, so it's critical to have a large number of youthful, creative farmers. Therefore, the study suggests that government representatives encourage young people to pursue this career by offering financial support. In order to increase the level of food security in farmers' households, the study suggest that the government has to offer information to senior citizens and adults who work in the farming industry. In order to accomplish or guarantee food security in their households, they have to do this by giving them pertinent agricultural information that will inspire them to carry on farming and arm them with knowledge about how to increase their access to wholesome food. Crop destruction can occur from pests and plant diseases that affect home gardens. To prevent or lessen pest and disease attacks on plants, householders nevertheless employ conventional techniques. To keep pests away from the pumpkin plants, sunflower is planted close by. Sunflower planting is a beneficial habit, and households in the community could exchange additional plant-protection tips. Smallholder farmers must receive free pesticides, fertilizers and expertise in managing pests and diseases from the Limpopo Department of Agriculture. The study further recommends that the Limpopo Department of Agriculture must offer awareness/education programmes for smallholder farmers to gain more knowledge about types of soil.

10.6.3 Enhance access to formal market

This study found that it was apparently difficult for small-scale agriculture to promote rural economic growth due to a lack of market access. It is advised that the South African government establish small-scale agricultural sector initiatives in order to establish rural marketplaces that would act as a central point of contact between rural farmers and the market. This includes elements like web-based advertising strategies and the advancement of technology. It is also advised to strengthen the rural-based market by investing in research and development in order to preserve the long-term viability of rural livelihoods and to improve rural development.

Gaining better access to markets will benefit farmers' livelihoods and may inspire farmers to grow more food in a more sustainable manner. In order to increase production, smallholder farmers must have better access to markets, resources, and infrastructure. Therefore, the Limpopo Department of Agriculture need to offer smallholder farmers education on how to access formal market within and around their community.

10.6.4 Financial support

Inadequate financial support services have been proven to impede smallholder farming's contribution to rural economies. The public or private sectors should intervene to create legitimate financial institutions that will considerably aid in the expansion of banking services in support of rural areas. Small-scale farmers will therefore have access to loans so that they may purchase the resources (feeding supplies, irrigation equipment, transportation, and fertilizers) needed to keep their crops producing. This will be greatly aided by this endeavour. In farming, having access to financing facilities is important. Smallholder farmers need grants from the government. Financial institutions like Land Bank, Commercial Banks, and Micro Agricultural Financial Institutions of South Africa (MAFISA) should be made available to farmers in rural areas so they can access credit facilities to boost their output and guarantee food security for their household. The active leaders of opinion in communities must be acknowledged by agricultural extension and productivity enhancement programs in order to build and deepen their efforts and impact for more resilient results. To improve and include leadership abilities on farmer empowerment programs, progressive and successful opinion leaders require ongoing evaluation.

Despite having more access to these items due to production, it was observed that majority of smallholder farmers still struggle to achieve their recommended dietary and nutritional needs. Therefore, in order to improve the outcomes of smallholder agriculture, nutrition and dietary education are necessary for households. To translate one's own production of food into dietary intakes that could have an impact on enhanced production as well as consumption of foods high in micronutrients, an increased revenue from food production, household capacity building, diversified diet, dietary and nutrition

education are essential Smallholder farmers reported that the cost of farming was high and that they were unable to obtain loan support from any financial institutions due to their lack of access to credit. This leads to the least amount of land being used, which in turn impacts the availability of food for continuous homes and lowers household food intake. Therefore, it is advised that the government develop credit support programs that are affordable and available to the low-income rural households in Chabelane Village. This will guarantee participation, maximize food production, and maintain food security for households.

10.6.5 Enhance infrastructure

Because it is so costly to fence in a farming area, majority of impoverished households are unable to do so. Another significant issue affecting smallholder farmers was found to be inadequate infrastructure. Because there is little fence, animals damage the crops and young people steal them from smallholder farmers. Smallholder farmers should think of creative ways to secure their agricultural land. For instance, they could fence their gardens or farms with wood and wire to keep their crops safe.

The government ought to supply the tools and resources needed to assist smallholder farmers in their endeavours. They can assist by providing the necessary equipment for smallholder farmers' farming operations to be successful. Examining the difficulty that smallholder farmers have due to technology acting as a barrier. It is necessary to determine the economic, social and political aspects that influence the skills of smallholder farmers in order to improve their ability to use digital technology as a development tool in their processes and plans.

10.7 Major conclusion

This study explored the contribution of smallholder farmers toward household food security in Chabelane village, Limpopo province, South Africa. The international perspective is that food is available and accessible to all South Africans, given that the country is primarily a net exporter of agricultural commodities and has a high per capita income for an emerging economy. According to the widespread consensus on food security, South Africa is food

secure, as indicated by the Du Pont food security index (EIU, 2017). Food insecurity exists in households despite the fact that the nation as a whole enjoys food security. The findings regarding the prevalence of food security status of the smallholder farmers' household in Chabelane village, indicated that the smallholder farmers have an important role to play in some households to be food secure. However, majority of the smallholder farmers were food insecure in Chabelane village.

In order to provide food security for households in the rural area in this country, the agricultural sector still has a long way to go. Still, the industry helps certain households in numerous ways to ensure food security. Firstly, by increasing the amount of food available for household consumption, which many households would not otherwise be able to afford, and by setting aside and using the money earned from their farming operations to augment other household necessities like food. Majority of households in Chabelane Village appear to consume non-nutritious food, which negatively impacts their overall health and contributes to the high rate of food insecurity. Secondly, through the distribution of agricultural produce to markets that are accessible to majority of Village households, the sector helps alleviate poverty and hunger conditions for some of the households. Lastly, the sector gives some people in rural areas agricultural jobs wherein they earn salaries for their family, increasing their purchasing power to obtain food from outside sources.

Despite some significant contributions made by smallholder farmers to household food security in Chabelane Village, some smallholder farmers failed to meet their household food needs due to challenges such as poor/lack of resources, water shortages, financial problems, technological barriers, poor infrastructure, lack of farm input, lack of access to market and lack of knowledge about soil type. Based on the study's findings, food security status at the rural household level is a comprehensive issue that needs a comprehensive support system.

The study concludes that smallholder agricultural production alone is not enough to propel households out of poverty and food insecurity. Other livelihood strategies are required to complement smallholder agriculture. The study

concludes that the agricultural programs can be more effective when combined with social protection and other measures that can increase the household income, and household food security. Therefore, the recommendation made in this study should be taken into consideration to reduce the vulnerability of households to food insecurity especially in the rural area of Chabelane village.

REFERENCE LIST

Abdullah, D.Z., Shah, T., Ali, S., Ahmad, W., Uddin, I., & Ilyas, A. 2017. Factors Affecting Household Food Security in Rural Northern Hinterland of Pakistan. *Journal of the Saudi Society of Agricultural Sciences,* 3(33): 2-9.

Abu, G.A., & Soom, A. 2016. Analysis of Factors Affecting Food Security in Rural and Urban Farming Households of Benue State, Nigeria. *International Journal of Food and Agricultural Economics,* 4(1): 55-68.

Achora, J. C., Sseguya, H. & Okello, D. 2016. *Social networks and influence of actor centrality positions in Conservation Agriculture knowledge systems in Kenya*. Kenya.

Adebo, G.M. & Falowo, O.O. 2015. Rural Household Food Insecurity and Coping Strategies in South-West, Nigeria: A Gender Differentials Perspective. *Food Science and Quality Management,* 4 (8): 44-49.

Adesina, A. A., Langyintuo, A., Bugo, N., Makinde, K., Bigirwa, G., & Wakiumu, J. 2012. *Improving farmers' access to agricultural inputs and finance: Approaches and lessons from Sub–Saharan Africa.* In Hazelletal. (Ed.), New directions for smallholder agriculture. Oxford: Oxford University Press.

Adjognon, S. G., Liverpool-Tasie, L. S. O., & Reardon, T. A. 2017. Agricultural input credit in Sub-Saharan Africa: Telling myth from facts', Food Policy. *Elsevier Ltd*, 6 (7): 93– 105.

Akerele, D., Momoh, S., Aromolaran, A. B., Oguntona, C. R. B., & Shittu, A. M.2013. Food insecurity and coping strategies in South-West Nigeria, *Food Security*, 5(3): 407– 414.

Alexandratos, N. & Bruinsma, J. 2012. *World agriculture: towards 2015/2030: an FAO perspective, ESA Working Paper No. 12-03. ESA Work. Pap. No*. 12-03. Rome.

Ali, S., Noor, M.T., & Alam, K.J. 2016. The Determinants of Food Security among Households in Rangpur City, Bangladesh: A Logistic Regression Approach. *Journal of Economics and Finance,* 7(4), 51-56

Aliber, M. 2005. *Synthesis of the 2005 development report: Overcoming underdevelopment in South Africa's second economy*. Pretoria: Human Sciences Research Council.

Almond, F. R., & Hainsworth S, D.2005. *Beyond Agriculture-making markets work for the poor: Proceedings of an international seminar, 28 February–1 March 2005*. Westminster, London, UK. Crop Post-Harvest Programme (CPHP), Natural Resources International Limited, Aylesford, Kent and Practical Action, Bourton on Dunsmore, Warwickshire, UK, 176.

Almond, F.R. & Hainsworth, S.D. 2005. *Beyond agriculture – making markets work for the poor: Proceedings of an international seminar in Westminster*, London: Crop Post-Harvest Research Programme.

Alpízar, F., Saborío-Rodríguez, M., Martínez-Rodríguez, M.R., Viguera, B., Vignola, R., Capitán, T. & Harvey, C.A. 2020. Determinants of food insecurity among smallholder farmer households in Central America: recurrent versus extreme weather-driven events. *Regional Environmental Change*, 20(1): 788-888.

Altman, M., Hart, T. G. & Jacobs, P. T. 2009. Household food security status in South Africa. *Agrekon*, 48(4): 345-361.

Amaza, P, Abdoulaye T, Kwaghe, P., &Tegbaru, A. 2019. *Changes in household food security and poverty status in PROSAB areas of southern Borno State, Nigeria*. Promoting Sustainable Agriculture in Borno State (PROSAB). International Institute of Tropical Agriculture, Ibadan, Nigeria. Retrieved from: http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.642.1960&rep=rep1&type=pdf

Antunes, P., Santos, R., Cosme, I., Osann, A., Calera, A., De Ketelaere, D., Spiteri, A., Mejuto, M. F., Andreu, J., Momblanch, A., & Nino, P. 2017. A holistic framework to assess the sustainability of irrigated agricultural systems. *Cogent Food & Agriculture*, 3(1): 1-25.

Aref, F. 2011. Farmers' participation in agricultural development: The case of Fars province, Iran. *Indian Journal of Science and Technology*, 4(2): 155-158.

Averbeke, W. & Khosa, T.B. 2017. The contribution of smallholder subsistence agriculture to the nutrition of rural households in semi-arid environment in South Africa. *Water South Africa,* 33(3): 413-418.

Baiphethi, M.N. & Jacobs, P.T. 2009. The Contribution of Subsistence Farming to Food Security in South Africa. *Agrekon,* 48(4): 459-482.

Baiphethi, M.N. & Jacobs, P.T. 2009. The contribution of subsistence farming to food securityin South Africa. *Agrekon,* 48 (4): 459-482.
Banerjee, A., & Duflo, E. 2011. *Poor Economics*. New York: Public Affairs.

Baro, M. & Deubel, T. F. 2006. Persistent Hunger: Perspectives on Vulnerability, Famine, and Food Security in Sub-Saharan Africa', *Annual Review of Anthropology*, 35(1): 521–538.

Barrett, C. B. 2008. Smallholder market participation: Concepts and evidence from Eastern and Southern Africa. *Food Policy,* 33 (4): 299-317.

Beddington, J. R. 2017. 'Food security: contributions from science to a new and greener revolution', Philosophical transactions of the Royal Society of London. *Series B, Biological sciences*, 365(1537): 61–71.

Bello, R.A. 2009. *Food insecurity and malnutrition in Nigeria: implications on human well-being.* Ilovin: The Faculty of Business and Social Sciences.

Belt, J., Kleijn, W., Chibvuma, P. A., Mudyazvivi, E., Gomo, M., Mfula, C., Mkojera, E., Opio, M., Isaahaku, Z., & Boafo, K. 2015. *Market-based solutions for input supply: making inputs accessible for smallholder farmers in Africa*. Sage.

Benson, T. 2004. *Africa's food and nutrition security situation: Where are we and how did we get here? 2020 Discussion Paper 37*. Washington, DC: International Food Policy Research Institution (IFPRI).

Beza, E., Silvab, J.V, Kooistra, L., & Reidsma, P. 2017. Review of yield gap explaining factors and opportunities for alternative data collection approaches. European Journal of Agronomy 82, 206–222.

BFAP. 2016. *Adding value in the South African maize value chain*. Pretoria: Bureau for Food and Agricultural Policy.

Bilinsky, P. & Swindale, A. 2010. *Months of Adequate Household Food Provisioning (MAHFP) for Measurement of Household Food Access: Indicator Guide (v.4*). Washington, D.C: Food and Nutrition Technical Assistance II Project (FANTA).

Bill & Melinda Gates Foundation. n.d. *Gates Foundation Calls for Bold and Immediate Action at COP27, Announces New Commitment to Meet the Climate Adaptation Needs of Smallholder Farmers*. Sage.

Brown, H. C. P. & Sonwa, D. J. 2015. Rural local institutions and climate change adaptation in forest communities in Cameroon, *Ecology and Society*, 20(2):54-67.

Bruinsma, J. (2009a) *The Resource Outlook To 2050, FAO Expert Meeting on How to Feed the World in 2050*. Rome. Available at: ftp://ftp.fao.org/docrep/fao/012/ak971e/ak971e00.pdf.

Bruinsma, J. 2009b. *The Resources Outlook: By How Much Do Land, Water and Crop Yields Need to Increase By 2050?' in Looking Ahead in World Food and Agriculture: Perspectives to 2050*.

Buah, S.S.J., Nutsugah, S.K., Kanton, R.A.L., Atokple, I.D.K., Dogbe, W., Karikari, A.S. & Ndiaye, K. 2011. Enhancing farmers' access to technology for increased rice productivity in Ghana, *African Journal of Agricultural Research*, 6(19): 98-112.

Carletto, C., Zezza, A. & Banerjee, R. 2013. Towards better measurement of household food security: Harmonizing indicators and the role of household surveys. *Global Food Security*, 2 (1): 30–40.

Carney, D. 2018. *Sustainable livelihoods approaches. Progress and possibilities for change.* London: Department for International Development.

Chagomoka, T., Unger, S., Drescher, A., Glaser, R., Marschner, B., & Schlesinger, J. 2016. Food Coping Strategies in Northern Ghana. A Socio-Spatial Analysis along the Urban–Rural Continuum. *Agriculture and Food Security*, 5(1): 1-18.

Chambers, R., & Conway, G.1992. *Sustainable Rural Livelihoods: Practical Concepts for the 21st Century.* IDS Paper No. 296. Sussex: Institute of Development Studies.

Chambers, R., 1989. Editorial introduction: vulnerability, coping and policy. In: Chambers, R. (Ed.), Vulnerability, Coping and Policy. *IDS Bulletin* 20(2): 1–7.

Chanceline, B.N. 2019. Land Grabbing and Its Impact on Food Security in Sub-Saharan Africa. *Socio Economic Challenges*, 3(4): 72–85.

Chapman, R. & Tripp, R. 2018. *Background paper on rural livelihoods diversity and agriculture.* Paper prepared for the 20018 AgREN electronic conference on the Implications of Rural Livelihood Diversity for Pro-poor Agricultural Initiatives.

Chimucheka, T. & Rungani, E.C. 2013. Obstacles to accessing finance by small business operators in the Buffalo City Metropolitan Municipality. *The East Asian Journal of Business Management* (EAJBM), 3(1): 17-22.

Chisasa, J. 2014. A diagnosis of rural agricultural credit markets in South Africa: empirical evidence from North West and Mpumalanga Provinces. *Banks and Banks Systems*, 9 (2): 100- 111.

Christensen, E.M. 2014. *How British Socio-Economic Policies of The Colonial Past Catalyzed Food Insecurity in Present-Day Kenya*. Available from: https://pdfs.semanticscholar.org/031c/67af4683a1a117f6fadc28882d6f4c5e57c6.pdf

Christensen, E.M., 2014. *How British Socio-Economic Policies of The Colonial Past Catalyzed Food Insecurity in Present-Day Kenya*. Available from: https://pdfs.semanticscholar.org/031c/67af4683a1a117f6fadc28882d6f4c5e57c6.pdf

Chun, N., 2014. The challenge of collective action for irrigation management in India. *Asian Economic Papers*, 13(2): 111-119.

Clapp, J. 2020. The Political Economy of Food Aid in an Era of Agricultural Biotechnology. *Global Governance*, 11, 467-485.

Coates, J., Swindale, A., & Bilinsky, P. 2007. *Household Food Insecurity Access Scale (HFIAS) For Measurement of Food Access: Indicator Guide (3).*

Washington, D.C.: Food and Nutrition Technical Assistance Project, Academy for Educational Development.

Coates, J., Swindale, A., & Bilinsky, P. 2007. *Household Food Insecurity Access Scale (HFIAS) for measurement of food access: indicator guide*. Washington, DC: Food and Nutrition Technical Assistance Project, Academy for Educational Development.

Coetzee, M. & Stoltz, E. 2018. Employees' satisfaction with retention factors: Exploring the role of career adaptability, *Journal of Vocational Behaviour. Elsevier Inc*., 89: 83–91.

Collier, P. & Dercon, S. 2014. African Agriculture in 50 Years: Smallholders in a Rapidly Changing World? World Development. *Elsevier Ltd*, 63(9): 92–101.

Cousins, B. 2013. Smallholder Irrigation Schemes, Agrarian Reform and Accumulation from Above and from Below in South Africa, *Journal of Agrarian Change*, 13(1): 116– 139.

DAFF. 2011. Food security. Pretoria: Department of Agriculture, Forestry and Fisheries.

DAFF. 2018. *Budget vote speech by the Minister of Agriculture, Forestry and Fisheries, Honourable Senzeni Zokwana*. Pretoria: Department of Agriculture, Forestry and Fisheries security in South Africa

Davis, J., 2019. *The Rural Non-Farm Economy, Livelihoods and their Diversification: Issues and Options.* Natural Resource Institute, Chatham, UK.

De Cock, N., D'Haese, M., Vink, N., van Rooyen, C.J., Staelens, L., Schonfeldt, H.C., & D'Haese, L. 2013. Food Security in Rural Areas of Limpopo Province, South Africa*. Food Security Springer*, 5(3): 269-282.

Demeke, A.B. 2003. *Factors influencing the adoption of soil conservation practices in North Western in Ethiopia,* Working Paper no.37, Institute of rural development, University of Gottingen.

Department for International Development-DFID. 2004. *Agriculture, hunger and food security.* London: Department for International Development

Department of Agriculture South Africa (DoA). 2020. *The integrated food security strategy for South Africa*. Pretoria: Department of Agriculture.

Department of Agriculture. 2020. *Integrated food security strategy for South Africa*. Pretoria: Government Publications.

Dercon, S. 2013. Agriculture and development: Revisiting the policy narratives, *Agricultural Economics (United Kingdom),* 44(SUPPL1): 183–187.

Devereux, S. & Waidler, J. 2017. *Why does malnutrition persist in South Africa despite social grants? Food Security SA Working Paper Series No.001*. South Africa: DST-NRF Centre of Excellence in Food Security.

DfID (2004) *Agriculture, hunger and food security*.

D'Haese, M. & Van Huylenbroeck, G. 2013. The rise of supermarkets and changing expenditure patterns of poor rural households: Case study in the Transkei area, South Africa. *Food Policy*, 30(1): 97-113

Diao, X., Hazell, P., & Thurlow, J. 2010. The Role of Agriculture in African Development, World Development. *Elsevier Ltd,* 38(10): 1375–1383.

Dixon, J., K. Taniguchi, & Wattenbach, H. 2003. *Approaches to assessing the impact of globalization on African smallholders: Household and village economy modelling. Proceedings of a working session on Globalization and the African Smallholder Study*. Rome: Food and Agriculture Organisation.

Dorward, A. 2021. *How can agricultural interventions contribute in improving nutrition health and achieving the MDGs in least developed countries? Centre for Development, Environment and Policy,* Working Paper, 2013.

Drèze, J. & Sen, A. 1989. *Hunger and Public Action*. Oxford: Oxford University Press

Drimie, S. & McLachlan, M. 2013. Food Security in South Africa−First Steps towards a Transdisciplinary approach. *Food Security Springer*, 4, (2): 1-10.

Drysdale, R.E., Moshabela, M., & Bob, U. 2019. Adapting the Coping Strategies Index to Measure Food Insecurity in the Rural District of Ilembe, South Africa. *Food, Culture and Society,* 22 (9):100-110.

Du Toit, D. C. 2011. *Food security*. Pretoria: Department of Agriculture, Forestry and Fisheries.

Ellis, F 2000. *Rural livelihoods and diversity in developing countries*. Oxford: Oxford University Press.

Etwire, P.M., Dogbe, W., Wiredu, A.N., Martey, E., Eunice Etwire, E., Owusu1, R.K., & Wahaga, E. 2013. *Factors influencing farmer's participation in agricultural projects: the case of the agricultural value chain mentorship project in the northern region of Ghana*. Legon Uccra: CSIR-Savanna Agricultural Research Institute.

European Commission. 2018. *Food security: understanding and meeting the challenges of poverty.* Luxembourg: Publications Office of the European Union.

European Commission. 2022. *Strategic Foresight Report.*

Fan, S., Brzeska, J., Keyzer, M., & Halsema, A. 2013. *From subsistence to profit. Transforming smallholder farms.* Washington DC

FANTA. 2016. *Introduction' in Right to Food and Nutrition Watch*. Heidelberg, Germany: FANTA.

Fanzo, J. 2012. *The nutrition challenge in Sub-Saharan Africa. United Nations Development Programme*, New York. Available from: http://www.undp.org/content/dam/rba/docs/Working%20Papers/Nutrition%20Challenge.pdf

FAO .2008. *FAO Methodology for the Measurement of Food Deprivation*. Rome: FAO Statistics Division.

FAO, 2013. *Guidelines for Input Trade Fairs and Voucher Schemes. Food and Agriculture Organisation of the United Nations.* Rome, Italy. http://www.fao.org/docrep/018/aq418e/aq418e.pdf

FAO, 2013. Guidelines for Input Trade Fairs and Voucher Schemes. Food and Agriculture Organisation of the United Nations (FAO), Rome, Italy. http://www.fao.org/docrep/018/aq418e/aq418e.pdf

FAO, IFAD & WFP. 2018. *The State of Food Insecurity in the World 2018. Meeting the 2018 international hunger targets: taking stock of uneven progress*. Rome: FAO.

FAO, IFAD & WFP. 2019. *The State of Food Insecurity in the World 2019: Meeting the 2019 international hunger targets: Taking stock of uneven progress*. Rome: FAO.

FAO, IFAD and WFP. (2013). *The State of Food Insecurity in the World. Rome*: FAO, IFAD and WFP.

FAO, IFAD and WFP. (2015). *The State of Food Insecurity in the World: Meeting the 2015 international hunger targets: taking stock of uneven progress*, FAO, IFAD and WFP.

FAO. 1983. *The State of Food Insecurity in the World*. Rome: FAO.

FAO. 2001. *FAO Crop and Food Security Assessment Mission to Lao PDR*. FAO and WFP: Rome

FAO. 2011. *The state of food and agriculture, 2010-2011. Women in agriculture: Closing the gender gap for development*. FAO, Rome, IT.

FAO. 2015. *Land degradation assessment in small island developing states (SIDS),* Land and Water Division, Food and Agriculture Organisation of the United Nations, Land and Water Division Working Paper 17.

FAO. 2015. Status of the World's Soil Resources (SWSR) – *Main Report. Food and Agriculture Organisation of the United Nations and Intergovernmental Technical Panel on Soils*. Rome, Italy.

FAO. 2017. *Productivity and Efficiency Measurement in Agriculture: Literature Review and Gaps Analysis,* Technical Report Series Global Strategy.

FAO. 2017. *The State of Food and Agriculture: Leveraging Food Systems for Inclusive Rural Transformation.* Available from: http://www.fao.org/3/al7658e.pdf%0Ahttp://www.ncbi.nlm.nih.gov/pubmed/24897208%5Cnhttp://www.ncbi.nlm.nih.g ov/pmc/articles/PMC1319478/.

FAO. 2017. *The State of Food Security and Nutrition in the World: Building Climate Resilience for Food Security and Nutrition*. Rome: Food Agriculture Organisation.

FAO. 2018. *FAOSTAT 2018: FAO Statistical Databases, FAO Statistical Databases*. Available at: http://faostat.fao.org/ (Accessed: 21 September 2018).

FAO. 2018. *Food Security Information for Action [CD-ROM*]. Rome: FAO.

FAO. 2018. *The State of Food Insecurity in the World*. Rome: FAO.

FAO. 2018. *The State of Food Insecurity in the World.* Rome: FAO.

FAO. 2019. *Food and Nutrition Security Working Glossary*. Vientiane: FAO.

FAO. 2019. *The State of Food Insecurity in the World 2019: Meeting the 2019 international hunger targets: Taking stock of uneven progress*. Rome: FAO.

FAO. 2020. *The State of Food Insecurity in the World: Strengthening the Enabling Environment for Food Security and Nutrition*. Rome: FAO.

FAO. 2020. *The state of food security and nutrition in the world: building resilience for peace and food security*. Food and Agriculture of the United Nations. Rome.

FAO. n.d. *Rome Declaration and Plan of Action*. [online] Available at: https://www.fao.org/3/w3613e/w3613e00.htm.

Farsund, A.A. Daugbjerg, C., & Langhelle, O. 2015. 'Food security and trade: reconciling discourses in the Food and Agriculture Organisation and the World Trade Organisation, *Food Security*, 7 (4): 383-39.

Faure, G. (2015). *Innovation Systems and Knowledge Communities in The Agriculture and Agrifood Sector.*

Fawole, W.O., & Ozkan, B. 2017. Identifying the Drivers of Food Security Based on Perception among Household in South West Nigeria. *European Journal of Interdisciplinary Studies*, 9(1): 49-54.

Fenyes, T. & Meyer, N. 2003. *Structure and production in South African agriculture*. In: Nieuwoudt L, Groenewald J, Eds., and Agriculture in the National Economy. Pietermaritzburg, University of Natal Press, 21–45.

Folaranmia, T. 2012. Food insecurity and malnutrition in Africa: current trends, causes and consequences.

http://www.consultancyafrica.com/index.php?option=comcontent&vi ew:food-security-and-malnutrition-in-africa-current-trends-causes-andconsequences-discussion-paper Date of access: 3 June 2013

Food and Agriculture Organisation (FAO). 2021. *Status of the World's Soil Resources (SWSR) – Main Report. Food and Agriculture Organisation of the United Nations and Intergovernmental Technical Panel on Soils*. Rome, Italy.

Food and Agriculture Organisation. 2019. *Climate-smart agriculture sourcebook. Copenhagen,* Denmark: *FAO.* 570. Available online at: http://www.fao.org/docrep/018/i3325e/i3325e.pdf

Fukuda-Parr, S., & Orr, A. 2013. *The MDG Hunger Target and the Contested Visions of Food Security' in The Power of Numbers: A Critical Review of MDG Targets for Human Development and Human Rights, Working Paper, Harvard School of Public Health & the New School*, Cambridge, USA: Harvard.

Galal, S. 2021. South Africa: national poverty line 2019. Statista. Available at: https://www.statista.com/statistics/1127838/national-poverty-line-in-south-africa/.

Garrity, D. P., Akinnifesi, F. K., Ajayi, O. C., Weldesemayat, S. G., Mowo, J. G., Kalinganire, A., Larwanou, M., & Bayala, J. (2010). Evergreen Agriculture: A robust approach to sustainable food security in Africa, *Food Security,* 2(3): 197–214.

Gbetibouo, G.A. and Hassan, R.M. (2005) Economic Impact of Climate Change on Major South African Field Crops: A Ricardian Approach. *Global and Planetary Change,* 47: 143-152.

Gill, G. J, Farrington, J. Anderson, E. Luttrell, C. Conway, T. Saxena, N.C., & Slater, R. 2003. Food Security and the Millennium Development Goal on Hunger in Asia: ODI Working Paper 231. London: ODI.

Godfray, H. C. J., & Robinson, S. 2015. Contrasting approaches to projecting long-run global food security, *Oxford Review of Economic Policy*, 31(1): 26–44.

Godfray, H., Beddington, J., Crute, I., Haddad, L., Lawrence, D., Muir, J., Pretty, J., Robinson, S., Thomas S., & Toulmin, C. (2010). Food Security: The Challenge of Feeding 9 Billion People, *Science,* 327(3): 812–818.

Godfrey, H. 2018. *Food security and nutrition in the context of the nutrition transition*. Technical Paper. Beirut: American University of Beirut.

Golay, C. & Biglino, I. 2013. Human rights responses to land grabbing: a right to food perspective, *Third World Quarterly*, 34(09): 1630–1650.

Gollin, D. 2014. *Smallholder agriculture in Africa, IIED Working Paper*. IIED, London.

Gomiero, T. 2016. Soil degradation, land scarcity and food security: reviewing a complex challenge*. Sustainability* 8, (8): 281.

Gordon, 2021. On Being A Smallholder, Rome: International Fund for Agricultural Development.

Goulet, F. (2013). Narratives of experience and production of knowledge within farmers' groups, Journal *of Rural Studies. Elsevier Ltd*, 32: 439–447.

Greater Letaba Municipality. 2022. The Integrated Development Plan, 2022-2026. Modjadjiskloof.

Greyling, J. C., Vink, N. & Mabaya, E. 2018. South Africa's agricultural sector twenty years after democracy (1994 to 2013). *Professional Agricultural Workers Journal*, 3(1): 10.

Hamilton, W.L., Cook, J.T., Thompson, W.W., & Buron, L.F. 2018. *Household food security in the United States in 1995. Washington DC*: Department of Agriculture, Food and Consumer Service.

Hanson, K.L., Sobal, J., & Frongillo, E.A. 2007. Marital status and gender clarify association between food insecurity and body weight. *The Journal of Nutrition,* 137(1): 1460-1465.

Hart, T. 2009. Exploring definition of food insecurity and vulnerability: time to refocus assessment. *Agrekon*, 48(4): 362-383.

Hart, T. G. B. 2007. Local knowledge and agricultural applications: lessons from a Ugandan parish, *South African Journal of Agricultural Extension*, 36:229–248

Headey, D., & Ecker, O. 2013. Rethinking the measurement of food security: from first principles to best practice. *Food Security*, 5(3): 327-343.

Heinemann, E., Prato, B. & Shephered, A. 2011. *Rural Poverty Report 2011. International fund for agricultural development*, Rome.

Hendriks, S. (2013). South Africa's National Development Plan and New Growth Path: Reflections on policy contradictions and implications for food security. *Agrekon*, 52(3):1-17.

Hendriks, S.L. & Msaki, M.M. 2014. *The impact of smallholder commercialization of organic crops on food consumption patterns, dietary diversity and consumption elasticities*. *Agrekon,* 48 (2): 184-199.

Hendriks, S.L. 2005. The challenges facing empirical estimation of household food (in) security in South Africa.

HLPE, 2012. *Investing in smallholder agriculture for food and nutrition security*. V0 DRAFT. A zero-draft consultation paper.

Hoddinott, J. 1999. *Choosing outcome indicators of household food security*. Washington, DC: International Food Policy Research Institute

Hornidge, A. Shtaltovna, A., & Schetter, C. 2016. *Knowledge and Knowledge Systems in Post-Soviet Societies.* International Academic Publishers, Bern 2016

IFAD and UNEP. 2013. Smallholders, food security and the environment. Rome. Available at: http://scholar.google.com/scholar?hl=en&btnG=Search&q=intitle:Smallholders,+food+ security,+and+the+environment#0.

Jacobs, P. T. 2009. The status of household food security targets in South Africa*. Agrekon*, 48(4), 410-433.

Jacobs, P.T 2009. *The status of household food security targets in South Africa*. *Agrekon,* 48(4): 410-433

Jennex, M. E. & Assefa, T. 2018. *Agricultural Knowledge Management System*. Development for Knowledge Integration Agricultural Knowledge Management System Development for Knowledge Integration.

Kabeer, N. 2018. *Gender Mainstreaming in Poverty Eradication and the Millennium Development Goals: A Handbook for Policy-Makers and Other Stakeholders*, London: Commonwealth Secretariat.

Keen, D. 2008. *Complex Emergencies*. Cambridge: Polity Press.

Khandker, S. R. & Samad, H. A. 2018. *Bangladesh's Structural Transformation: The Role of Infrastructure. In Economic and Social Development of Bangladesh*. 1st ed. [ebook] Palgrave Macmillan: Cham.

Kidane, H., Alemu, Z.G., & Kundhlande, G. 2005. Causes of household food insecurity in Koredegaga peasant association, Oromiya zone, Ethiopia. *Agrekon*, 44(4):543-560.

Kigatiira, K. K., Mberia, H. K. & Ngula, K. 2018. The Effect of Communication Channels used between Extension Officers and Farmers on the Adoption of Irish Potato Farming, *International Journal of Academic Research in Business and Social Sciences*, 8(4): 377– 391.

Koch, J. (2018). *The food security policy context in South Africa*. Country Study. International Policy Centre for Inclusive Growth, United Nations Development Programme.

Koch, J. 2011). *The food security policy context in South Africa.* Brazil: United Nations Development Programme. Available from: http://www.nda.org.za/home/43/files/Research%20Reports/2.FOOD_SECURITY.pdf

Koch, J. 2011. The food security policy context in South Africa: Country study number 21. Brazil: International Policy Centre for Inclusive Growth and United Nations Development Programme.

Kongolo M. & Dlamini D. K., 2021. Small-scale Livestock Farming in Developing Areas of Swaziland & South Africa. *International Journal of Science and Technology Bahir Da*, 1(3), 100-111.

Kuwornu, J. K. M., Mensah-Bonsu, A. & Ibrahim, H. 2021. Analysis of foodstuff price volatility in Ghana: implications for food security. *European Journal of Business and Management*, 3 (4): 100-118.

Lal, R. 2006. Enhancing crop yields in the developing countries through restoration of the soil organic carbon pool in agricultural lands. *Land Degradation & Development,* 17 (4): 54-69.

Landesa (2014). *Smallholder Farming and Achieving Our Development Goals.* http://www.landesa.org/wp-content/uploads/Issue-Brief-Smallholder-Farming-andAchieving-Our-Development-Goals.pdf

LDA. 2019. *A study on the agricultural industry in the Limpopo province*.

LEGDP (2018). *Limpopo Employment Growth and Development Plan (LEGDP) 2009-2014 DOCUMENT (*3), 2018–2020.

Lepheane, T.J. 2007. Land redistribution and its impact on AgriBEE: A case study of Calcom PTY, Barberton, Mpumalanga, South Africa. Retrieved from http://wiredspace.wits.ac.za/handle/10539/2142

Leroy, J. L., Ruel, L., Frongillo, E. A., Harris, J., & Ballard, T. J. 2015. Measuring the food access dimension of food security: A critical review and mapping of indicators. *Food Nutrition*, 36(2), 167-195.

Lowder, S. K., Skoet, J., & Raney, T. 2016. The Number, Size, and Distribution of Farms, Smallholder Farms, and Family Farms Worldwide, *World Development*, 87(3): 16–29.

Machete, C.L. 2004). Agriculture and poverty in South Africa: Can agriculture reduce poverty? Paper presented at the Overcoming Underdevelopment Conference held in Pretoria, 28-29 October 2004.

Machete, M. 2020. The Contribution of Subsistence Farming to Rural Household Food Systems: A Case Study of Mamokgadi Village. Master's thesis. University of Venda. South Africa.

Machethe, C.L. 2004. *Agriculture and poverty in South Africa: Can Agriculture reduce poverty? Paper presented at the "Overcoming Underdevelopment Conference*", Pretoria.

Magingxa, L.L., Alemu, Z.G. & Van Schalkwyk, H.D. 2009. *Factors influencing access to produce markets for smallholder irrigators in South Africa*. Development Southern Africa, 26(1): 47-58.

Makhura, M.T. 2018. Overcoming transaction costs barriers to market participation of smallholder farmers in the Northern Province of South Africa. Doctoral dissertation, University of Pretoria, South Africa.

Mannaf, M. &Taj Uddin, M. 2012. Socioeconomic Factors Influencing Food Security Status of Maize Growing Household in Selected Areas of Bogra District. *Bangladesh Journal of Agricultural Economics,* 1(2): 177-187.

Manona, S.S. (2005). Smallholder subsistence agriculture as local economic development strategy in rural South Africa: exploring prospects in Pondoland, Eastern Cape. Master's Thesis. Faculty of Economic and Management Sciences, University of Western Cape.

Matshe, I. 2009. Boosting smallholder production for food security: some approaches and evidence from studies in sub-Saharan Africa. *Agrekon*, 48(4), 483-511.

Maxwell, D. 2017. Measuring food insecurity: the frequency and severity of 'coping strategies', *Food Policy*, 21 (3), 291-303.

Maxwell, D., Coates, J. & Vaitla B. 2013. *How Do Different Indicators of Household Food Security Compare? Empirical Evidence from Tigray.* Medford: Feinstein International Centre, Tufts University. USA.

Maxwell, S. & Smith, R. 1992. Food Security: a postmodern perspective, *Food Policy*, 21 (2): 155-170.

Mazenda, D.A. & Ngarava, S. 2022. *What's driving hunger in Gauteng, South Africa's economic power house*.

McDonald, B. 2010. *Food Security*. Cambridge: Polity Press.

Mcgranahan, G. & Satterthwaite, D. (2014). *Urbanisation concepts and trends*. IIED Working Paper.

McKeon, N. 2009. *The United Nations and Civil Society*. London and New York: Zed Books.

McMichael, P. and Schneider, M. 2011. Food security politics and the Millennium Development Goals. *Third world quarterly*, 32(1): 119–139.

Mhazo N., Manyatsi A.M., Masarirambi M.T., & Mhazo M.L., 2021. Conservation Agriculture in an integrated crop and livestock farming system: Challenges and opportunities in Swaziland. Swazila. nd *Journal of Sustainable Development*, 1 (1): 69- 89.

Mishra, J. 2003. *Something New Under the Sun: An Environmental History of the Twentieth Century World*, New York: W.W. Norton.

Mosha, D. B., Vedeld, P., Katani, J. Z., Kajembe, G. C., & Tarimo, A. K. 2018. Contribution of Paddy Production to Household Income in Farmer-Managed Irrigation Scheme Communities in Iringa Rural and Kilombero Districts, Tanzania. *Journal of Agricultural Studies*, 6(2): 100-122.

Mpandeli, S., Nhamo, L., Moeletsi, M., Masupha, T., Magidi, J., Tshikolomo, K., Liphadzi, S., Naidoo, D., & Mabhaudhi, T. 2019. *Assessing climate change and adaptive capacity at local scale using observed and remotely sensed data*. Weather Climate Extreme.

Muche, M., Endalew, B., & Koricho, T. 2014. Determinants of Household Food Security among Southwest Ethiopia Rural Household. *Food Science and Technology*, 2(7): 93-100.

Mukumbi, K. (2008). South Africa's agriculture broad based black economic empowerment policy: implications from a domestic content model. Master's Thesis. Department of Agricultural, Food and Resource Economics, Michigan State University.

Mulvany, P. 1997. Beyond the World Food Summit. *Development in Practice*, 7(3), 308-311.

Musemwa, L. & Ndhleve, S. Zhou, L. 2012. Household food security in a coastal rural community of South Africa: Status, causes and coping strategies. *Journal of Agricultural Biotechnology and Sustainable Development,* 4(5): 68-74.

Musemwa, L., Muchenje, V., Mushunje, A., Aghdasi, F., & Zhou, L., 2015. Household Food Insecurity in The Poorest Province of South Africa: Level, Causes and Coping Strategies. F*ood Security,* 7 (8): 647-655.

Mutero, J., Munapo, E., Seaketso, P. 2016. *Operational challenges faced by smallholder farmers: A case of Ethekwini Metropolitan in South Africa*. Business Perspectives. Available from: https://Businessperspectives.Org/Images/Pdf/Applications/Publishing/Templates/Article/Assets/7383/Ee_2016_02_Mutero.Pdf

Mutisya, M., Ngware, M.W., & Kabiru, C.W. 2016. The effect of education on household food security in two informal urban settlements in Kenya: a longitudinal analysis. *Food Security.* 8, 743–756.

Myeni, L., Moeletsi, M., Thavhana, M., Randela, M., & Mokoena, L. 2019. *Barriers affecting sustainable agricultural productivity of smallholder farmers in the eastern Free State of South Africa*. Sustainability.

NAMC. 2015. *Food cost review*. Pretoria: National Agricultural Marketing Council (NAMC).

National Department of Agriculture (NDA). 2019. *Directorate Economic Analysis, National Department of Agriculture.* Resource Centre, Directorate Agricultural Information Services, Pretoria. Available online at: www.nda.agric.za/docs/html

NCTAD. 2015. The *role of smallholder farmers in sustainable commodities production and trade.* Geneva.

Ndobo, F P. 2013. Determining the food security status of households in a South African township (Doctoral dissertation, North-west University)

Niehof, A. & Price, L.L. 2018. *Rural livelihood systems: a conceptual framework. Wageningen-UPWARD Series on Rural Livelihoods no. 1. WU-UPWARD*, Wageningen, The Netherlands.

Nkonya, E., Mirzabaev, A. & Von Braun, J. eds. 2021. *Economics of land degradation and improvement: a global assessment for sustainable development.* Springer International Publishing, Cham, Switzerland https://doi.org/10.1007/978-3-319-19168-3

Nkonya, E., Mirzabaev, A. & Von Braun, J. eds. 2021. Economics of land degradation and improvement: a global assessment for sustainable development. Springer International Publishing, Cham, Switzerland https://doi.org/10.1007/978-3-319-19168-3

Nmadu, J., Aiyelitsoya, N., A, F., & Sallawu, H. 2013. Use of ICT in securing marketing information among small scale farmers in Niger State, Nigeria. *International Journal of Trade, Economics and Finance,* 4(2): 66–72.

Nussbaum, M. 2011. *Creating Capabilities.* Cambridge, USA: Harvard University Press.

Odini, S. 2014). Access to and use of agricultural information by small scale women farmers in support of efforts to attain food security in Vihiga County, Kenya. *Journal of Emerging Trends in Economics and Management Sciences,* 5 (2): 80–86.

Oesi, M., Aidoo, J.R., & Tuffor T. 2013. Determinants of household food security in Sekyere-Afram Plains district of Ghana. *Global Advanced Research Journal of Agricultural Science*, 2(1): 034-040.

Olayemi, A.O, 2019. Effects of family size on household food security in Osun State Nigeria. *Asian Journal of Agriculture and Rural Development*, 2(2): 136-141.

Oldewage-Theron, W.H., Dicks, E.G., & Napier, C.E. 2006. Poverty, Household Food Insecurity and Nutrition: Coping Strategies in an Informal Settlement in the Vaal Triangle, South Africa. *Public Health*, 120, (4), 795-804.

Oluwatayo, I.B. 2019. Towards Assuring Household Food Security in Nigeria: Have Cooperatives got any place? *International Journal of Agricultural Economics and Rural Development,* 2(1): 52-59.

Olwande, J. & Mathenge, M. 2012. Market Participation among Poor Rural Households in Kenya. The International Association of Agricultural Economists (IAAE) Triennial Conference, Foz do Iguacu.

Oni, S.A, Maliwichi, L.L., & Obadire, O. S. 2011. Assessing the contribution of smallholder irrigation to household food security, in comparison to dry-land

farming in Vhembe District of Limpopo Province, *South Africa. African Journal of Agriculture,* 6 (8): 2188–2197.

Oni, S.A., Malichi, L.L., & Obadire, O.S. 2013. Socio economic factors affecting Smallholder agriculture Smallholder agriculture and household food security: A case of Thulamela local municipality in Vhembe District of Limpopo Province. South Africa. *African Journal of Agriculture and food Security*, 1 (5): 2289-2296.

Onwualu, A. P. 2012. Agricultural Sector and National Development: Focus on Value chain Approach.

Ortmann, G.F. & King, R.P. 2007. Agricultural cooperatives II: Can they facilitate access of small-scale farmers in South Africa to input and product markets? *Agrekon*, 4 (2): 219-244.

Patel, K. Gartaula, H. Johnson, D., & Karthikeyan, M. 2015. 'The interplay between household food security and well-being among small-scale farmers in the context of rapid agrarian change in India', *Agriculture and Food Security*, 4 (16): 1-16.

Pearce, D. 1986. *Sustainable development*. Aldeshort: Edward Elgar.

Pienaar, L, & von Fintel, D. 2014. Hunger in the former apartheid homelands: determinants ofconvergence one century after the 1913 land act. *Agrekon, 53* (4): 38-67

Pinstrup-Andersen, P. (2019). Food security: definition and measurement, *Food Security*, 1(1): 5–7.

Porter, B. 2018). *Trading into hunger? Trading out of hunger? International food trade and the debate on food security' in Rosin C, Stock P and Campbell H eds, Food Systems Failure*. London and New York: Earthscan.

Pritchard, B. Rammohan, A. Madhushree, S. Parasuraman, S., &Choithani, C. 2014. *Feeding India: Livelihoods, Entitlements and Capabilities.* London and New York: Earthscan

Rose, D. & Charlton, K. E. 2001. Prevalence of household food poverty in South Africa: Results from a large, nationally representative survey. *Public Health Nutrition*, 5(3): 383-389.

Rose, D.D. 2008. *Interventions to reduce household food insecurity: a synthesis of current concepts and approaches for Latin America*. New Orleans: Tulane University.

Rosegrant, M. W., & Cline, S. A. (2003). Global Food Security: Challenges and Policies, *Science*, 302(5652): 1917–1919.

Rossi, B. 2004. Revisiting Foucauldian Approaches: Power Dynamics in Development Projects', *Journal of Development Studies*, 40 (6): 1-29.

Salami, A., Kamara, A. B., & Brixiova, Z. (2010). *Smallholder Agriculture in East Africa: Trends, Constraints and Opportunities.* Working Paper No.105 African Development Bank, (April).

Salami, A., Kamara, A. B., & Brixiova, Z. 2010. *Smallholder Agriculture in East Africa: Trends, Constraints and Opportunities.* Working Paper No.105 African Development Bank, (April), p. 52.

Sen, A. 1981. *Poverty and famine: An essay on entitlement and deprivation*. Oxford: Clarendon.

Sharma, R. 2011. Food sovereignty, *Hunger and Global Trade Rules. African Technology Development Journal*, 8 (12): 10-17.

Shaw, D.J. 2007. *World Food Security: A History since 1945*. New York: Palgrave Macmillan

Shaw, D.J. 2007. World Food Security: A History since 1945. New York: Palgrave Macmillan.

Sheahan, M. & Barrett, C. B. 2017. Ten striking facts about agricultural input use in SubSaharan Africa, Food Policy. *The Authors*, 6 (7): 12–25.

Siddik, M. N. A., Kabiraj, S., Shanmugan, J., & Kahota, S. 2015. Assessing Smallholder Farming and Poverty in Post-Conflict-Sierra Leone', *Journal of Finance and Bank Management*, 3(1): 156–166.

Sidibe, A., Olabisi, L.S., Doumbia, H., Touré, K. & Niamba, C.A. 2021. Barriers and enablers of the use of digital technologies for sustainable agricultural development and food security: Learning from cases in Mali. *Elementa: Science of the Anthropocene*, 4 (9): 76-87.

Sidibe, A., Olabisi, L.S., Doumbia, H., Touré, K. & Niamba, C.A. 2021. Barriers and enablers of the use of digital technologies for sustainable agricultural development and food security: Learning from cases in Mali. *Elementa: Science of the Anthropocene*, 9: 1.

Sikwela, M.M. 2013. The Impact of Farmer Support Programmes on Market Access of Smallholder Farmers in the Eastern Cape and Kwazulu-Natal Provinces, South Africa (Doctoral dissertation, University of Fort Hare).

Sikwela, M.M., Mushunje, A. 2013. The impact of farmer support programmes on household income and sustainability in smallholder production: A case study of the Eastern Cape and KwaZulu- Natal farmers, South Africa. *Academic journal*, 8(21), 2502-2511.

Simon. G.A. March 2012. *Food Security: Definitions, Four-dimension, History*. Rome:

Siulemba, G.K. 2017. An investigation into sustainable agricultural practices in the Chankumba agricultural community in Chibombo district central Zambia. Masters Dissertation, University of KwaZulu-Natal, South Africa.

Smedlund, A. 2010. The knowledge system of a firm: Social capital for explicit, tacit and potential knowledge', *Journal of Knowledge Management*, 12(1), 63–77.

Smith M, Pointing J., & Maxwell, S. 1992. *Household food security, concepts and definitions: An annotated bibliography, Development Bibliography No. 8*. Institute of Development Studies, University of Sussex: Brighton.

Sõukand, R., Stryamets, N., Fontefrancesco, M.F. & Pieroni, A. 2020. The importance of tolerating interstices: Babushka markets in Ukraine and Eastern Europe and their role in maintaining local food knowledge and diversity. *Heliyon*,6(1): e03222.
Sõukand, R., Stryamets, N., Fontefrancesco, M.F. & Pieroni, A. 2020. The importance of tolerating interstices: Babushka markets in Ukraine and Eastern Europe and their role in maintaining local food knowledge and diversity. *Heliyon*,6(1): e03222.
Statista. 2022. *South Africa: employment agricultural sectors*. [online] Available at: https://www.statista.com/statistics/1134712/employment-in-agriculture-hunting-forestry-and-fishing-in-south-africa/.

Statistics South Africa (2020). *Measuring poverty in South Africa*. Pretoria: Stats SA.

Statistics South Africa. 2018. *GHS Series, Volume IV, Food Security and Agriculture*, 2002-2011. Pretoria: South Africa.

Statistics South Africa. 2020. *General Household Survey* 2021. Stats SA

Statistics South Africa. 2021. General household survey. Pretoria: South Africa.

Statistics South Africa. 2021. *Quarterly Labour Force Survey, Quarter 3, 2021*. Pretoria: South Africa.

Stats SA (Statistics South Africa). 2020. *Consumer Price Index: Statistical Release P0141.* Pretoria: Statistics South Africa.

Stats SA (Statistics South Africa). 2021. *Food Security and Agriculture 2002– 2011: I n-Depth Analysis of the General Household Survey Data. GHS Series Volume iv). Report No.0318-03 (2002–2011)*. Pretoria: Statistics South Africa

Stats SA (Statistics South Africa). 2022. National Poverty Lines. Pretoria: Statistics South Africa

Stats SA 2021. *GHS Series Volume IV: Food security and agriculture 20002-2011*. In depth analysis of the General Household Survey Data Report no. 03-18-03 (2002-2011). Pretoria: Stats SA.

Swaminathan, M.S, Maryam, R, Bertini, C, Berhan T, Egziabher G, Haddad, L., Kumar MS, Hendriks, S.L, de Janvry, Maluf R, Aly, M.M, del Castillo CP, Rabbinge, R, Tang, H, Tikhonovich I., & Wongchinda, N. 2018. *Investing in smallholder agriculture for food security*. The High-Level Panel of Experts on Food Security.

Tefera, T. & Tefera, F. (2014). Determinants of Households Food Security and Coping Strategies for Food Shortfall in Mareko District, Guraghe Zone, Southern Ethiopia. *Journal of Food Security,* 2(3): 92-99.

Teilmann, K. 2012. Measuring social capital accumulation in rural development, *Journal of Rural Studies. Elsevier Ltd*, 28(4): 458–465

Tembwe, G. 2020. Diet diversity coping strategies and food access of unemployed young single mother with children under 9 years of age in Botswana. Masters dissertation, University of South Africa, South Africa.

Thamaga-Chitja, H. & Morojele, G. 2014. The context of smallholder farming in South Africa: Towards a livelihood asset building framework. *Journal of Human Ecology*, 45 (2), 147-155.

The Economist Intelligence Unit. 2014. *Nutrition Global food security index 2014. An annual measure of the state of global food security* (Accessed 25 April 2015).

The World Bank.2023. *What is Food Security? There are Four Dimensions*. [online] World Bank. Available at: https://www.worldbank.org/en/topic/agriculture/brief/food-security-update/what-is-food-security#:~:text=Based%20on%20the%201996%20World.

Tomlinson, I. (2019). Doubling food production to feed the 9 billion: A critical perspective on a key discourse of food security in the UK, *Journal of Rural Studies. Elsevier Ltd*, 2 (9): 81–90.

Tregurtha, K. & Vink, H. (2008). Review of agricultural policies and support instruments 1994-2007. Presidency Fifteen Year Review Project.

Tscharntke, T., Clough, Y., Wanger, T. C., Jackson, L., Motzke, I., Perfecto, I., Vandermeer, J., & Whitbread, A. (2012). Global food security, biodiversity conservation and the future of agricultural intensification, Biological Conservation. *Elsevier Ltd*, 151(1): 53–59.

Tscharntke, T., Clough, Y., Wanger, T. C., Jackson, L., Motzke, I., Perfecto, I., Vandermeer, J., & Whitbread, A. 2012. Global food security, biodiversity conservation and the future of agricultural intensification, Biological Conservation. Elsevier Ltd, 151(1): 53–59.

Umar, B. B. 2013. A critical review and re-assessment of theories of smallholder decision-making: a case of conservation agriculture households, Zambia, *Renewable Agriculture and Food Systems*, 29(3): 277–290.

UN. n.d. *Opening Remarks at High Level Special Event on Food Security Time to Act Together: Coordinating Policy Responses to The Global Food Security Crisis | General Assembly of the United Nations*.

UNCTAD. 2015. *The role of smallholder farmers in sustainable commodities production and trade* [Online], Available at www.unctad.org. (Accessed 27 March 2017).

UNDESA. (2015). World Urbanization Prospects: The 2015 Revision, Highlights (ST/ESA/SER.A/352), New York, United.

United Nations. 2014. *The Millennium Development Goals Report 2014*. New York: United Nations

United Nations. 2019. *Country Analysis Report: Lao People's Democratic Republic*. Vientiane: United Nations.

United Nations. n.d. *World Economic Survey*. New York: United Nations.

University of Roma Tre Faculty of Economics Master in Human Development and Food Security.

Van der Merwe, C. 2011. *Key challenges for ensuring food security in South Africa's inner citie*s. Pretoria, South Africa: Africa Institute of South Africa.

Verschelde, M., D'Haese, M., Rayp, G., & Vandamme, E. 2013. Challenging small-scale farming: A non-parametric analysis of the (inverse) relationship between farm productivity and farm size in Burundi, *Journal of Agricultural Economics*, 64(2): 319–342.

Vink, N. 2012. Food security and African agriculture. *South African Journal of International Affairs*, 7 (6):157-177.

Vivero, Pol. J.L. 2013. Food as a common: Reframing the narrative of the food system'. [online] Available: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2255447 [28 August 2015]

Wagenaar, H. & Noam Cook, S.D. 2003. *Understanding policy practices: action, dialectic and deliberation in policy analysis*' in Hajer M and Wagenaar H eds, Deliberative Policy Analysis, Cambridge: Cambridge University Press. 139-171.

Wakefield, D. 2013. *The Challenge of Hunger: Global Hunger Index, Determinants, and Trends.* Bonn: International Food Policy Research Institute (IFPRI).

WCED. 1987. *Our Common Future. World Commission on Environment and Development.* Oxford University Press, Oxford.

WFP. (2018). *What Causes Hunger?* Retrieved January 2, 2019, from WFP.org: https://www.wfp.org/stories/what-causes-hunger

Wiggins, S. & Keats, S. 2013. *Smallholder Agriculture's Contribution to Better Nutrition*.

Wiggins, S. & Sharda, K. 2013. Looking back, peering forward: what has been learned from the food-price spike of 2007–2008?

Wiggins, S. 2019. Can the Smallholder Model Deliver Poverty Reduction and Food Security for A Rapidly Growing Population in Africa? Expert Meeting on How to feed the World in 2050.

Windfuhr, M. & Jonsen, J. 2005. *Food Sovereignty: Towards Democracy in Localized Food Systems*. Bourton on Dunsmore, UK: ITDG.

Woller. P. 2011. *The Dynamics of Food, Nutrition and Poverty in SE Asia. Boston*: Tufts University Food Policy and Applied Nutrition Program. Discussion Paper No. 9.

World Bank, 2013. *Unlocking Africa's Agricultural Potential*. Washington, DC, USA. https://openknowledge.worldbank.org/handle/10986/16624.

World Bank, 2013. Unlocking Africa's Agricultural Potential. Washington, DC, USA. https://openknowledge.worldbank.org/handle/10986/16624.

World Bank. 2016. *Working for a world free of poverty*. Washington DC: World Bank.

World Food Programme. 2013. *Food and Nutrition Security Atlas of Lao PDR*. Bangkok: WFP

World Health Organisation. 2019. *Drivers of Poverty Reduction in Lao PDR*. World Bank: Vientiane

Wyasokinska, Z. 2017. Millennium Development Goals/ UN and Sustainable Development Goals/ UN as Instruments for Realising Sustainable Development Concept in the Global Economy. *Comparative Economic Research*, 20(1), 101-118.

Yegammia, N.N. 2002. Prevalence of food insecurity among households with children in Coimbotore, India. *Nutrition Research*, 22(2002): 1009-1016.

APPENDIX A: INTERVIEW SCHEDULE WITH SMALLHOLDER FARMERS

Dear Participants,

Thank you for taking part in this research. Kindly note that all responses in this paper are held confidentially and any information gathered is solely for academic purposes. Your frank responses to each question in this interview will help to gain a better grasp of the contributions of smallholder farmers toward household food security in Chabelane Village. The interview will only take 15 minutes.

Section A: Household demographic details

1. What is your age category?

2. What is your gender?

3. What is the gender of the household head?

4. What is your household size?

5. What is the household head's employment status?

6. What is the source of income for the household head?

Section B: Smallholder agriculture characteristics

7. What type of agricultural activities are you practicing? (Probe what type if is a crop or a livestock farming)

8. What is the purpose of practicing agricultural in the household?

9. Where does your crop growing operations take place? (Probe, how many hectors/meters square of land does you use for production?

Section C: Food security prevalence status

10. How much do you spend on the food that you purchase for the household?

11. The food you consume at your household are they from your farm, other smallholder farmers or market?

12. How many times do you eat in a day?

13. In the past 7 days what are type of food did you eat in the morning, during lunch time and during dinner time?

Section D: The contribution of household towards household food security

14. Who do you work with in your farm?

15. Recently the harvest you had from your farm were they too much, not enough, and too little for the household?

16. If you sell your products, where do you sell them?

17. How much do you get from the sold products?

18. What do you do with the money generated from the farm?

Section E: Perception of major challenges

19. At the moment, what are the main problems you are facing as a smallholder farmer?

Thank you

APPENDIX B: INFORMED CONSENT FORM

Dear Participant,

You are hereby invited to take part in a study that is conducted as a part of a Ph.D. in Development Studies programme by Ramatshekgisa Malebo Gratitude, a student in the Department of Anthropology, Archaeology and Development Studies at the University of Pretoria. The study will assist the researcher in understanding the contributions of smallholder farmers toward household food security in Chabelane village. Please take time to read through this letter as it gives information on the study and your rights as a participant.

Title of the study

The contributions of smallholder farmers toward household food security in Chabelane village, in Limpopo Province, South Africa.

What will happen in the study?

The study will involve interviews with you on information and views of the aspect this study is interested in. The interviews will be semi-structured face to face interviews. The interview will take about 25 minutes with each participant. Interviews will take place at your residence or any place that is convenient for you and at a time that is convenient to you. And with your permission, your interview may be recorded, and you will also be involved in ensuring that the essence of your input captured during the interviews is correctly recorded.

Risk and discomfort

There are no foreseeable risks or discomforts if you agree to participate in the study. There will be no harm to you or your household. If you chose not to participate in the study or experience some level of discomfort after joining the study and you would like to withdraw, please feel free to let me know, there will be no penalties. You can also be assured that your decision will be respected if you don't feel comfortable answering some of the questions.

Are there any benefits for joining the study?

Your participation in this study is voluntary. There will be no gifts or money given to the participants. Your contribution will assist in our understanding of the contribution of smallholder farmers toward household food security in Chabelane village. And you may benefit the policy makers and relevant stakeholders indirectly through the findings of this study.

Confidentiality

The results of the study will be published in the form of a dissertation or scientific paper or presented at both international and local forums like workshops, but you will remain anonymous. There will be no link to any person. The data will be shared only with my supervisors Dr Naidoo of the University of Pretoria. The data will be stored in a password protected computer during field work, and in the Department of Anthropology and Archaeology, for a period of 15 years for archiving purposes. If the data is used during this period, it will only be for study purposes. The voice recordings of the interviews will not be broadcasted on television, social media, or radio, but will be used to make findings of the study.

Any questions?

If you have any questions or you would want me to explain anything further, you are free to call me my supervisor Dr Dhee Naidoo on yd.naidoo@up.ac.za or me on u22626400@tuks.co.za

CONSENT DECLARATION

I _____ (Participants Name), give my consent to participate in the above-mentioned research (The contributions of smallholder farmers toward household food security in Chabelane village, in Limpopo Province, South Africa). I understand that the interviews will be audio-taped, and the pictures will be taken. I also give consent to Ms Ramatshekgisa M.G to audio record my interview and to take pictures of me, my employees, farm and resources.

Participant's signature _____

Date _____

Researcher's signature _____

Date _____

APPENDIX C: ETHICAL LETTER

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Humanities
Fakulteit Geesteswetenskappe
Lefapha la Bomotho

Humanities 100
Since 1919

26 August 2022

Dear Ms MG Ramatshekgisa

Project Title:	The contributions of smallholder farmers toward household food security in Chabelane Village, in Limpopo Province, South Africa
Researcher:	Ms MG Ramatshekgisa
Supervisor(s):	Dr YD Naidoo
Department:	Anthropology, Archaeology and Development Studies
Reference number:	22626400 (HUM008/0722)
Degree:	Doctoral

I have pleasure in informing you that the above application was **approved** by the Research Ethics Committee on 25 August 2022. Please note that before research can commence all other approvals must have been received.

Please note that this approval is based on the assumption that the research will be carried out along the lines laid out in the proposal. Should the actual research depart significantly from the proposed research, it will be necessary to apply for a new research approval and ethical clearance.

We wish you success with the project.

Sincerely,

Prof Karen Harris
Chair: Research Ethics Committee
Faculty of Humanities
UNIVERSITY OF PRETORIA
e-mail: tracey.andrew@up.ac.za

Room 7-27, Humanities Building, University of Pretoria, Private Bag X20, Hatfield 0028, South Africa
Tel +27 (0)12 420 4853 | Fax +27 (0)12 420 4501 | Email pghumanities@up.ac.za | www.up.ac.za/faculty-of-humanities

APPENDIX D: PERMISSION LETTER

GREATER LETABA MUNICIPALITY
P.O Box 36, Modjadjiskloof, 0835, Tel (015) 309 9246/7/8,
Fax (015) 309 9419, Email:greaterletaba@glm.gov.za

Enquiry: Molefe M.L

21 June 2022

Ramatshekgisa Malebo Gratitude (Student no: u22626400)
University of Pretoria
School of Humanities
Department of development studies

Dear Ms Ramatshekgisa M.G

RE: ACCEPTANCE TO CONDUCT THE STUDY: CONTRIBUTIONS OF SMALLHOLDER FARMERS TOWARD HOUSEHOLD FOOD SECURITY IN CHABELANE VILLAGE.

1. The above matter refers.
2. It is with great pleasure to inform you that Greater Letaba Municipality has approved your request to conduct your research study at the institution.
3. You are requested to ensure that participants partaking in the research are protected and the information collected is treated with confidentiality.
4. You are requested to ensure that during the process of collecting data you do not interfere with normal operations of the institution.
5. Trusting that you will find the research rewarding.

With regards

MUNICIPAL MANAGER
MANKGABE M.F

"To be the leading municipality in the delivery of quality services for the promotion of socio-economic development"