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AN ANALYSIS OF THE EFFECTIVENESS OF AGRICULTURAL INTERVENTIONS IN
BOOSTING FOOD SECURITY IN SOKHULUMI VILLAGE, CITY OF TSHWANE
METROPOLITAN MUNICIPALITY

by

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DECLARATION

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DEDICATION

This dissertation is dedicated to my beloved children, who always understood when I could not spend much time with them due to this work. May this good work inspire them to achieve greater things in life through education.

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The journey has been long, tedious and at times dark and lonely. But through the grace of the Almighty who assured me that “I do all things through Christ which strengthen me”, I finally reached the finish line. I would like to extend my sincere gratitude to the following people for assisting me.

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ABSTRACT

Although South Africa is considered food secure due to adequate aggregate food production, significant household-level food insecurity persists, largely rooted in historical inequalities. Agriculture remains central to socio-economic development, poverty reduction, employment creation, and the realisation of the constitutional right to food. Therefore, agricultural interventions are introduced to address unemployment, sluggish economy, and inequality, although their effectiveness varies across local contexts. Using a qualitative phenomenological research design, this study analyses the effectiveness of agricultural interventions in enhancing food security in Sokhulumu village within the city of Tshwane Metropolitan Municipality. Data were collected through face-to-face semi-structured interviews with a purposive sample of 20 smallholder farmers to explore their lived experiences. Findings indicate limited intervention effectiveness, prompting farmers to adopt alternative strategies such as farm diversification. Inadequate resource allocation and mismanagement exacerbate food insecurity, particularly among smallholder farmers in remote and economically marginalised areas. The study recommends the following: urgent attention for the transformation of the traditional agriculture sector into a productive source of economic growth, development of agricultural intervention programmes by the government and stakeholders that focus strictly on rural farmers so that they may eventually graduate into commercial farmers, and an urgent need for community development to be integrated with agricultural development so that there is availability of water infrastructure, access to roads, telecommunications, and digital infrastructure to improve the livelihoods of rural communities. If rural development is not expedited and integrated with agricultural development, challenges of food insecurity cannot be properly addressed even if certain agricultural interventions are in place.

Keywords: Food security; agricultural interventions; smallholder farmers; socio-economic conditions; agricultural development; Sokhulumu village; City of Tshwane Metropolitan Municipality (CTMM).

MAWAŊWA

Naho Afrika Tshipembe li tshi dzhiwa sa lo tsireledzeaho kha zwiliwa nga nwanbo wa u bveledzwa ha zwiliwa zwo tanganelaho zwo edanaho, u sa tsireledzea ha zwiliwa ha ndeme kha vhuimo ha mita hu kha di vha hone, vhunzhi hazwo zwo disendeka kha u sa edana ha divhazwakale. Vhulimi vhu kha di vha ha ndeme kha mveledziso ya ikonomi ya matshilisano, u fhungudza vhushai, u sika mishumo na u bveledza pfanelo ya ndayotewa ya zwiliwa. Ngauralo, vhudzheneleli ha vhulimi ho divhadzwa u itela u tandulula vhushai ha mishumo, ikonomi i sa khou shumaho zwavhuḏi na u sa edana, naho u shuma hazwo zwo fhambana u ya nga zwiimo zwapo. U shumisa ndila ya thodisiso ya phenomenolodzhi(ngona ya khwalithithathivi na ngona ya filosofi) ya vhuimo, ngudo iyi yo sengulusa mvelelo dza vhudzheneleli ha vhulimi kha u khwinisa tsireledzo ya zwiliwa muḏini wa Sokhulumi nga ngomu ha Masipala wa Dorobo ya Tshwane. Datha yo kuvhanganywa nga kha inthavhiyu dza tshifhatuwo na tshifhatuwo dzo dzudzanywaho nga tshipiḏa na sampuli ya ndivho ya vhalimi vhatuku vha 20 u itela u tola tshenzhemo dzavho dza vhutshilo. Mawaŋwa o sumbedza u sa shuma zwavhuḏi ha vhudzheneleli, zwine zwa ita uri vhalimi vha dzhie zwiŋwe zwiṭirathedzhi zwi ngaho u fhambanya bulasi. U sa kovhelwa ha zwishumiswa zwo teaho na u sa langa zwavhuḏi zwi naṅisa u sa tsireledzea ha zwiliwa, nga maanda kha vhalimi vhatuku vha re fhethu hu re kule na hune ha vha na vhushayanungo ha ikonomi. Ngudo i themendela zwi tevhelaho: thogomelo yo tsvhanyiswaho ya tshanduko ya sekithara ya vhulimi ha mvelele uri i vhe tshisima tshi bveledzaho tsha nyaluwo ya ikonomi, mveledziso ya mbekanyamushumo dza vhudzheneleli ha vhulimi nga muvhuso na vhakwamei dzine dza sedza nga maanda kha vhalimi vha vhupo ha mahayani u itela uri vha kone u fhedza vho thaphudza vha vha vhalimi vha zwa vhubindudzi, na thoḏea yo tsvhanyiswaho ya mveledziso ya vhulimi yo tanganelaho uri hu vhe na ya themamveledziso ya maḏi, tswikelelo ya dzibada, vhudavhidzani ha thelevishini na themamveledziso ya didzhithala u khwinisa matshilo a zwitshavha zwa vhupo ha mahayani. Arali mveledziso ya vhupo ha mahayani i sa tsvhanyiswa na u tanganyiswa na mveledziso ya vhulimi, khaedu dza u sa tsireledzea ha zwiliwa a dzi nga do tandululwa zwavhuḏi naho hu na vhudzheneleli ho khetheaho ha vhulimi.

Maipfi a ndeme: Tsireledzo ya zwiliwa, vhudzheneleli ha vhulimi, vhalimi vhatuku, nyimele dza matshilisano na ikonomi, mveledziso ya vhulimi, muḏi wa Sokhulumi, Masipala wa Dorobo ya Tshwane (CTMM).

KAKARETŠO

Le ge e le gore Afrika Borwa e tšewa e le ye e nago le dijo tše di lekanego go ya go tšweletšo ya kakaretšo ya dijo ye e lekanego, tlhalelo ya dijo ye kgolo ya maemo a malapa e tšwelapele, yeo gagolo e tseneletšego kudu mo go tlhokego ya tekatekano ya histori. Temo e dula e le bogareng bja tlhabollo ya ikonomi ya leago, phokotšo ya bohloki, tlholo ya mešomo le phethagatšo ya tokelo ya molaotseo ya dijo. Bjalo, dikgatomatlafatšo tša temo a tsebagatšwa go rarolla tlhokego ya mešomo, ikonomi ye e fokolago le go se lekalekane, le ge e le gore katlego ya tšona e fapana go ralala le maemo a tikologo. Ka go šomiša tlhamo ya nyakišišo ya ponagalo ya boleng, nyakišišo ye e sekasekile katlego ya dikgatomatlafatšo tša temo mo matlafatšong ya tšhireletšo ya dijo motseng wa Sokhulumi ka gare ga Mmasepala wa Toropokgolo ya Tshwane. Datha e kgobokeditšwe ka dipoledišano tša go beakanywa seripa tša sebele ka sampole ya morero ya balemipotlana ba 20 go nyakišiša maitemogelo a ba iponetšego ona. Dikutollo di laeditše katlego ya dikgatomatlafatšo tše di lekanyeditšwego, go hlhohletša balemi gore ba amogele maano a mangwe a go swana le phapantšho ya polase. Kabo ya methopo ye e sa lekanego le taolompe di gakatša tlhokego ya tšhireletšo ya dijo, kudu magareng a balemipotlana ka mafelong a kgole le ao a sa hlokomelwego go ya ka tša ikonomi. Nyakišišo e šišinya tše di latelago: tlhokomelo ya ka pela ya phetošo ya lekala la temo ya setšo go ba mothopo wa tšweletšo wa kgolo ya ikonomi, tlhabollo ya mananeo a dikgatomatlafatšo a temo ke mmušo le bakgathatema ao a lebeletšego kudu balemi ba dinagamagaeng gore ba ka feleletša ba alogile go ba balemirui ba kgwebo, le tlhokego ye e akgofilego ya gore tlhabollo ya setšhaba e kopanywe le tlhabollo ya temo gore go be le go hwetšagala ga mananeokgoparara a meetse, phihlelelo ya ditsela, dikgokagano tša megala le mananeokgoparara a titšithale go kaonafatša letseno la dinagamagaeng. Ge tlhabollo ya dinagamagae e sa akgofišwe le go kopanywa le tlhabollo ya temo, ditlhohlo tša tlhokego ya tšhireletšo ya dijo di ka se rarollwe gabotse le ge dikgatomatlafatšo tša itšego a temo di le gona.

Mantšu a bohlokwa: Tšhireletšo ya dijo, dikgatomatlafatšo tša temo, balemipotlana, maemo a ikonomi ya leago, tlhabollo ya temo, motse wa Sokhulumi, Mmasepala wa Toropokgolo ya Tshwane (CTMM).

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LIST OF ACRONYMS

AGRA	Africa Agriculture Status Report
AAMP	Agro-Processing Master Plan
ARC	Agricultural Research Council
DALRRD	Department of Agriculture Land reform and Rural Development
DBSA	Development Bank of South Africa
DPME	Department of Planning Monitoring and Evaluation
ECRD	Eastern Cape Rural Development
EPWP	Expanded Public Works Programme
MAFISA	Micro Finance Institution of South Africa
MEGA	Mpumalanga Economic Growth Agency
NGO	Non-profit Organisation
NPC	National Development Plan
NYDA	National Youth Development Agency
LRAD	Land Redistribution for Agricultural Development

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CHAPTER 1: INTRODUCTION AND BACKGROUND

1.1. Introduction

Food insecurity is a persistent challenge affecting hundreds of millions of people worldwide (FAO, IFAD, UNICEF, WFP & WHO, 2025). According to Iannotti, Kleban, Fracassi, Oenema and Lutter (2024), 691,783 million individuals worldwide face food security daily, a number that continues to increase due to multiple interacting global shocks. The FAO (2012: 06) projects that the world's population exceed 9 billion by 2050, putting immense pressure on global food systems to produce more food sustainably. Although agricultural productivity has improved globally, food insecurity intensifies due to climate change, economic instability, and socio-political disruptions. According to Pawlak and Kolodziejczak (2020), climate change poses significant global threats to food production, leading to increased temperatures, erratic rainfall, water scarcity, and frequent extreme weather events. The conflict between Russia and Ukraine has exacerbated food insecurity by destabilising the food supply chain, affecting food production and distribution globally (United Nations, 2022). Moreover, the effects of the COVID-19 epidemic, which is already in its third year, caused serious declines in household income and interrupted food distribution channels, especially in vulnerable regions (UN, 2022).

Notwithstanding the international commitment task of the Sustainable Development Goal, particularly SGD 2, which aims to end hunger by 2030, progress remains slow. The United Nations (2017) warned that global mechanisms to eradicate food insecurity are inadequate due to high poverty levels, global conflicts, rising disparities, and climate change conditions. As a result, worldwide food insecurity has become a multidimensional crisis requiring coordinated international intervention. Ngema, Sibanda and Musemwa (2018) noted that the African continent is the continent that is most affected by chronic food insecurity. They further reported that continental households experience disproportionately high levels of food insecurity, mostly because of challenges such as poverty, conflict, climate vulnerability, and weak agricultural systems. Poverty is the major structural driver of food shortages, restricting people's ability to access nutritious and enough food (Udemezue and Osegbue, 2018).

Africa is infamously known for armed conflicts, which continue to disrupt the food supply in regions such as the Sahel, the Horn of Africa, and parts of Central Africa. These endless

conflicts adversely impact agricultural production, displace families/populations, and limit humanitarian access, resulting in acute hunger in affected areas (FAO, 2022). Moreover, changing climate conditions negatively affect Africa more severely than other regions do because of its reliance on rainfed agriculture, limited irrigation infrastructure, and lack of adaptive capacity (Pawlak and Kolodziejczak, 2020). Africa has vast arable land, but agricultural productivity is very low, primarily because smallholder farmers face challenges such as a lack of credit, unequal access to resources, poor extension services, and a lack of market infrastructure (Nesengani, Mudau and Netsandama, 2016). According to Liu (2014), improving smallholder agriculture is mandatory for the realisation of food security and poverty eradication across the continent.

Although Africa is the second largest continent with 54 states, frameworks such as the Comprehensive Africa Agricultural Development Programme (CAAP) and Agenda 2063 were initiated with the aim of strengthening agricultural development; however, their implementation was hampered by various challenges, including financial limitations, which hindered progress (HRSC, 2024). As a result, food insecurity remains persistent within the African continent. The southern African region struggles with widespread food insecurity, which is largely caused by structural poverty, alarming high unemployment rates, climate shocks, and political instability. Southern African development communities (SADCs), such as Zimbabwe, Mozambique, Malawi, Lesotho, and parts of South Africa, heavily rely on rain-fed agriculture, which exposes them to droughts, floods and unpredictable rainfall patterns (STATSSA, 2022).

Episodes of severe drought linked to the El Niño phenomenon are common within the region and significantly reduce crop yields, livestock productivity, and water availability. These climatic disasters have resulted in prevalent food shortages and created a dependence syndrome on food aid in some countries (United Nations, 2022). In addition, there is a wide gap between the haves and the have nots within the region and limited access to modern agricultural technology, all of which contribute to persistent food insecurity. Economic challenges are a major factor; periodically rising input prices, fuel costs, interest rates, and weaker currencies have made food production highly expensive and less affordable for marginalised poor households (STATSSA, 2021). Although food strategies exist in regional bodies such as the SADC, their implementation has frequently been uneven and dependent on national capacities.

South Africa is perceived as food secure at national level because of its ability to produce

sufficient food to meet national demand. However, food security remains a daily struggle in some South African households. For example, during 2017 alone, almost 20% of South African households could not afford basic enough food (STATSSA, 2022). Socio-economic challenges coupled with rising living costs weaken households' ability to buy or produce their own food. South Africa's food security problems are deeply rooted in historical injustices. The current government inherited extreme structural imbalances in land distribution because of apartheid and colonial laws such as the 1913 Native Land Act, which allocated 87% of agricultural land to white farmers, leaving black households with 8% for settlement and subsistence farming (Kloppers and Pienaar, 2014: 688). These historical injustices led to long-term Socio-economic inequalities that continue to affect food insecurity.

Although the national government in South Africa has initiated numerous interventions such as land reform programme, social grants, and agricultural support schemes, food insecurity persists, particularly in rural communities. Increasing energy tariffs, unemployment, high inflation, and higher fuel prices continue to restrict household purchasing power (STATSSA, 2021). To ease rural poverty and improve food security, the government has continuously prioritised agricultural interventions aimed at smallholder farmers (Nesengani *et al.*, 2016). Agriculture is a primary source of income for many rural households, and strengthening smallholder productivity is imperative for long-term food security and economic growth (Udemezue and Osegbue, 2018). This study analyses the effectiveness of agricultural interventions in boosting food security in Sokhulumi village, which is within the City of Tshwane Metropolitan Municipality (CTMM).

1.2. Background of the Study

According to Takács, Tibor and Wu (2022), agriculture is regarded as the place where the crop is cultivated and animals bred and is one of the most significant sectors for any country. Under the global security changes and trends, agriculture has always been and will forever be subjected to different kinds of threats and risks such as climate change biodiversity loss, natural risks and disasters, aging farmers and limited resources amongst other things (ibid). Agriculture plays a crucial role in sustaining life by providing the food we desperately need survive. It is worth noting that it contributes \$7 trillion to the United States of America (USA) economy. Even though this is the most important sector, the Economic Policy Institute reports that farmworkers are among the lowest- paid workers in the USA (Masimo, 2023). In Sub-Saharan Africa (SSA) agriculture significantly contributes to the economy and livelihoods to a bulk of

the marginalised, mostly smallholder farmers. Due to the agricultural sector, SSA is characterized by moderate-to low productivity and offers depressed returns, and it continues to be the important sector for job creation, food security, and poverty reduction (Modi, 2018).

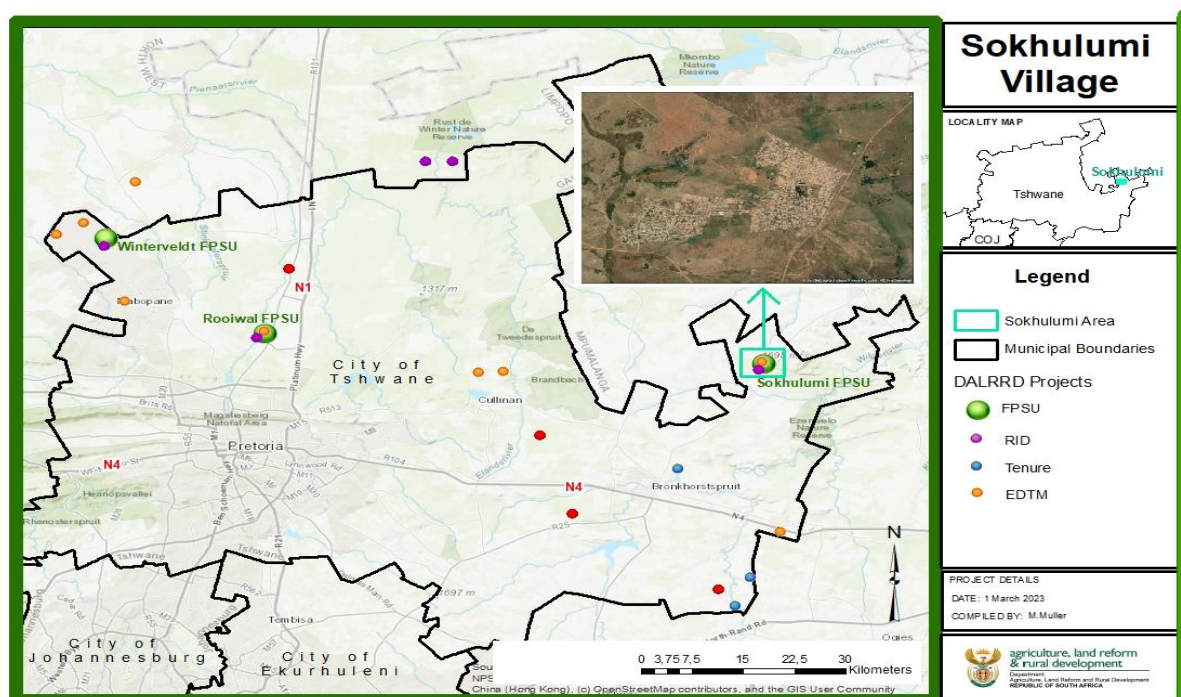
Pawlak and Kołodziejczak (2020) point out that although different measures were taken to alleviate the global hunger problem, food insecurity remains a persistent problem in many countries. Although overcoming food insecurity is desirable irrespective of the political and socio-economic challenges, it is the highest priority that many countries in the developing regions of the world fail to meet. Agriculture has always been the backbone of many rural economies in developing countries and has become the main source of rural livelihood, food security, and income for hundreds of millions of smallholder farmers (FAO, 2019). In the South African context, agriculture plays a dualistic role, as both subsistence and commercial practices with rural communities rely heavily on smallholder farming to put food on the table and generate income (Stats SA, 2022). However, these smallholder farmers are often confronted with challenges that limit maximum productivity, market access, climate change, input price volatility, and poor infrastructure (Aliber and Hall, 2012; Kirsten, 2020).

Sokhulumi village is in CTMM region 7 (ward 105), Gauteng Province, and symbolises the complex socioeconomic conditions and agricultural challenges faced by many rural communities in South Africa. Even though it is situated in an area with excellent agricultural potential and some of the most fertile land in the province, the village continues to struggle with poverty, unemployment, and limited access to basic infrastructure and municipality services. The villagers live in poor dwellings and lack access to electricity, sanitation, poor road conditions and transport infrastructure. During the rainy season, roads become inaccessible, with limited access to markets and extension services. These factors collectively compound poverty and food insecurity in the village (Tshwane IDP, 2023).

Agriculture in Sokhulumi village is based mainly on smallholder farming, with households farming small plots mainly for subsistence purposes. The reliance on rain-fed agriculture, coupled with unequal access to resources, limited access to markets, and modern farming technologies, affects productivity and income levels (Wisdomlib.org, 2025). According to Westermann *et al.* (2018), agricultural interventions such as the allocation of improved technologies and practices have been proven to increase smallholder productivity, improve livelihoods, and reduce poverty. Similarly, Mutero *et al.* (2016) stressed that improved access to credit, markets, credit, and properly managed resources significantly influences the viability and sustainability of smallholder farming.

To mitigate these challenges, the government has implemented various agricultural interventions aimed at increasing food security in Sokhulumi village. These include land reform programmes, advisory and extension services, the distribution of input and fertiliser subsidies, the provision of irrigation systems, and support for agricultural cooperatives (DAFF, 2018; FAO, 2016). The primary goal of agricultural interventions is to transform smallholder farmers from subsistence to commercial farmers, increase food security for households and improve livelihoods and socioeconomic conditions (FAO, 2015; World Bank, 2017). However, the effectiveness of these interventions remains unequal, especially in rural and peri-urban communities such as Sokhulumi, where structural and institutional challenges continue to limit impact (FAO, 2018; Aliber and Hall, 2012). The lack of monitoring and evaluation tools has always made assessing whether such interventions truly achieve the intended results challenging (Kusek and Rist, 2004; OECD, 2010). Therefore, evaluating the effectiveness of agricultural interventions in boosting food security in Sokhulumi village is fundamental for understanding the gaps, successes, and areas requiring improvement.

Figure 1.1: Map of Sokhulumi village



Source: DALRRD, SPLUM, PSSC:GP

1.3. Problem Statement

Even though South Africa has made substantial progress in reducing poverty since the start of

democracy, the trajectory of poverty reduction changed in the years leading up to 2015, wiping off some of the gains earned in the late 1990s (World Bank, 2018). Several rural areas in South Africa still face difficulties in eliminating poverty through sustainable agricultural solutions (Mbatha 2019: 2). According to Hendriks and Olivier (2015), household food security in South Africa is at an intolerable level. In Gauteng Province, where agriculture makes up approximately 40% of the province's gross domestic product (primary, secondary, and tertiary), agriculture is regarded as a significant industry. The sector significantly contributes to both the generation of jobs and the security of the food supply (Gauteng Department of Agriculture and Rural Development, 2019). According to Maphosa (2016), despite smallholder farmers providing the resources they had previously lacked, their socioeconomic circumstances have not changed, and food security remains a problem for households. Therefore, this study analyses the effectiveness of agricultural interventions in boosting food security in the village of Sokhulumi as well as the effects of agricultural interventions on food security. This is because smallholder farmers are adversely affected by a lack of agricultural interventions, such as access to capital assets that enable increased agricultural productivity, food security and income (Kamara, Conteh, Rhodes and Cooke, 2019).

1.4. Rationale/Importance of the Study

Although agricultural interventions have long been positioned as key mechanisms for improving food security in South Africa, persistent hunger and livelihood instability in rural communities suggest that the effectiveness of these interventions is not yet fully understood. Agriculture plays a fundamental role in improving Socio-economic welfare and advancing constitutional rights to food and social security (Udemezue and Osegbue, 2018). The Ministry of Agriculture and Land Affairs (MALA, 1998) advocates the strategic importance of the agricultural sector in addressing disparities, stimulating economic growth and eradicating poverty. Notwithstanding these policy commitments, food insecurity remains stubbornly high, particularly in rural areas such as Sokhulumi village, symbolising a disconnect between policy intent, agricultural intervention programme implementation and actual livelihood outcomes.

Ngidi and Hendricks (2014) noted that the introduction of agricultural interventions was in response to rising unemployment, slow economic growth and widening inequality—yet their impact varies significantly across rural villages. Although several studies have demonstrated that agricultural interventions can improve production, income generation and household food security (Mokgomo, 2019; Chepape and Maoba, 2020), other studies indicate that many

smallholder farmers lack the ability to sustain these benefits over time because of limited resources, weak institutional support and structural challenges within rural economies. Importantly, Maphosa (2016) argues that there is insufficient empirical evidence that proves whether agricultural interventions ultimately lead to long-term improved livelihoods rather than short-term production gains. This inconsistency in research findings reveals a conceptual and empirical gap: the existing research does not sufficiently assess how agricultural interventions lead to durable, self-sustaining food security improvements within Sokhulumi village. In practice, this gap is very significant.

Government-agricultural interventions focus mostly on the provision of inputs—such as seeds, tools and/or capacity building—without paying much attention to the continuous monitoring of whether farmers can maintain production levels beyond initial assistance (FAO, 2018; World Bank, 2020). Previous reports and development assessments have demonstrated that many farmers who benefit from programme such as the Comprehensive Agricultural Support Programme (CASP), the Land Redistribution for Agricultural Development (LRAD), and other provincial support initiatives struggle to sustain agricultural support effectively or revert to pre-intervention conditions due to a lack of resources, inadequate extension services and poor infrastructure (Aliber & Hall, 2012; Department of Agriculture, Forestry and Fisheries, 2016; Kirsten & Machethe, 2005). From the repeated accounts of smallholder farmers who seldom benefited from agricultural interventions, it is evident that they still experienced chronic food insecurity or inconsistent agricultural interventions. These encounters clearly demonstrated that existing interventions may not address fundamental systemic challenges and that the real experiences of farmers are understated in the current literature (Cousins, 2010; De Schutter, 2011; Aliber, 2015).

It is debatable if current agricultural interventions align with the constitutional mandate to ensure access to sufficient food and guarantee food security (Republic of South Africa, 1996; De Schutter, 2011). Although agriculture is positioned as a vehicle for Socio-economic transformation, only a few studies have investigated how rural households experience these policies on the ground or whether support mechanisms are designed in ways that enhance long-term resilience (Aliber & Hall, 2012; FAO, 2017). This necessitates research to evaluate the effectiveness of agricultural interventions for increasing food security, especially within villages such as Sokhulumi, where livelihood vulnerabilities are deeply entrenched (Cousins, 2010).

Using a qualitative phenomenological research design, this study evaluated the effectiveness

of agricultural interventions in enhancing food security in Sokhulumi village within the City of Tshwane Metropolitan Municipality. Data were collected through face-to-face semi-structured interviews with a purposive sample of 20 smallholder farmers to explore their lived experiences. qualitative research approach because the method allowed the researcher to better understand the experiences of the participants. This method allowed the researchers to explore how decisions are made and provided the researcher with detailed insight into the evaluation of the effectiveness of agricultural interventions in boosting food security in Sokhulumi village. By focusing on Sokhulumi village, this research contributes new empirical insights to research knowledge, helps inform policy makers, and proposes practical recommendations to increase agricultural intervention effectiveness for smallholder farmers. The study is therefore relevant because it highlights the need to design agricultural intervention programme that effectively boost food security and support inclusive development. If rural development is not expedited and integrated with agricultural development, the challenges of food insecurity will not be properly addressed even if certain agricultural interventions are in place.

1.5. Research Objectives

The primary objective of this study is to analyse the effectiveness of agricultural interventions in boosting food security in Sokhulumi village.

Other secondary objectives include the following:

- To analyse how agricultural development initiatives have impacted food security in Sokhulumi village.
- To determine whether agricultural resources are allocated and managed properly in Sokhulumi village.
- To investigate how villagers navigate food security challenges in Sokhulumi village.

1.6. Research Questions

This study seeks to answer the following research questions:

- What is the impact of agricultural interventions on food security in Sokhulumi village?

- How are agricultural resources managed and allocated in Sokhulumi village?
- What is the extent of food security challenges in Sokhulumi village?
- How do villagers navigate food security challenges in Sokhulumi village?

1.7. Research Hypotheses

According to Barroga and Matanguihan (2022: 18), a research hypothesis is an educated prediction of a possible outcome. It is a particular prediction about a novel phenomenon or a formal statement about the predicted relationship between an independent and dependent variable. It provides a preliminary solution to the study topic that will be tested or explored. This study is based on the following assumptions:

- That there is limited empirical evidence on the extent to which agricultural interventions yield the intended results.
- That very little is known about how smallholder farmers perceive agricultural interventions.
- That access to resources does not guarantee improved sustainable livelihoods.

1.8. Scope of the Study

This study analyses the effectiveness of agricultural interventions/or initiatives in boosting food security in Sokhulumi village, which is in the far northeastern part of the Tshwane region. The area possesses great agricultural and tourism potential and thus needs infrastructure investment(s) to unlock its potential. It is located within region 7 in terms of the Metropolitan Spatial Development Framework. This study is restricted to the Sokhulumi village area. This was a small-scale research project with the goal of analysing the effects of local agricultural interventions on food security. The impacts of agricultural interventions on the growth of vegetables and grain products (including soya and maize) are the types of agricultural projects evaluated in this study. A sample size of 20 smallholder farmers in the village of Sokhulumi was chosen. Face–face interviews were the only method that was used to acquire primary data. Because Sokhulumi village has a more difficult network and most participants are not technologically competent, the options of telephone, Microsoft Teams, Google Forms, or Zoom video calling proved difficult. Therefore, the researcher conducted face-to-face interviews to obtain an ideal sample size. The quality of the participants’ responses determined the saturation

and reliability of the data that were obtained.

1.9. Limitations of the Study

Limitations are defined by Theofanidis and Fountouki (2008:156) as imposed restrictions that are beyond the researcher's control and may negatively affect the quality of the design, the results, and ultimately the conclusions of the study. The study has the following limitations: some fieldwork challenges, for example, smallholder farm owners/managers and directors were unwilling to divulge crucial information, particularly regarding strategic planning and practices, during face-to-face interviews, which limited the effectiveness of the research. Therefore, the researcher guaranteed that anonymity and confidentiality would be applied and ensured that all the information/records provided were treated with secrecy to convince the participants to agree to take part in the study.

There was also a lack of appetite to participate in the study by elderly individuals and more experienced smallholder owners/managers and/or directors due to the experience of broken promises by government officials in the past. The high number of smallholder farmers made it possible for the researcher to gather primary data. This situation may have impacted the quality of the primary data since the researcher was dependent on smallholder farmers' participation. The researcher encouraged participation, emphasised the significance of the study and made it clear that this study is not a government programme. The costs associated with the collection of data from participants and transportation costs for delivering and collecting questionnaires. The researcher strived to secure personal funding to facilitate all research activities and ensure the attainment of quality results.

1.9.1. Limited time for conducting interviews

Most of the interviews were conducted during face-to-face appointments, except for a few individuals who were not available during the scheduled date(s) of the interviews. Although face-to-face interviews were conducted during business hours, there were noticeable disruptions whereby participants had to respond to both farming needs and interview questionnaires at the same time. This prompted the researchers to ask the same questions several times so that they could obtain quality results. For participants who could not attend face-to-face interviews, arrangements were made to conduct interviews telephonically since Microsoft teams were a challenge due to poor network reception at Sokhulum village. The researcher had to repeat the questions several times via telephone to ensure that the participants

understood the interview questions.

1.9.2. Limited number of available participants

Although the sampled population of 20 participants provided valuable information, it would have been more interesting if the sample was much larger. The limited number of smallholder farmers may underrepresent the population size. Therefore, greater care and consideration were taken during data collection and interpretation of the research findings. Other research papers from official publications were analysed as part of secondary data collection. Some of the data were found to be outdated to meet contemporary challenges, according to Wickham (2019). To increase the accuracy of the data, the researcher examined recent literature from a variety of sources, including journals and literature from other independent researchers.

The increase in the sample would have provided adequate experience from participants in the field within the proper demographics reflecting Sokhulumi village within ward 105. The researcher preferred to obtain in-depth information from mostly older informants who had resided in Sokhulumi village for a longer period with more farming experience. Unfortunately, owing to unfulfilled promises made by government officials over the years, this targeted population group was despondent and reluctant to participate even though few of them participated in the study. The questionnaire was semi-structured to include open-ended questions and a qualitative approach.

1.10. Definition of Key Terms

Food security is defined as the ability to possess physical, social, and economic access to adequate, safe, and nutritious food that responds to the dietary needs and food preferences of an active and healthy life (FAO 2010: 8). Over the last 50 years, the definition of food security has developed to include four pillars: availability, access, utilisation, and stability. These pillars have shaped the policy (Caraher, Coveney and Chopra, 2023: 14). Additionally, Ngidi and Hendricks (2014: 279) noted that food security means that families and individuals do not have to worry about their next meal since they have reliable sources of food supply or income to buy it. Food security increases national production, which helps a country's overall development. Food production is often regarded as one of the avenues for developing countries with extensive natural resources to achieve national development (Agbaeze, Ohunyeye, Obamen and Ibe, 2020: 1).

Smallholder farmers—According to Carelsen, Ncube and Fanadzo (2021), smallholder farmers are those that grow food for markets and household consumption. They then sell their produce to make a living for their families. Farmers have the capacity to grow their businesses and turn into commercial farmers, but they require access to a wide range of resources (managerial, financial, and technical support). Kasai and Radhadhika (2021) noted that smallholder farmers are typically located in rural locations with little to no infrastructure and are cut off from important markets and economic activities. Smallholder farming plays a vital role in attaining the goals of the African Union’s Agenda 2063 and the United Nations Sustainable Development Goals (SDGs) in the rural economies of sub-Saharan Africa. In South Africa, a significant number of households engage in smallholder agriculture to supply rural market demand (Muzekenyi, Nyika and Hoque, 2023a).

Socio-economic conditions- According to Khoza, Senyolo, Mmbengwa and Soundy (2019), Socio-economic conditions, including age, household size, education level and farm size, affect smallholder farmers’ level of participation in agricultural programme. This programme aims to alleviate socio-economic challenges through improved income, employment, food, and nutrition security, which enhances the sustainability of the livelihoods of smallholder farmers. Statistics South Africa (STATSSA, 2022) places strong emphasis on the Socio-economic challenges that the nation has faced over the years, with the goal of increasing residents’ lives and addressing poverty, inequality, and unemployment.

Agricultural development – According to Udemezue and Osegbue (2018), agricultural development is a subset of rural development because it is virtually impossible for rural areas to develop without first developing their agriculture because most rural residents depend heavily on agricultural practices for their livelihood. Additionally, Udemezue and Osegbue (2018) noted that agricultural development is primarily concerned with enhancing the material and social wellbeing of people. Because 90% of rural dwellers rely on agriculture as their primary source of income, agricultural development is an essential part of rural development. Kamara, Conteh, Rhodes and Cooke (2019) claim that growth and economic development ensure food security, reduce poverty, and create wealth that can be facilitated by agriculturally led development. Agricultural development has had a positive role in food for low-income houses (Hendricks 2014: 4).

Agricultural Interventions – In accordance with Malabe, Wakawa and Gwary (2019), agricultural interventions are described as the government’s policy to assist the country’s agricultural growth by increasing food production and welfare among smallholder farmers.

Mutero *et al.* (2016) noted that smallholder farmer availability is influenced by agricultural interventions that include access to the following: markets, funding, technology, and information. They also consist of access to better seeds and fertilisers subsidies, tenure reform, extension services, investment grants, subsidised credit, and the management of natural resources (FAO, 2016).

Poverty – According to Buheji, Da Costa Cunha, Beka, Mavric, De Souza, Da Costa Silva, Hanafi, and Yein (2020), poverty is a sign of a lack of fundamental ability to contribute to society. It extends beyond a lack of access to essentials and includes a lack of access to a school or clinic, a lack of land to grow one's own food, a lack of employment to sustain oneself and one's family, and even a lack of access to support or credit. Conversely, Norton, Alwang and Master (2010) described poverty as a failure to meet specific minimum living standards. They argue that poverty is about distributions, not simply averages. Poverty, however, is not synonymous with inequality; countries with perfect equality may have both affluent and poor individuals. Poverty measurement involves three steps: selecting an adequate measure, establishing a minimum level, and counting the number.

Unemployment – Bhalotra (2020) defines unemployment as a situation whereby there is a decline in an individual's income and more time to spend at home without much to do. Blustein, Duffy, Ferreira, Cohen-Scali, Cinamon and Allan (2020: 1) noted that being unemployed has adverse implications for the psychological, economic, and social well-being of individuals and communities.

1.11. Structure of the Dissertation

This study consists of five chapters, as outlined below.

Chapter 1: Introduction and Background

Chapter one introduces this dissertation and background of the study. This chapter presents the problem statement, research objectives, research questions, hypotheses, scope, limitations, and importance of the study. The important key terms that are used throughout the study are defined in the present chapter, and the structure of the dissertation is also covered in the chapter.

Chapter 2: Literature Review and Theoretical Framework

Chapter two provides a review of the literature related to the evaluation of the impacts of

agricultural intervention in boosting food security and other studies that have been conducted to support the research hypotheses and objectives of this study. The chapter will also provide theoretical consideration of the proposed study by outlining which theory or theories from the literature would help to develop a meaningful conceptual or analytical framework that would undergird my research study.

Chapter 3: Research Methodology and Design

Chapter three explains the research methodology used and includes the following subsections: the chosen research paradigm, study approach and design, study setting, study population, sampling and sample size, data-gathering method(s) and procedures, data-gathering instruments, data-analysis strategies, ways to ensure validity and reliability and ethical considerations.

Chapter 4: Presentation and Discussion of Findings

This chapter presents the findings from the field and analyses the data and the outcomes of the study's data collection.

Chapter 5: Summary, Conclusions and Recommendations

Chapter five provides a summary, conclusion, and recommendations for the dissertation.

1.12. Chapter Summary

This chapter explained the significance of the study. The background of the study, problem statement, and research objectives that are relevant to the research topic are presented. The research hypotheses and research questions are outlined, together with the scope, limitations of the study, definition of key terms and the structure of the dissertation.

CHAPTER 2: LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1. Introduction

This chapter reviews the literature and models on agricultural interventions related to food security challenges. The chapter also analyses the high-payoff input model (HPIM), a model that was adopted as a theoretical framework for analysing agricultural development theory. The model places a strong emphasis on how smallholder farmers may utilise knowledge and skills to their advantage, including collaboration, to advance agriculture (Khanal, Nepal, Zhang, Nepal, Paudel, Liu, and Rai, 2020). Furthermore, it advocates for the capacity of public and private sector research institutions to acquire modern knowledge, development, production, and marketing of new inputs and the effective usage of new inputs (Udemezue and Osegbue, 2018).

2.2. Smallholder Farmers' Dilemma

Governments regard agricultural interventions as one of the core strategies for economic growth and improving the livelihoods of smallholder farmers in developing nations, Africa and low- to middle-income countries (Liu, 2014; Tsaurai, 2021). However, various constraints hamper smallholder farmers' ability to grow effectively and contribute to food security more effectively than commercial farmers do. These constraints include a lack of access to land or property rights, limited access to finance, a lack of access to markets, poor physical and institutional infrastructure, and a lack of production inputs and climate change (Chepape & Maoba, 2020). A total of 570 million farmers worldwide are small scale, feeding approximately 3 billion people, and as such, they have become a key source of revenue, employment, and food security in rural communities (Muzekenyi, Nyika & Hoque, 2023a). According to Kasai and Rdhakai (2021), their primary objective is to provide income for their families and increase household income by selling surplus income to the market. They are typically located in rural areas with access to small pieces of arable land for agricultural purposes; they are limited to no infrastructure and are isolated from key markets and economic activities.

Smallholder farmers enjoy maximum government support in developed countries such as the United States and certain European countries. Comparatively, support for smallholder farmers

in South Africa was started by the Development Bank of South Africa (DBSA) in the 1980s as an attempt to address challenges facing farmers in the homeland area (Mokgomo, 2019). According to Mutero, Munapo and Seaketso (2016), smallholder farmers have difficulty accessing capital, markets, knowledge, and technological advancements. Additionally, smallholder farmers' ability to participate in formal, high-value chains is hindered by the absence of the four aforementioned factors, and they frequently end up selling their products in low-quality informal markets (Louw and Jordaan, 2016).

The absence of interventions such as access to capital, markets, and production inputs has an impact on smallholder farmers' ability to increase agricultural production, food security, and income. Smallholder farmers make a significant contribution to the rural economy despite these obstacles (Kamara, Conteh, Rhodes and Cooke, 2019). Furthermore, smallholder farmers are disadvantaged by limited land ownership, a lack of advanced technology, poor infrastructure, high transaction costs, low human capital, and restricted access to market and technology information. (Loki, Aliber and Sikwela, 2021; Chepape and Maoba, 2022). In response to the challenges faced by smallholder farmers, the Department of Agriculture, Land Reform and Rural Development (DALRRD) has introduced an agricultural intervention called the Farmer Production Support Unit (FPSU), which is a rural smallholder farmer outreach and capacity building unit connected with the Agri-hub. The objective of the FPSU is to provide primary production inputs, mechanisation support, extension services, storage facilities, some processing for the local market and training to producers (DALRRD, 2023). A picture of the Sokhulumi Farmers Production Support Unit is shown below. However, there is limited empirical evidence on how government-led agricultural interventions, such as the Farmer Production Support Unit (FPSU), directly impact smallholder farmers' productivity and increase food security outcomes.

Figure 2.1: Sokhulumi Farmers Productions Support Unit



Source: Site visit to the Sokhulumi FPSU by a researcher.

2.2.1. Access to resource allocation

Mofokeng (2019) suggested that the effectiveness of the state's ability to eradicate poverty and enhance food security is dependent on the availability of resources to realise Socio-economic well-being for all. Mofokeng further noted that the resource allocation process enables state officials to make informed decisions that effectively, efficiently and economically assist in the utilisation of available resources. According to the FAO (2016), the failure of farmers to access resources that are required to ensure the sustainability of their farms contributes to the low productivity of farms and affects crops and animals, which are regarded as assets. Sikrweqe (2013) warned that poor administration and a lack of proper allocation of resources are greater challenges for smallholder farmers. Similarly, according to Wheeler, Carmody, Grafton, Kingsford and Zuo (2020), in countries such as Australia, resources are not equally distributed. Therefore, larger entities representing only a fraction of 2% tend to receive almost 30% of the total allocated funding.

In sub-Saharan Africa, resources and opportunities available to men are not equally distributed to women; even in situations where women can access land, they do not own a legal claim to it, and their plots or farmlands may be less productive than those of men and have less tools and equipment. Moreover, on family farms, female farmers receive little compensation for their efforts (Kamara *et al.*, 2019:14047). In addition, a recent study carried out by Chepape and Maoba (2020) on the impact of agricultural development programmes on smallholder farmers of Bronkhorstspuit in the Tshwane Metropolitan Municipality (CTMM) revealed that 63% of the smallholder farmers who benefited from agricultural interventions were male. Jordan,

Donoso and Speelman (2023) assessed irrigation subsidy policies in Chile, and the results revealed an uneven allocation of resources to smallholder farmers and the government's inability to identify farmers' needs. They further stressed that, for this reason, the sustainability of agriculture and water resources will be threatened if the programme remains unaltered.

According to Kamaludin, Narmaditya, Wibowo and Febrianto (2021), a shortage of agricultural land is a serious problem, particularly land with a limited water supply that is dependent on rainfall and faces erosion risks. Mbatha (2019) stated that the availability of water for rural agriculture is a critical resource that can be used for irrigation purposes in the crop and grain farming sector to maintain the standard of productivity in rural smallholder farming. Water usage is a vital part of agricultural development (Antunes, Santos, Cosme, Osann, Calera, De Ketelaere, Spiteri, Mejuto, Andreu, Momblanch, and Nino, 2017).

Municipalities are mandated to manage their administration, planning and budgeting processes in such a manner that they cater to everyone's needs within their communities. However, Chauke (2017) stated that providing water to households in rural settlements is particularly challenging for municipalities, as these settlements do not have proper housing or water and reticulation infrastructure. Local governments' inability to provide an effective water supply to poor communities presents challenges to farmers since they are unable to access water for irrigation purposes (Chauke, 2017). Moreover, the sustainability of agricultural projects in rural spaces is under threat since poor communities have resolved to utilise water farm windmills and dams for consumption purposes (Mashele, 2013).

Khan (2014) postulated that the scarcity of water and inadequate irrigation systems pose serious challenges for the sustainability of agricultural projects because most farmers in rural areas do not have enough money to buy irrigation facilities that should be utilised in streaming and converting water. According to Van Rooyen, Ramshaw, Moyo, Stirzaker and Bjornlund (2017), an irrigation system is a primary resource required in agricultural production for the sustainability of agricultural projects. Furthermore, Van Rooyen *et al.* (2017) reported that irrigation systems are expensive for smallholder farmers because they lack financial support. Mosha, Vedeld, Katani, Kajembe and Tarimo (2018) noted that farmers in rural areas face the challenges of the lack and improper functioning of irrigation systems to ensure the survival and sustainability of their farming businesses.

Maphosa (2016) argues that while the allocation of resources has direct benefits, it does not automatically guarantee food security; however, what is important is the ability to sustain an

effective utilisation of resources that ensures food security and improved livelihoods. Nesengani, Mudau and Netshandama (2016) opined that the sustainability of an agricultural project is dependent on its ability to generate revenue for its beneficiaries. Mofokeng (2019) argues that the establishment of a resource allocation formula is a vital step in targeting poverty, and the government should establish the best funding mechanism that ensures effective resource allocation because the way resources/grants are allocated might influence different outcomes for agricultural projects (Jordan *et al.*, 2023). In this context, this study evaluated the effectiveness of resource allocation in increasing food security.

2.2.2. Access to capacity building

Loki *et al.* (2021) noted that in South Africa, agricultural extension and advisory services are the most popular types of public sector information dissemination and learning support. Extension and advisory services provide farmers with knowledge on farming strategies, such as which inputs to use and how to use them. Furthermore, extension agents help smallholder farmers develop their managerial abilities by disseminating knowledge on record keeping, finance, and farm operations, which increases the commercial potential of agricultural production. According to Maphosa (2016), most beneficiaries of agricultural support initiatives lack the necessary expertise, which threatens the success of their projects. The DALRRD introduced the Comprehensive Agricultural Support Programme (CASP), which provides support services that are inclusive of training/capacity building, technical and assistance to historically disadvantaged landowners and smallholder farmers (DALRRD, 2023). However, Mbatha (2019) recommends designing proper skills development and capacity building programmes that aim to address food security and challenges for smallholder farmers. For example, to improve capacities in this subsector, several skill development institutes must create training programme. Universities can work with the Department of Agriculture Forestry and Fisheries (DAFF) to create agricultural training programmes. The Small Enterprise Development Agency (SEDA), the CASP, and the National Youth Development Agency (NYDA) should all provide training for smallholder farmers.

The DAFF should also collaborate with private organisations to develop skills, such as the Skills Development Corporation (SDC), the business process enabling South Africa (BPESA), and the EDU Power. These institutions are approved by the Sector Education and Training Authority (SETA) and may teach agrarian skills for smallholder farmer development (Muzekenyi *et al.*, 2023a). Furthermore, commodity-based mentorship can close the skills gap in farming by teaching smallholder farmers business skills that include financial management,

marketing, water management, information management and technology (Fanadzo and Ncube 2018; Muzekenyi *et al.*, 2023a).

According to Muzekenyi *et al.* (2023a: 48), farmers should be able to easily acquire newsletters written in their own language. The adoption of digital applications or social hubs where all farmers may access free agricultural information is essential for realising the Fourth Industrial Revolution (4IR). Additionally, the agricultural training programmes offered should be responsive to contemporary challenges faced by smallholder farmers (Muzekenyi, Muzekenyi, Zuwarimwe, and Kilonzo, 2023b). Furthermore, Myeni, Moeletsi, Nyagumbo, Modiselle, Mokoena and Kgalatsi (2021) emphasised that training, awareness campaigns, field visits, market and farmer days and farmer-led trials via participatory engagements with smallholder farmers, extension service officers and researchers are vital for knowledge constraints and improved sustainable agricultural production. However, there is limited empirical evidence on how government-led capacity-building initiatives adapt to technological advancements so that smallholder farmers may adapt to contemporary forms of farming.

2.2.3. Access to markets

According to Kasai and Rdhadhika (2021), smallholder farmers are generally located in rural areas and are isolated from key markets and economic activities. Rural communities rely primarily on agricultural production for their livelihoods, but due to the remote location of many communities, access to markets and job opportunities are limited (Carelsen, Ncube and Fanadzo, 2021). Access to markets is very important because it plays a crucial role in enhancing rural economic development (Kapungu, 2013). Farmers in rural areas require access to markets to contribute to rural economic development (Mbatha, 2019). Muzekenyi *et al.* (2023b: 23032) state that access to markets is one of the greatest challenges faced by smallholder farmers because farming requires stable and reliable markets. Owing to a lack of transportation and distance from the market, most of their produce is sold at their gates or through middlemen, or production is lost because of a lack of buying power within the community (Mutero *et al.*, 2016). This is because of the cost implications and the inadequate and inappropriate mode of transportation for their products from farms to markets. Mbatha (2019) argued that road infrastructure plays a significant role in connecting rural farmers with the local market and in information transfer. Bourguignon and Pleskovic (2008) find that rural areas in African nations experience challenges related to unsuitable basic transport services and that alone, these challenges disadvantage farmers in sending products to local markets.

A study of support services for smallholder farmers during the 2015--2018 drought in the Overberg and West Coast Districts of South Africa revealed that most smallholder farmers were not market oriented due to limitations in terms of inaccessibility, small production volumes, minimum farm gate prices and a lack of information (Carelsen *et al.*, 2023). In contrast, Kamara *et al.* (2019: 14047) believe that despite their daily challenges, most smallholder farmers have a market orientation and are businesspersons, although their market strategies differ. For example, some sell agricultural produce at their farm gates and/or during market days but also participate in market hubs.

Kamara *et al.* (2019) stressed that a lack of storage and processing facilities and difficulty in distributing and marketing their products result in high postharvest losses because roads and transport infrastructure are underdeveloped, and markets for agricultural inputs and outputs are often missing or delayed and becoming unreliable for smallholder farmers. They further claim that this situation leads to inconsistencies in production and supply capacity coupled with a lack of bargaining power from poor access to market information; as a result, their products are sold at lower profit margins. This study also aims to prove that a lack of investments in road and water infrastructure as well as poor service delivery have an adverse effect on access to markets. See Figure 2.2 below.

Figure 2.2: Ms. Mahlangu, the local chief's wife at her smallholder farm



Source: Site visit to Sokhulumu village by a researcher.

2.2.4. Access to funding

Sebola (2018) noted that access to agricultural capital is the greatest challenge in sub-Saharan Africa, which negatively impacts Africans' ability to sustain themselves economically through

agricultural farming. According to Ruete (2015), the sustainability of agricultural projects and the transformation from traditional agriculture to commercial agriculture funding takes centre stage, but a lack of financial capital is a significant challenge for smallholder farmers in South Africa. Furthermore, access to funding is perceived to influence household indicators such as agricultural productivity, food security and technology adoption (Mokgomo, 2019).

Pienaar and Traub (2015) state that the agricultural sector in South Africa (SA) is dualistic; it consists of well-integrated, highly capitalised white commercial farmers who produce 87% of the total agricultural land and finance the homeland's commercial banks. On the other hand, smallholder black farmers are isolated in former homeland areas, producing on meagre 13% of agricultural land with limited to no capital investment.

Muzekenyi *et al.* (2023b) argue that smallholder farming is regarded as an economic transformation path. Despite this significant contribution, black smallholder farmers receive less financial support than their white counterparts do, even though initiatives such as Ithala Bank and Uvimba finance can provide credit (Mokgomo, 2019). Consequently, most smallholder farmers depend on government grants or their own funds to pay for their operational expenses due to a lack of credit (Mutero *et al.*, 2016).

Funding determines whether a smallholder farmer will survive or not, and most smallholders' farmers are underfunded, which threatens their viability (Mutero *et al.*, 2016). However, Von Loeper, Musango, Brent and Drimie (2016) suggest that access to credit will enable smallholder farmers to participate in the modern SA economic agricultural value chain through improved productivity. Therefore, access to credit provides smallholder farmers with a financial boost to overcome the financial constraints that hinder them from sustainable agriculture, which requires capital investment in equipment and technology (Myeni *et al.*, 2019). This situation causes black farmers not only to lose potential income but also to resort to unregulated money lenders, who charge unfair high interest rates (Sebola, 2018).

Khandker (2005) conducted a study on microfinance and poverty in Bangladesh, and the findings revealed positive effects on poverty alleviation rates. His study established that between 1998/99 and 1991/92, moderate poverty in all villages declined by 17%. In analysing the impact of microfinance on smallholder farm productivity in Tanzania, a case study of the Iramba district revealed that credit beneficiaries were relatively better at accessing markets for agricultural commodities, using inputs and adopting improved farming technologies (Girabi and Mwakaje, 2013). A study on the effects of microfinance on poverty reduction in Tanzania:

A case study on the African Microfinance Limited revealed that individuals' income improves because of loan availability, which is determined by collateral, cash inflows, and education levels. Kaseva (2017) noted that even though the poor were targeted as beneficiaries of credit assistance, only those with significant collateral and financial inflow, as well as those with high education levels, appear to be successful.

The government of SA introduced the Micro Finance Institution of South Africa (MAFISA) in 2004 with the objective of responding to the financial service needs of smallholder farmers and agribusiness. MAFISA is a state-owned scheme that provides loans at an annual rate of 8% compounded annually for production (inputs such as fertilisers, seeds, pesticides, animal feed, chemicals, and remedies), facilitating savings mobilisation and capacity building for member-owned financial institutions. In 2009, the ILLIMA/LETSEMA programme was introduced with the main aim of enhancing food production and reforming irrigation schemes and other related projects contributing to value addition and providing inputs to subsistence and smallholder farmers. The grant is set to receive approximately 1.8 billion intended to benefit rural households with food production initiatives and production inputs (Government Communication and Information System (GCIS), 2015; GCIS, 2017). DAFF introduced the Fetsa Tlala Food Initiative ("Deaf Food Hunger Initiative") in 2013, which focused primarily on assisting vulnerable households, subsistence, and smallholder farmers in creating their own food security by ensuring that 1 million hectares of land are utilised for production by 2030 (GCIS, 2017).

According to Sinyolo, Wale and Mudhara (2016), the Land Bank is a custodian of MAFISA and is prohibited from distributing funds on its own. Therefore, the distribution of funds is the responsibility of intermediaries such as Peulwana Hlanganani, the Gauteng Enterprise Propeller (GEP), the National Emergent Red Meat Producers Organisation (NERPO), the Mpumalanga Economic Growth Agency (MEGA), Magaliesberge Graankoopersie Beperk (MGK), the South African Sugar Association (SASA) and Eastern Cape Rural Development (ECDRD). Since 2014, the DAFF through MAFISA has injected more than 10 billion to finance smallholder-scale commercial farming in rural communities (Muzekenyi *et al*, 2023b). Sebola (2018) stresses that for South African agricultural development to improve, the need arises for the government to introduce land reform that aims to improve the capacity and potential for smallholder black farmers to contribute to agricultural development and the economy, and access to financial support emerges as a high priority for developing black farmers. Additionally, Sebola (2018) argues that an effective funding model is required for agricultural

development for smallholder farmers to successfully play a significant role in the South African economy. There seems to be a gap in the literature that ensures that policy development that enables single-headed women households to utilise their land as loan/grant guarantees while pending finalisation of the protracted process of acquiring title deeds.

2.2.5. Effects of climate change

Climate change is a global phenomenon that has drastically restrained agricultural productivity in the global south due to changes in key atmospheric elements over the last fifty (50) years. In sub-Saharan Africa, rainfed agriculture has been the dominant livelihood strategy, and climate change has increasingly undermined rural livelihoods (Batung, Mohammed, Kansanga, Nyantakyi-Frimpong and Luginaah, 2023). In addition, climate change threatens agricultural sustainability, rural economies, water availability, the food supply, and human health (Wu, Lu, Zhou, Chen and Xu, 2016). According to Ojoyi, Mutanga, Kahinda, Odindi and Abdel-Rahman (2017), agricultural projects in most countries face climate change challenges since their farming systems are typically dependent on the availability of rainfall per season. As such, Mahlombe (2018) noted that climate change has become a subject of debate both nationally and internationally. In many developing countries and regions, climate variability and change are projected to adversely impact agricultural production and access to food (Olabanji, Davis, Ndarana, Kuhudzai and Mahlobo, 2021).

According to Myeni and Moeletsi (2020), agricultural production is highly sensitive to climate variability because of its strong reliance on climate variables such as rainfall, temperature, wind speed, and relative humidity. Furthermore, Myeni and Moeletsi (2020) reported that most African smallholder farmers farm in low-fertility soil, have insufficient farm equipment and lack income, have poor farm equipment and limited income, have restricted access to climatic information, and often lack fundamental agronomic skills, making them especially sensitive to the negative consequences of climate vulnerability. Moreover, Akanbi, Davis and Ndarana (2021) opined that the negative consequences of these changes are expected to greatly affect the livelihoods of poor and rural farmers due to their overwhelming dependence on temperature and precipitation, since extreme climate conditions such as droughts, floods, heatwaves, storms, and soil degradation increase the uncertainty of agricultural production.

Ojija, Abihudi, Mwendwa, Leweri and Chisanga (2017) state that countries experience different climate change conditions; some countries experience it through customary rainfall and changes in temperature forms. For example, the United States of America (USA)

experiences floods, whereas South Africa experiences drought, mainly because it is described as a water-scarce country, and its location in a semi-arid zone makes it even more vulnerable to the effects of climate vulnerability. Mahlombe (2018) and Akanbi *et al.* (2021) reported that the African continent is expected to experience severe climate change because of increasing temperatures, high variability in rainfall onset and amounts, protracted dry spells, and the frequent occurrence of floods and droughts. These changes already have adverse effects on agricultural production, with evidence of low crop yields, food insecurity, livestock mortality and outbreaks of pests and diseases (Myeni and Moeletsi, 2020).

Myeni and Moeletsi (2020) believe that climate change and variability are already affecting and will continue to threaten the livelihood and food security of Africa's smallholder farmers, who are heavily reliant on rainfed agricultural production and frequently have limited adaptation capacity due to financial, resource and knowledge constraints. Harvey, Rakotobe, Rao, Dave, Razafimahatratra, Rabarijohn, Rajaofara and MacKinnon (2014) contend that these adverse impacts will place a heavy burden on smallholders due to their direct dependence on agriculture and inability to respond adequately to climate shocks. Batung *et al.* (2023) emphasised that the government should prioritise investing in climate change resilience and bolster food security by further expanding the access of smallholder farmers to vital production inputs, technology, irrigation systems and extension services. A plethora of evidence indicates that climate change indeed poses a greater challenge to both commercial and smallholder farmers. Therefore, Mbatha (2019) argues for the adaptation of technological advancements and the development of strategies such as farm diversification in managing smallholder farming practices.

2.3. Government Approach to Addressing Food Security

Muzekenyi *et al.* (2023b: 23028) noted that as the world's food security has been affected by rapid population growth and strenuous shifts in agricultural production, there is an increasing demand for food and pressure upon governments to realise means to improve food security. Mokgomo, Chagwiza and Tshilowa (2022) state that the motive behind the SA government's agricultural support programmes and policies is to ensure the robustness of the sector by increasing equity among farmers with respect to gender, race, modern technology, and other agricultural support.

Agricultural development support is the core strategy for enhancing economic growth by

providing employment to the poor, poverty reduction as food from agriculture feeds the poor, income to the rural poor as they sell surplus goods, and inputs to industry, thus promoting industrialisation in the economy (Liu, 2014; Tsauri, 2021). Furthermore, Tsauri (2021) reported that agricultural production had a major positive impact on economic growth in BRICS countries, namely, Brazil, Russia, India, China and South Africa, and that financial development was a channel through which agricultural production increased economic growth in BRICS countries. According to Muzekenyi, Zuwarimwe and Kilonzo (2023), following the 2014 Malabo Declaration, the South African government committed to investing 10% of its gross national revenue in agriculture. This was reflected in the Zero Hunger Challenge, Agenda 2063, the SDGs, and the National Development Plan 2030. Ngidi and Hendricks (2014) noted that food insecurity is a challenge to developmental programmes and initiatives in South Africa. Van der Waldt (2015) argued that governments are morally and legally obligated in society to regulate, facilitate and act as catalysts for economic prosperity. Since the dawn of democracy, the South African government has initiated several agricultural interventions, including infrastructure grants, production input support, access to loans, extension service programmes, and market access, and has put into effect several policies, such as food security programme designed to reduce poverty and enhance the Socio-economic circumstances of smallholder farmers (Mokgomo, 2019; Chepape and Maoba 2020:32). The 1994 Reconstruction and Development Programme recognised food security as a priority policy objective, which obligated the government to concentrate public spending on improving food security conditions for historically disadvantaged people (Department of Agriculture (DoA), 2002). A white paper on agriculture was subsequently published, and attempts were made to create a national food security policy. Unfortunately, cabinets never adopted the draft policy since they lacked public inputs (Hendricks, 2014). To achieve food security and assist people in meeting their dietary needs, an agricultural policy (a discussion document) that exclusively focused on subsistence and smallholder farmers was implemented. after 1994 (Ministry of Agriculture and Land Affairs (MALA), 1998).

To guarantee the availability, affordability, and accessibility of healthy food at the national and household levels, the national policy on food and nutrition security was approved by cabinet in 2013. The DAFF (2014) further states that it also seeks to guarantee that the nation's response to food insecurity is ambitious, exacting, and dynamic. Hendricks and Oliver (2015) contend that the absence of enforcement procedures makes it impossible to coordinate current policies and that few measures increase food security. According to Hendricks (2014), even though

ensuring food security is a national goal, there is a severe lack of coordination, no enforcement strategy, and no evaluation of the impact of food security programmes. There is no greater economic success in history that has ever been achieved in the absence of direct government interventions (Van der Waldt 2015: 9). However, Creswell and Creswell (2018) address a gap in this study to effectively package sustainable intervention programme that ensure that smallholder farmer needs are holistically addressed, including economic emancipations.

2.4. Overview of Agricultural Interventions

2.4.1. Agricultural sector in South Africa

According to Pienaar and Traub (2015), the agricultural sector of South Africa is dualistic in nature. The dualism of SA agriculture reflects colonial practices, particularly those of the apartheid state, which was concerned with maintaining distinct growth along racial lines. Even after this, this distinct evolution remains the defining trait of SA agriculture (Sihlobo and Zantsi, 2024). The sector consists of commercial and small-scale farming, with the commercial sector using up to 86.2 million hectares of land and the smallholder scale sector utilising only 14.5 million hectares for agricultural production (Pienaar, 2013).

Approximately 35 000 commercial farmers in SA produce approximately 95% of agricultural output on 87% of total agricultural land (Pienaar and Traub, 2015). This is in contrast with the smallholder sector, which represents approximately 4 million black farmers producing on 13% of agricultural land (Pienaar and Traub, 2015). However, there has been a significant decline in numbers in the past two decades, from 60 000 in 1994 to 45 000 in 2002 and 39 966 in 2007 (Mokgomo, 2019).

Pienaar and Traub (2015) argued that the two-sided nature of the South African agricultural sector and the comparatively low productivity of the smallholder sector are the direct result of historical patterns of dispossession and poverty, which systematically eroded historically successful land-based production methods and livelihoods in South Africa. According to Sebola (2018), agricultural farming in SA continues to be dominated by the white population, which has decades of experience surviving commercial farming, with the black community's role restricted to labour excess and unsuccessful subsistence farming.

South Africa has 200,000 commercial-oriented smallholder farmers and 2.5 million households engaged in agriculture for substance purposes, which is a sign of potential agricultural development (Black, Conradie and Gerwel, 2014). These data indicate that smallholder farmers

outnumber commercial farmers in South Africa. Smallholder farmers are predominantly found in the rural provinces of Limpopo, Eastern Cape, Northwest, and the Free State (Mokgomo, 2019). Mokgomo further claims that most of these smallholder farmers, especially those who benefit from government intervention programmes, are willing and seeking to become commercial farmers.

2.4.2. Agricultural sector in Gauteng Province

Gauteng Province is regarded as an economic hub with limited primary agricultural production (Gauteng Department of Agriculture and Rural Development (GDARD), 2015). It is one of the major African centres, ranks as the continent's fourth largest economy and accounts for more than 40% of the country's gross domestic product (GDP) (Mofokeng, 2019). The province is a host of numerous industries, and the smaller holder farming is one of them; this hosting makes the province integral in its quest to promote transformation in the participation of smallholder industries (Mmbengwa, Rambau, Rakuambo and Qin, 2020). The existence of smallholder farming in Gauteng is severely limited by the scarcity of land and the high costs of purchasing the land (Dimant, Lebone, Mackay, Moloi, Ndebele, Phung, and Van Heerden, 2016). With increased migration in Gauteng Province, the demand for smallholding farming for food security and job creation is unavoidable (Mmbengwa *et al.*, 2020).

South Africa's mid-year population is expected to climb to 63.02 million in 2024 (Statistics South Africa (STATSSA), 2024). According to the Council of Scientific and Industrial Research (Council of Scientific and Industrial Research (CSIR), 2019), Gauteng is the smallest of the 9 provinces but has the densest population distribution; its population is projected to increase by over 8.1 million by 2050, from just over 12 million in 2011 to 20 million in 2050. The CSIR further reports that the national population share of the province will also expand, from 23.6% to 27% by 2050.

According to Modiba, Ndlovu, Musiyandaka, Khanyile and Semu (2024), SA faces a significant economic challenge of unemployment, which affects millions of people and contributes to socioeconomic issues such as poverty and inequalities as well as social unrest. The total number of unemployed persons increased by 330 000--8.2 million during the first quarter of 2024 (STATSSA, 2024). Therefore, the official unemployment rates in SA and Gauteng Province stands at 32,9% and 34.2%, respectively, in the first quarter of 2024 (Modiba *et al.*, 2024; STATSSA, 2024). Figure 2.3 illustrates that in terms of the expanded definition of unemployment, 47% of the labour force in Gauteng is unemployed (Modiba *et al.*, 2024).

Despite contributing only a small fraction of SA's GDP, the agricultural sector is disproportionately important in terms of employment and food security (Sihlobo and Nel, 2016). Mokgomo (2019) noted that the sector is critical for the South African economy because of its contribution to livelihoods, since approximately 8.5 million people in the country directly and indirectly depend on agriculture for employment and income. For example, at the end of June 2021, the total number of people employed in the agriculture sector was 801 503, up 2,7% from 78 057 in June 2020 (STATSSA, 2021). Moreover, Figure 2.3 below presents a positive picture of agricultural employment in Stats SA. In the first quarter of 2023, approximately 888 000 individuals worked in primary agriculture, an increase of 3% quarterly and 5% yearly. This well exceeds the long-term agricultural employment figure of 780 000. The Western Cape, KwaZulu Natal and Gauteng were the major regional drivers of employment (STATSSA, 2021). According to Goyal and Nash (2016), almost two-thirds of Africa's population continues to rely on agriculture for a living, and food accounts for nearly three-quarters of consumption expenditures among Africa's poorest households.

Figure 2.3: Employment and unemployment status of respondents across municipalities

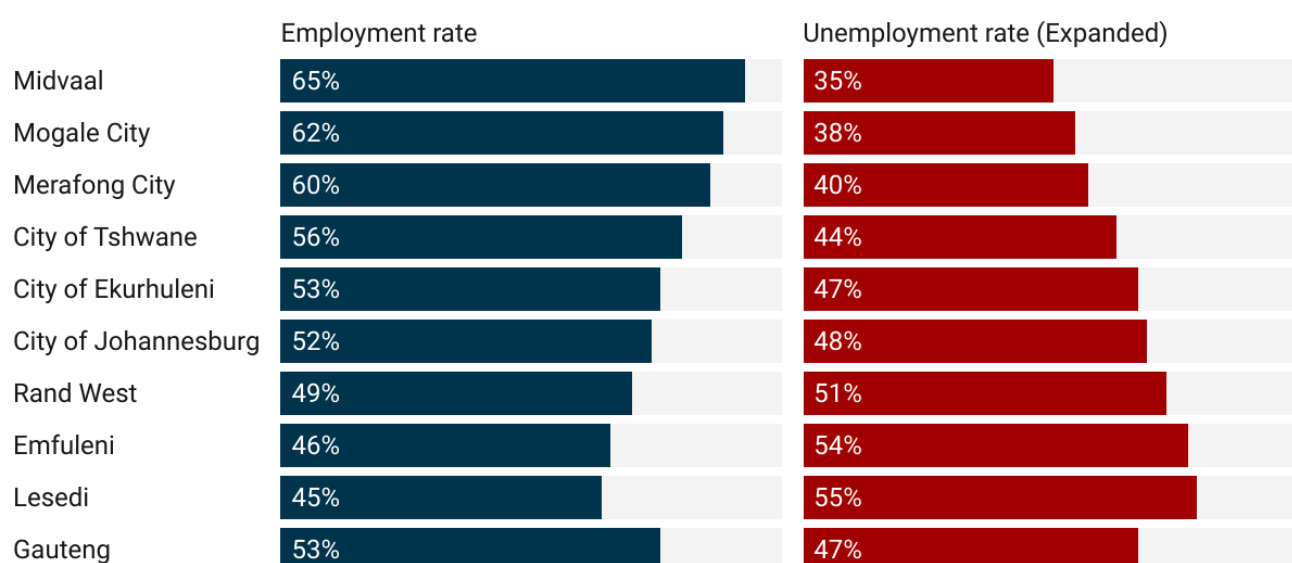


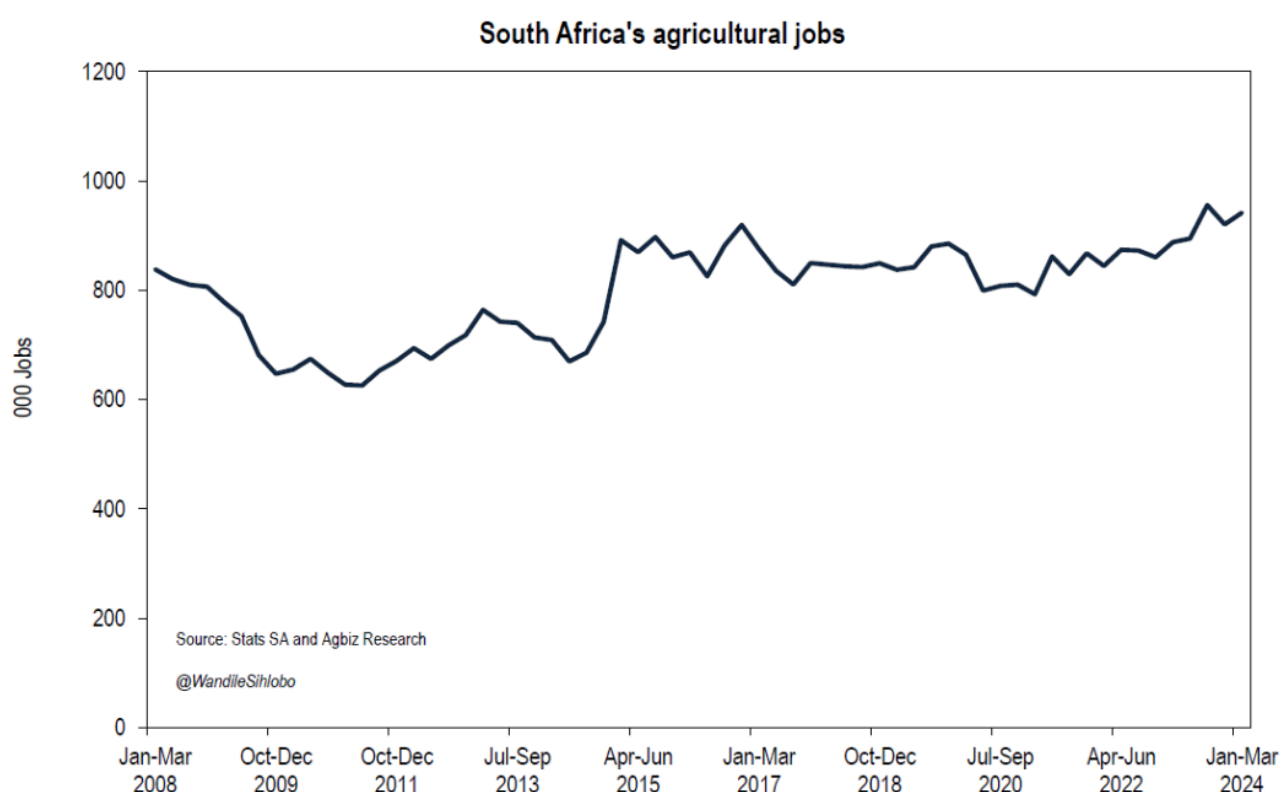
Chart: Samkelisiwe Khanyile • Source: Gauteng City-Region Observatory's (GCRO) Quality of Life Survey 6 (2020/21) • Created with Datawrapper

Source: Gauteng City-Region Observatory's (GCRO) Quality of Life Survey 6 2020/2021.

In a review of the literature on food security interventions in Gauteng Province, Malatsi, Maake and Masekoameng (2023) assessed the contribution of homestead food gardens to food availability in the CTMM in Region 7. The results indicated that the programme was able to increase food availability in the region. In their analysis of the effectiveness of the Expanded

Public Works Programme (EPWP) as a poverty alleviation strategy within the CTMM, Maphanga and Mazenda (2019) revealed that although the EPWP is an effective intervention for the province of Gauteng, the challenge is that it is a temporary poverty reduction strategy that fails to eliminate people from total poverty. CASP, as a progressive support programme, is regarded as the prime mover of agricultural development in South Africa (Mncina and Agholor, 2021). Mokgomo noted that over the last few years, the SA government has provided various forms of assistance to households engaged in smallholder farming to enhance their Socio-economic conditions. Extensive literature indicates that agriculture remains a source of livelihood for approximately 86% of rural people and generates job opportunities for approximately 1.3 billion smallholder farmers and landless workers (Mokgomo *et al.*, 2022).

Figure 2.4: South Africa's agricultural jobs



Source: Stats SA and Agbiz Research (2024).

2.4.3. Impact of agricultural development on food security

According to Binuomote, Adeleke and Omodunbi (2012), the key to economic growth is government investments in agricultural development. Investment in the prime movers of agriculture is the most effective method for promoting agricultural development (Mncina and Agholor, 2021). Additionally, Goyal and Nash (2016) stress that investment in agriculture in

conjunction with good policies and better institutions can accelerate agricultural productivity and growth.

The Green Revolution demonstrated the success of agricultural development support, which has contributed to major reductions in poverty, better food security, agricultural revenue, and economic transformation in many Asian and Latin American countries (Mokgomo *et al.*, 2022). The Green Revolution was a series of research and development and technology transfer programmes that occurred between the 1940s and the late 1960s, resulting in increased agricultural production globally, notably in developing countries, with the most notable beginning in the 1960s. The revolution was largely effective since agricultural productivity in most countries grew (Kumar, 2007).

During the Green Revolution, high-yield varieties (HYVs) were introduced to increase agricultural production. However, their performance is dependent on costly inputs such as inorganic fertilisers, pesticides, intensive irrigation, and insecticides (Eliazer, Neslo, Ravichandran and Antony, 2019). Approximately 50% of the population in developing countries experienced food insecurity and poverty before the beginning of the Green Revolution (Anderson and Jackson, 2005). All the countries across Asia and Latin America that adopted the Green Revolution experienced increased agricultural production, and the growth rates of wheat, maize, rice, potatoes, and casava were 208%, 109%, 78%, and 36%, respectively (Pingali, 2012). For example, Thi Ut and Kajisa (2006) analysed the impact of the green revolution on rice production in Vietnam and reported that even though the green revolution ended in the Philippines and Indonesia in the mid-1980s, in Vietnam, the revolution was still ongoing as of 2003. Investigations have demonstrated that such expansion was fostered by the constant upgrading of contemporary kinds by regional research institutes. Mokgomo (2019) suggested that the revolution was focused mainly on agricultural development, which includes government subsidies, credit, improved infrastructure, and the uptake of technologies through research and extension services.

According to Asiema (1994), the success of the Green Revolution was due to the extensive use of irrigation, fertilisers, and pesticides. However, the so-called Green Revolution never gained the same importance on the African continent. Likewise, attempts to introduce Africa's Green Revolution on a large scale failed, but the green revolution crops nevertheless gained importance (Asiema, 1994). The strategy was believed to be unsuccessful due to environmental, political, economic and climate conditions (Mokgomo *et al.*, 2022). Again, Asiema (1994) argues that the Green Revolution in Africa has failed due to several factors.

First, much of the continental soil is infertile, and several pests and diseases challenge and provide an inadequate water supply for agriculture. *Second*, crops such as millet, sorghum, cassava, or sweet potatoes, which primarily constitute Africa's diet, never received much attention from scientists and were never part of the Green Revolution. Third, poor infrastructure and transportation systems make it difficult for smallholder farmers to access inputs. Finally, in most African countries, the labour/land ratio is low, human and institutional capacity is limited, and other economic limitations are present.

Following the success of the Green Revolution in Asia and Latin America, the Rockefeller Foundation and the Bill and Melinda Gates Foundation established the Alliance for a Green Revolution in Africa (Toenniessen, Adesina and DeVries, 2008). According to Wise (2020), the Alliance for Green Revolution in Africa (AGRA) was established in 2006 with the purpose of introducing high-yield agricultural practices to 30 million smallholders farming households. By using commercial seeds and artificial fertiliser, the AGRA aims to quadruple crop output and incomes while decreasing food poverty by 2020. AGRA was integrated into the framework of the Comprehensive African Agriculture Development Programme (CAADP), an initiative launched by the New Partnership for African Development (NEPAD) in July 2003 to facilitate the achievement of the food security-related targets of the Millennium Development Goals of halving the proportion of people who live on less than \$1.25 a day and halving the proportion of individuals suffering from hunger within the period of 2000--2005 (Mokgomo, 2019).

In 2003, members of the African Union launched the CAADP, commonly known as the Maputo declaration, whose aim was to expand resources for agriculture and to invest 10% of the national government in agriculture; this target was reiterated in the 2014 Malabo declaration (Goyal and Nash, 2016). According to Modi and Cheru (2013), the CAADP advocates for the importance of enormous investments in infrastructure and the introduction of new inputs and innovative technologies on a massive scale to improve productivity, reduce poverty and increase Africa's competitiveness. As of November 2013, 13 nations (Burundi, Burkina Faso, The Democratic Republic of Congo, Ethiopia, Ghana, Guinea, Madagascar, Malawi, Mali, Niger, Senegal, Zambia, and Zimbabwe) had met or exceeded the 10% target in one or more years since 2003, even though Africa had not met the CAADP (Mokgomo, 2019). The South African government has since committed to investing 10% of its gross national income in agriculture during the Malabo declaration in 2014 (Muzekenyi, 2023b).

Sibisi (2015) argues that smallholder farmers in first countries, such as the United States of America, and few countries in Europe enjoy full government support, which has led developing

countries to experience and perceive the unequal playing field of farmers. South African smallholder farmers began to receive support as early as the 1980s from the DBSA with the intention of addressing the constraints of farmers in homeland areas (Kristen and Van Zyl, 1998). However, support for smallholder farmers has been significantly reduced by the South African government over the last three decades, making smallholder farmers in the country one of the least supported in the world (Sibisi, 2015). The Farmers Support Programme (FSP) is the government vehicle for assisting smallholder farmers in homelands to improve their agricultural production, food security and income through comprehensive agricultural support (Mokgomo *et al.*, 2022). Mncina and Agholor (202), who suggested that the CASP was another government model of investing in agricultural development, since its inception in 2004/05 and running through 2011/12, a total amount of R4 306 billion for investments was received by the National and Provincial departments of agriculture.

Coe and Audickas (2018) noted that agricultural development support programmes are vital for poverty alleviation and food security and for enhancing agricultural productivity for households in developing countries such as South Africa. Hence, growth in agriculture, particularly smallholder farming, has been the primary focus of government initiatives. The European Union regards farmer support programmes as vital because they help grow the economies of their member states; as a result, the organisation introduced the Common Agricultural Policy (CAP) to provide fiscal support to farmers (Downing *et al.*, 2018). Furthermore, through CAP subsidies, the United Kingdom (UK) can provide £4 billion of support to farmers and market safety nets (Downing *et al.*, 2018). The Canadian government introduced a farm support programme with the objective of assisting the agricultural sector in becoming profitable, sustainable, competitive, and innovative (Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA), 2017). Bijman, Van der Sangen, Poppe and Doorneweert (2017) noted that the Dutch government also had farmer support programmes, which resulted in the country being able to produce approximately 95% of all fruits and vegetables, with multiple cooperatives producing 75% of the total domestic production.

In South Africa, the government has the New Growth Plan (NGP), the National Development Plan (NDP), and, most recently, the Agriculture and Agro-Processing Master Plan (AAMP) as vehicles aimed at driving and enhancing the agricultural development agenda (Xaba and Dlamini, 2015; Sihlobo and Zantsi, 2024). Agricultural development has had a positive role in providing food for low-income households (Hendricks, 2014: 4). In a study in South Africa, ensuring food security through prioritisation of agricultural development was clearly seen as a

panacea for combating poverty and addressing Socio-economic challenges for the rural poor (Nesengani *et al.*, 2016: 4). As a result, the National Planning Commission (NPC, 2022) concluded that agricultural development should be a top priority as South Africa's main engine for job creation, economic development, poverty reduction, and food security.

The primary objective of agricultural development is the improvement of the material and social welfare of people, as agricultural growth significantly contributes to improved livelihoods and food security. The HPIM is one of the five agricultural development models that advocates for the transformation of the sector into a productive source of economic growth (Udemeveu and Osegbue, 2018). According to Mudau and Netsandana (2012), referenced in Nesengani *et al.* (2016), expanding the agricultural sector is key to ensuring household food security and economic emancipation.

2.4.4. Impact of agricultural interventions on food security

According to Sihlobo and Zantsi (2024), growth in the agricultural sector, particularly in smallholder farmers, who are typically located in homelands, has been the key focus of national policies. Hence, governments focus on agricultural investments in agricultural development (Binuomote, Adeleke and Omodunbi, 2012). Mncina and Agholor (2021) noted that agricultural interventions in South Africa are numerous and are aimed mainly at job creation and poverty reduction.

Hendricks and Olivier (2015) claim that agricultural interventions related to food security benefit smallholder farmers' livelihoods and have a beneficial effect on rural communities' lives. Food security interventions yield positive results in the local community in terms of job creation and improved livelihoods (Nesengani *et al.*, 2016:117). According to Chepape and Maoba (2020), post-developmental interventions resulted in the creation of jobs, better income generation, and decreased poverty because most smallholder farmers were able to afford to purchase production inputs and put in place the necessary infrastructure. However, Lori *et al.* (2021) argue that evidence suggests that agricultural production and socioeconomic conditions are not improving among black smallholder farmers because most of them are in marginal areas.

Most food insecurity challenges are addressed by initiating various interventions. For example, in Malawi, microfinance and general subsidies were introduced in the 1970s and 1980s for smallholder farmers with the objective of stimulating food crop production. The subsidies yielded positive results; they enabled the country to produce sufficient staple food and attained

a high degree of maize as its staple food. However, the government of Malawi was pressured by the 1990s to abolish the use of subsidies by the World Bank to liberalise through the Structural Adjustment Programme (SAP). Unfortunate results included acute and unrelenting food crises up to 1998. The government subsequently reinforced subsidies in 1998 through the Strater Pack Scheme (SPS), which was later changed to the Targeted Input Programme, with the purpose of providing smallholder farmers with packages of fertilisers and seeds to plant maize (Chibwana, Fisher, Jumbe, Master and Shively, 2010).

India is the second greatest producer of rice, wheat, sugarcane, groundnuts, vegetables, fruits, and cotton in the world. It is also a top producer of spices, seafood, poultry, cattle, and plantation crops. India is the world's third largest economy, behind the United States and China, with a GDP of \$2.1 trillion (FAO, 2020). Although India is among the top three countries, its achievements were achieved through collaboration with the Government of India (GoI), led by the NITI Aayog, and through the participation of various Ministries, States and Union Territories (FAO, 2020). According to Fayet and Vermeulen (2014), India utilises various sustainable initiatives to improve the sustainability and inclusion of smallholder farmers in the global supply chain. These initiatives include increasing the overall rural economy and enhancing market access for smallholder farmers (Bisht, Rana, and Pal Ahlawat, 2020).

Adu, Yawson, Armah, Abano and Quansah (2018) investigated climate variability, food security and poverty: Agent-based assessment of policy options for farm households in northern Ghana and concluded that the provision of agricultural credit and access to off-farm employment to smallholder farmers are the most highly effective policy entry points that deserve more empirical research.

The government of South Africa has implemented various agricultural interventions related to food security in both rural and urban communities in accordance with the constitutional mandate of section 27,1(b), with the goal of ensuring food security and improving socioeconomic conditions (Nesengani *et al.*, 2016). Carlsen, Ncube and Fanadzo (2021) noted that land reform, food security programmes, and water access agricultural interventions are just a few of the ways in which the government is committed to assisting smallholder farmers. The Comprehensive Rural Development Programme (CRDP), which was launched in July 2009, is another form of agricultural development support to curb food insecurity. It was based on three-pronged strategies and focused mainly on agrarian transformation, rural development, and land reform so that the poor could take control of their lives with support from the government (Department of Rural Development and Land Reform (DRDLR), 2013).

The NDP vision emphasises that more needs to be done for smallholder farmers to improve the provision of rural infrastructure, access to capital and skills, access to inputs, and market and transport infrastructure, with rural development and land reform being the core of agrarian reform and economic development (DALRRD, 2023). Mokgomo *et al.* (2022) believe that although many smallholder farmers have received agricultural interventions in one form or another, most of them remain productive. Conversely, Ngema, Sibanda and Musemwa (2018) argue that there is little to no evidence available to the public that indicates that the initiated food security interventions have achieved the intended outcomes. As a result, the government is failing to provide the public with detailed reports of the success or limitations of implemented agricultural interventions.

According to Nesengani *et al.* (2016), there is a serious lack of monitoring and evaluation information by officials tasked with ensuring that these agricultural interventions yield the intended outcomes. Furthermore, Chepape and Maoba (2020) stressed that although various agricultural interventions have been implemented, very few to none have been formally evaluated to date. Moreover, Mokgomo *et al.* (2022) indicate that there seems to be a consensus that a limited number of empirical studies exist that have assessed the effectiveness of these policy interventions, and a lack of monitoring and institutional coordination has resulted in the ineffectiveness of numerous agricultural development support policies and programme.

2.5. Rural Livelihood Strategies

Understanding rural households' livelihood options is important for reducing rural poverty in the least developed countries, since almost two-thirds of the world poor live in rural areas of low-income countries, which depend primarily on subsistence farming and other natural resources for a living (Paudel Khatiwada, Deng, Paudel, Khatiwada, Zhang, and Su, 2017). Touch, Tan, Cook, Liu, Cross, Tran, Utomo, Yous, Grunbuhel and Cowie (2024) indicate that in a period of increasing environmental, socioeconomic, and market uncertainty, understanding smallholder farmers' adaptive methods is critical for long-term agricultural productivity and environmental management. Yobe, Mudhara and Mafongoya (2019) stressed that a better understanding of the factors influencing rural household strategies is essential for improved policymaking, well-being, and economic growth towards realisation of the targets set in the NDP.

Myeni *et al.* (2019) investigated the barriers affecting the sustainable agricultural productivity

of smallholder farmers in the Eastern Free State of South Africa and revealed that the total monthly income of rural households in South Africa comprises both on-farm and off-farm sources of income; farming was the most common activity in the research area, and off-farm income was the primary source of income for most households. According to these data, most smallholder farmers produce for subsistence under rainfed farming systems, with just a small portion of their produce reaching the market. As a result, the primary sources of income were old-age and child-support social subsidies, with very few farmers receiving remittance payments.

Adem and Tesafa (2020) state that the smallholder farming sector faces potential risks and uncertainties due to continuous and challenging problems that are induced by environmental crises and demographic and socioeconomic constraints. As a result, Ethiopia is struggling to feed a relatively large proportion of its population from domestic production. More importantly, the population does not have the productive capacity to earn the ability to meet its additional food requirements through commercial imports. For this reason, Adem and Tesafa (2020) argued that it is of prime importance that smallholder farmers be involved in other income earning activities in addition to attempting to improve the production and productivity of agriculture.

Livelihood strategies are regarded as mechanisms that rural communities employ to achieve their livelihood standards and improve rural economic activities (Mbatha, 2019). According to Yobe *et al.* (2019), livelihood strategies are combinations of lifestyle choices, goals, values, and activities that aim to improve the quality of life of individuals, families and/or communities. Ngidi and Hendricks (2014: 278) claim that many South Africa's rural families are prone to the risk of suffering from food scarcity and the adoption of coping mechanisms that could significantly impact their long-term food security situation. To avoid hunger and starvation, households should pursue various livelihood methods, which include dietary adjustments (switching from consuming preferred foods to cheaper and/or less preferred substitutes). Consequently, rural households pursue several strategies of income generation and social activities and construct a portfolio of livelihood activities to meet and, if feasible, improve livelihood outcomes, and farming is an integral part of such strategies (Khatiwada *et al.*, 2017; Yobe *et al.*, 2019). Several rural households have few income earners, who pursue a combination of crop and livestock, farm, off-farm, and non-farm activities in various seasons to earn a living (Gidi, 2013).

The common livelihood strategies in South Africa among poor rural households are migration,

agriculture, and social grants for old age and child support, which contribute immensely to reducing hunger, alleviating poverty and enhancing food security (Yobe *et al.*, 2019; Swanepoel, Van Niekerk and D'Haese, 2017). According to Serrat and Serrat (2017), livelihood strategies are dependent not only on capital assets but also on the ability of rural households to access several assets, which positively impacts the strategies that they undertake, whereas institutional processes generate both opportunities and challenges in the strategies that rural households undertake.

Meemken and Bellemare (2020) suggest contract farming of a rural livelihood strategy, a phenomenon that is not new; it is a tool that can help mitigate prevalent market failures and reduce the risks facing smallholder farmers. Meemken and Bellemare stated that most studies find that contract farming improves welfare and may also improve farmers' access to extension services, financial services, and farm inputs, thereby enabling farmers to increase productivity, improve product quality, or adopt more profitable crops. Moreover, contract farmers in most countries exhibit increased demand for hired labour, and there is limited empirical evidence on the development of self-sufficient interventions that limit dependency syndrome for households and smallholders to the government.

2.6. Private – Public Participation in Food Security

According to Mangeni (2019), public private partnerships (PPPs) in agriculture are collaborative mechanisms in which players share resources and risks and generate innovation for the development and support of the agricultural sector. Potential partners include the government, research institutions, universities, public extension agencies, producers' associations, businesses, and individual producers in the private sector. Similarly, the private sector provides services such that the government's service delivery objectives are aligned with the profit interests of its private partners (Nduhura, Molokwane, Lukamba, Mugerwa, Nuwagaba, Twinomuhwezi, Kadondi and Mbabazi, 2022).

Mangeni (2019) highlighted that collaboration between publicly funded institutions and private sector entities occurs in several areas, such as seed production, farm implementation and machinery production, disease diagnostics and vaccine manufacturing, value addition, and postharvest agricultural processing and production quality testing evaluation. In addition to financing, implementing and operating public sector facilities and services should be designed (Koch and Hammarösköld, 2022). PPPs can be an excellent way to ensure that farmers,

particularly in poor countries, have access to the knowledge, technology, and financial resources they require to improve the efficiency of their agricultural techniques and the quality of their goods (Sandøy, 2018). A typical example is training a trainer's strategy, which is used by PPPs to increase the impact and sustainability of technologies by ensuring the transfer of skills to the local community so that they share resources beyond the scope of the project, as these newly trained community members become sources of expertise and advice to other farmers when the project comes to an end (Mangeni, 2019). Nduhura *et al.* (2022) state that there are four types of PPPs that can be utilised to improve food security, nutrition, and agro exports, namely, management contracts, operate and maintain, build own and operate.

Hermans, Geerling-Eiff, Potters and Klerkx (2019) argued that agricultural sector problems are complex, persistent and exceed the capabilities of the government as a single player. Therefore, the involvement of PPPs is vital. To meet the SDGs in sub-Saharan Africa, particularly in agriculture, PPPs are crucial for accelerating growth through the sharing of knowledge and skills (Mangeni, 2019). Nduhura *et al.* (2022) opined that the adoption of PPPs has the potential to increase agricultural production and productivity for smallholder farmers, food security and poverty reduction for the rural poor, provide import and export benefits, and provide state income from royalties. Rankin, Nogales, Santacoloma, Mhlanga, and Rizzo (2016) described to the Food and Agriculture Organisation (FAO) how PPPs are currently being touted as possibly useful in modernising the agricultural sector and promoting sustainable growth in the agricultural industry while also involving smallholder farmers.

To better understand the potential benefits of Agri-PPPs, the FAO has gathered 70 case studies from 15 developing countries along with evidence from field-based support to PPP initiatives for agribusiness development in Central America and Southeast Asia (FAO, 2016). This form of partnership has demonstrated that it can potentially help enhance sustainability in the agricultural sector and, to a greater degree, promote inclusive development for smallholder farmers. The cases used for the study involved one or more public entities and one or more agribusiness companies. In addition, they also involve financial institutions, Non-Governmental Organisations (NGOs), small and medium agro-enterprises, farmer organisations, and individual farmers (FAO, 2016). The study revealed that many of the partnerships provided evidence of positive net income, improved market access, increased production, improved product quality or reduced cost for smallholder farmers. The public-sector partners also achieved positive benefits, as there was evidence of achieving Socio-economic targets, general benefits from the involvement in PPPs (such as the strengthening of

public-sector institutions), and skills in project design and management (FAO, 2016). Businesses also experienced increased sales and market shares and/or greater availability of raw material supplies. Similarly, Aseete, Barkley, Katungi, Ugen and Birachi (2023) assessed the impact of PPPs on small-scale common bean producers in Uganda, and the results revealed that PPPs created positive outcomes for smallholder farmers and stimulated increased production from targeted interventions.

Institutions of higher learning that are involved in research and development could engage in PPPs to take off the technological advancements resulting from institutional research and development (R&D). For example, partnerships between the private sector and the University of Bern have resulted in the improvement of teff yields, the most important cereal crop in Ethiopia (Girma, Assefa, Chanyalew, Cannarozzi, Kuhlmeier and Tadele, 2014). In South Africa, the Agricultural Research Council (ARC) is viewed as the leading research institution that develops human capital, fosters innovation to support and develop, and promotes the agricultural sector in SA (GCIS, 2015).

The NDP advocates for collaboration among the government, the private sector, and citizens to develop self-reliant local food systems that ensure universal access and utilisation over time (Department of Planning, Monitoring and Evaluation (DPME), 2014). In alignment with the NDP vision, the DALRRD developed and implemented the AAMP, which aims to encourage meaningful public participation—private partnerships targeting small-scale to medium- and large-scale farmers—as well as agribusiness to channel investments and skills towards underutilised areas to drive mass production of agriculture and the localisation of agro-processing to improve food security, socioeconomic conditions, and the development of rural economies (DALRRD, 2023). This study hopes to integrate both community development and agricultural development so that municipalities, private sectors and related stakeholders can collaborate effectively in increasing food security in Sokhulumi village. This study seeks to encourage the adaptation of transformation and technological advancements so that smallholder farmers may migrate from traditional agricultural methods of farming into modern farming systems.

2.7. Role of Technology in Food Security

The advancement of technology in agricultural farming has been viewed as a significant factor in the growth of agricultural production in most developed countries during the last few decades

(Mbatha, 2019; Shukla, Das, and Arora, 2021). However, food insecurity is still a challenge in African countries. Furthermore, Mbatha argues that technological development has played a pivotal role in reducing food insecurity levels around the globe. Additionally, the availability of technology can create job opportunities for rural communities, and rural farmers can transform their traditional agricultural sector to contribute to the economic growth of rural areas through government interventions.

Shukla, Das, and Arora (2021) argued that, while farmers strive to feed the world while using limited natural resources, technological advancements are vital to the future of farming. According to Myeni *et al.* (2019:2), the South African population is expected to increase from 57 million to 82 million by 2035. Therefore, food security for our fast-growing population requires profound improvements in technology, and food demand will exceed resource limits if investments in research and technological developments are not prioritised (DAFF, 2014).

According to (DALRRD, 2023), there is an enormous gap in technology, particularly technology aimed at transforming livelihoods or rural communities. The deployment of technologies in rural areas has not been scaled up. As a result, a shortage of investment in farming production technology hinders the development of smallholder farmers. Food security for our fast-growing population requires profound improvements in technology, and food demands will exceed resource limits if investments in research and technology development are not prioritised. For example, climate change, production input costs, development of crop varieties adapted to adverse conditions, biological pest and disease control methods, biogas digesters and improved irrigation management, and farming systems that blend traditional knowledge with innovative research are some of the issues to be researched (DAFF, 2014).

Khapayi and Celliers (2016) noted that the transformation of the agricultural sector in this century was dominated by technological developments, particularly the commercial sector. Therefore, technological advancements must reach both subsistence and smallholder farmers in rural communities. As a result, South Africa's lack of information about smallholder and subsistence farming prevents technical improvements from reaching rural communities (Mbatha, 2019).

2.8. Theoretical Framework

According to Agbaeze, Ohunye, Obamen and Ibe (2020), agricultural development theory is a fusion of five models: the frontier model, the conservation model, the urban-industrial impact

model, the diffusion model, and the High Pay-off Input Model (HPIM). All these models can be used to situate this study. Khanal, Nepal, Zhang, Nepal, Paudel, Liu and Rai (2020) noted that these models have been adopted in Nepal as a theoretical framework for evaluating the coherence, effectiveness, relevance and sustainability of agricultural development policies. However, considering the focus of this study, which focuses on agricultural interventions related to food security in line with the National Development Plan 2030's output priorities, the high-payoff input model is the most suitable theoretical framework adopted for this study.

Varpio, Pardis, Uijtdehaage and Young (2020: 989) define the theoretical framework as the way a researcher reflects the work; they do to employ a theory in a study. The theoretical framework also assists the researcher in connecting the dots between the abstract and the concrete components they see in the research data (Kivunja 2018: 47). According to Bizikova, Jungcurt, McDougal and Tyler (2020), the Sustainable Development Goals (SDGs), particularly SGD 2, obligate the international community to eradicate hunger by 2030 through a renewed focus on agricultural development for food security and nutrition. In response to SGD 2, the National Development Plan 2030's output priorities for realising the vision of smallholder farmer development and support for agrarian transformation, the growth of sustainable rural enterprises and industries, increased investment in agro-processing, trade development and access to markets and financial services resulted in the creation of rural jobs and improved Socio-economic conditions (NPC, 2012).

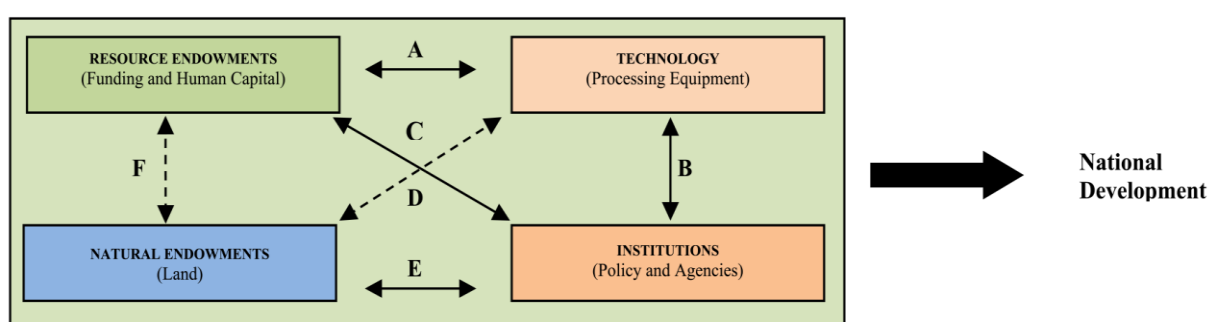
As postulated by Ruttan and Hayami (2015), the HPIM is the most suitable because it places strong emphasis on the investment needed to make contemporary high payback inputs accessible to farmers. The ability of research institutions to support the industrial sector to create new technological knowledge; create, produce, and market new technology inputs; and effectively acquire and apply new information and new technologies by farmers should be enhanced. Additionally, Udemezue and Osegbue (2018) describe HPIM as modern, highly profitable inputs available to farmers in developing nations, a key to changing the conventional agriculture industry into a productive driver of economic growth. It places strong emphasis on how farmers may use their knowledge and skills to their advantage, as well as how they can collaborate to advance agriculture and manage the environment (Khanal *et al.*, 2020). According to Bizikova *et al.* (2020:1), agricultural development should concentrate on investment in rural infrastructure, research, developments, and extensions, as well as policy and institutional development and capital, among other factors.

Agricultural development is a key factor in ensuring the improvement of people's material and

social welfare and is an integrated strategy for enhancing the environment and social well-being of community residents (Udemezue and Osegbue, 2018). For this purpose, the Ministry of Agriculture and Land Affairs (MALA, 1998) emphasises that the agricultural sector in South Africa is crucial to creating a robust economy and, as a result, eliminating inequalities through expanding chances for employment and income for the underprivileged. Agricultural productivity is emphasised by the National Planning Commission (NPC, 2012) as the primary factor in job creation, economic growth, poverty reduction, and food security in South Africa.

Figure 2.6 below illustrates how good policy in conjunction with capital injection, expertise and modern technology could increase food production and enhance national development in third-world countries (Norton, Alwang and Master, 2020). Conversely, the figure below illustrates that comprehensive investment in agricultural development should include improvements in the stock of modern technologies; improvements in land; and the development of natural, human and social capital to increase the productivity of all factors of production (Mncina and Agholor, 2021). Furthermore, Goyal and Nash (2016) argue that investment in rural public goods, combined with improved policies and institutions, has driven the increase in agricultural productivity worldwide.

Figure 2.5: Diagram of Agricultural Development Theory



Source: Adapted from Norton, Alwang and Masters (2016).

Udemezue and Osegbue (2018) noted that HPIM, which advocates for new technological knowledge and new technologies by farmers, among other factors, has resulted in successful efforts to develop new, high-productivity grain varieties suitable for the tropics. For example, in the early 1950s, new high-yielding wheat varieties were developed in Mexico, and in the 1960s, the Philippines developed new high-yielding rice varieties. These varieties are highly responsive to industrial inputs such as fertilisers and other chemicals and to more effective soil and water management.

Agricultural development policies coordinate all production factors and provide action plans

necessary to achieve the desired goals (Agbaeze *et al.*, 2020; Khanal *et al.*, 2020). Additionally, Norton *et al.* (2016) suggested that the introduction of good policies can accelerate the process of agricultural development. For example, the Gauteng Department of Agriculture and Rural Development (GDARD, 2019) has developed a mechanisation policy that aims to assist farmers in the province in contributing to food security and socioeconomic transformation. This policy complements the DAFF initiative of the Zero Hunger Strategy, which aims to advance emerging farming sector beneficiaries and ensure that they expand their contribution to food security (GDARD, 2019). Similarly, the DALRRD initiated the Integrated Rural Development Strategy in 2023 with the aim of providing a guiding framework and principles for executing the NDP vision of rural development and revitalising the rural economy (DALRRD, 2023). Khan *et al.* (2020) warned that policies and legislation that cannot be implemented at the community level are doomed with failure.

Udemezue and Osegbue (2018) noted that investing in modern, high-paying inputs for farmers in poor nations is crucial for transforming traditional agricultural sectors into profitable sources of economic growth. If farmers are provided with new incentives and modern technologies, food production can increase and enhance livelihoods (Udemezue and Osegbue, 2018; Agbaeze *et al.*, 2020).

2.9. Chapter Summary

Agricultural intervention has played an important role in realising food security and social economic transformation. The key to transforming the conventional agricultural sector into a productive driver of economic growth is making highly profitable inputs, modern technologies, new knowledge and skills available to farmers in developing nations.

CHAPTER 3: RESEARCH METHODOLOGY AND DESIGN

3.1. Introduction

According to Polit and Beck (2014: 764), research methodology is a method utilised to structure a research study, gather, and investigate data systematically. Farrow, Iniesto, Weller and Pitt (2020: 8) describe research methodology as how the researcher conducted a piece of research, investigated a topic, or attempted to respond to a research question. Furthermore, in most cases, when people talk about research methods, they refer to aspects such as an approach or technique for conducting research, how a study is completed, how data are collected and analysed and how findings are reported. This chapter discusses the research methods and techniques used to measure the concept of this study. It comprehensively elaborates on the research paradigm, research approach and design, data collection techniques and data gathering instruments, sampling methods, sampling strategies, ways of ensuring validity, and pilot testing and explains in detail the ethical considerations that the researcher adhered to, as well as a discussion of the storage of research data. This section justifies the methodology and procedures adopted in gathering and analysing the data.

3.2. Research Paradigm

Paradigms play a significant role in science. The paradigm is a researcher's philosophical perspective, and it provides important implications for every decision made in the research process, including the selection of methodology and methods (Kivunja and Kuyini, 2017: 26). According to Pretorius (2024), ontology, epistemology, methodology and axiology make up the commonly used research paradigms: Positivism, Post-Positivism, Constructivism, Social Constructionism, Interpretivism, Pragmatism, and Critical Realism. Every researcher must choose the paradigm within which he will work, understand the nature of their selected paradigm, and document their paradigmatic choice in their writing (De Vos, Strydom, Fouche and Delpont, 2011: 41). This study adopted the interpretivist paradigm to evaluate the impact of agricultural interventions on boosting food security

The researcher chose the interpretivism paradigm because the study sought to evaluate the effectiveness of agricultural interventions in enhancing food security from the perspective of farmers, community members, and tribal councils. Food security is a multidimensional issue

shaped by social, economic, cultural, and environmental factors, and interpretivism allows researchers to explore these complex dynamics through participants' lived experiences (Creswell and Poth, 2017). This paradigm acknowledges that individuals interpret and respond to agricultural programmes differently depending on their context, beliefs, and local realities (Saunders, Lewis and Thornhill, 2019).

According to Rehman and Alharthi (2016:55), interpretivism is a subjective epistemology, and external realities cannot be directly perceived by observers without being contaminated by their worldviews, concepts, and backgrounds. It is a method by which the researcher analyses the world from the perspective of the research participants (Bonache and Festing, 2020). Moreover, Pretorius (2024: 2705) asserts that, at the heart of interpretivism, participants are the experts of their own experience and focus on uncovering the meaning that people attach to their experiences. Interpretivism was particularly effective for this study because it focuses on understanding meaning rather than measuring variables, thus enabling the researcher to gain deeper insights into how and why certain interventions succeed or fail in specific settings (Bryman, 2016). Through qualitative methods such as individual interviews, the researcher was able to capture the nuanced ways in which interventions impact food production, household nutrition, and livelihoods (Denzin and Lincoln, 2018).

Kivunja and Kuyini (2017: 35) noted that the main goal of interpretivism is to comprehend the subjective nature of human experience. Moreover, this method aims to virtually enter the minds of the participants being studied to comprehend and interpret what that person is thinking about or how they are interpreting the context. By embracing subjectivity and multiple viewpoints, interpretivism supports a holistic understanding of food security interventions as socially embedded processes. This paradigm is therefore appropriate because it enables researchers to generate context-specific insights that can inform the design of more effective and sustainable agricultural policies and programme (Creswell and Creswell, 2018).

Farrow *et al.* (2020:15) noted that the interpretivist paradigm tends to prefer qualitative ways to investigate phenomena. There is a strong link between the interpretivist paradigm and qualitative methodology, as one is a methodological approach, and the other is a way of data collection (Thanh and Thanh, 2015). The interpretivist epistemological perspective allowed the researcher to obtain in-depth data on how agricultural interventions are used as a mechanism to eradicate food insecurity and improve livelihoods in Sokhulumi village.

3.3. Research Approach

This study used a qualitative research approach because the method allowed the researcher to better understand the experiences of the participants. This method allowed the researchers to explore how decisions are made and provided the researcher with detailed insight into the evaluation of the effectiveness of agricultural interventions in boosting food security in Sokhulumi village (Barret and Twycross, 2018: 63). The researcher's intention was to determine the opinions of the participants on the research topic. The qualitative research approach was suitable for this study because it explores, robustly investigates, and learns about a social phenomenon to unpack the meaning people ascribe to, activities, situations, events, or artefacts to develop a deeper understanding of some dimension of social life (Leavy, 2022).

According to Njie and Asimiran (2014), the qualitative research approach involves zeal and the will to delve deeply into a subject to better understand it. More time and further investigations through observations, interviews, and additional follow-up sessions are needed. The primary form of qualitative research method involves descriptive text and narrative accounts rather than numerical or statistical analysis, allowing participants to highlight their lived experiences, opinions, and emotions as well as interpret the meaning of their actions (Rahman 2017:103-104). DeMarrais, Roulston and Copple (2024: 7) believe that qualitative research generates data utilising senses such as observations or objects (still or moving), uses audio and/or video recordings of naturally occurring interactions, or researcher-generated events such as interviews, objects and artefacts or smells or tastes. Researchers utilise these data to develop a narrative account of what is happening around the globe.

The researcher in this study used semi-structured interviews to provide participants with an in-depth view of their experiences with respect to evaluating the effectiveness of agricultural interventions in boosting food security in Sokhulumi village. Qualitative research is the most reliable method since it involves talking to people, examining documents and artefacts, and observing what is happening.

(Demarrias *et al.*, 2024). Accordingly, Creswell (2008) echoes the sentiment that qualitative research occurs in the natural setting; the researcher frequently visits the participants on site to conduct research. This process enables the researcher to develop a level of detail about the individuals or place and to be actively involved in the actual experiences of the participants even though the qualitative research method tends to prefer a smaller sample size and is time consuming (Rahman, 2017). Creswell (2013) suggested that the qualitative approach is useful

because it enables the researcher to make knowledge claims on the basis primarily of constructivist perspectives, advocacy/participatory perspectives or both. It also utilises strategies of inquiry, such as narratives, phenomenology, ethnographies, grounded theory studies, or case studies. The researcher collected data in an open-ended manner. emerging data with the primary intent of developing themes from the data.

The criticisms of qualitative research methods are that they lack scientific vigour and credibility as opposed to quantitative methods. However, opponents of this method lack an understanding that this approach can obtain in-depth and interrogative analysis of data (Vaismoradi, Turunen and Bondas, 2013). Because this was a social study, qualitative research was valuable in explaining the social issues at hand. Unlike the qualitative method, Creswell (2013: 18) argues that the quantitative approach is an alternative method in which the investigator primarily uses postpositivist claims to develop knowledge (i.e., cause and effect thinking, reduction to specific variables and hypotheses and questions, measurement and observation, and theory testing), employs inquiry strategies such as experiments and surveys, and collects data on predetermined instruments that yield statistical data. Berg (2001) noted that quantitative studies use counts and measures of things, but some experiences cannot be described properly by numbers. As a result, this research approach was not useful for evaluating the effectiveness of agricultural interventions in boosting food security in Sokhulumi village.

3.4. Research Design

Research design is a comprehensive plan that aims to answer specific questions or test hypotheses. A research design serves as a blueprint that must include three processes: data collection, instrument creation, and sampling (Bhattacharjee, 2012). It is as a glue that holds the research project together (Dannels, 2018:402). Mouton cited in (Volsoo, 2014:317), the primary function of a research design is to empower the researcher to anticipate what the appropriate research decisions are most likely to be and to maximise the validity of the possible results. Dannels further reveal that the research design determines how participants are chosen, what variables are included and altered, how data are gathered and analysed, and how unnecessary variability is managed to answer the overarching research challenge.

For this study, a phenomenological research design was employed to explore the perceptions of participants through the sharing of their experiences in Sokhulumi to arrive at sound conclusions. The chosen research design fits the research problem of the intolerable level of

food insecurity in South Africa and the research objective of evaluating the effectiveness of agricultural interventions in boosting food security in Sokhulumi village. Leedy and Ormond (2010:141) describe phenomenological design as one that is interested in understanding participants' opinions, perspectives, and views of a particular situation. "It is oriented in getting in-depth understanding of the nature and meaning of everyday experience" (Hossain, Alam, and Ali: 2024). In addition, Tomaszewski, Zarestky, and Gonzalez (2020: 05) state that phenomenology is most utilised for research that is focused on understanding the essence of a particular set of people's lived experiences. Hossain *et al.* (2024: 151) concur that it is commonly used in research studies that aim to capture the essence of the lived experience of certain populations.

Phenomenological research design in conjunction with semi structured interviews helped to go beyond the "what" questions and managed to answer "how" and "why" questions in qualitative research. A deeper understanding of "how" and "why" questions assisted the researcher in obtaining a clear understanding of what. of guidelines of participants' perceptions of the evaluation of the effectiveness of agricultural interventions in boosting food security in Sokhulumi village. According to Flood (2010), phenological research focuses on the core of a participant's lived experience, which is perceptible to participants with differing views.

3.5. Data Collection Techniques

3.5.1. Primary data collection

According to Mazhar, Anjum, Anwar and Khan (2021: 06), primary data refer to newly obtained, original, and fresh information. In this study, primary data were collected via personal interviews with smallholder farmers, FPSU committee members and Tribal Council members. According to Barrett and Twycross (2018: 63), interviews with participants are the main feature of qualitative research. Interviews are the most direct and straightforward way to obtain precise and rich data. Individual in-depth interviews are among the most familiar strategies for collecting qualitative data and allow researchers to delve deeply into social and personal matters (DiCicco-Bloom and Crabtree, 2006: 314-317). Personal interviews are widely acknowledged as a good technique for qualitative inquiry to obtain insights from persons who have experienced or are experiencing the phenomenon (Majid, Othman, Mohamad, Lim, and Yusof, 2017:1073).

Data gathering was undertaken through semi-structured interviews, which targeted three (3)

different groups of farmers to obtain a balanced view from smallholder farmers, the FPSU committee and the Tribal Council. In phenomenological research, data gathering is defined as an activity wherein researcher seek descriptions, viewpoints, characterisations, explanations, observations, and other possible expressions of the phenomena being studied (Fry, 2016:16). Semi-structured, face-to-face individual interviews were conducted via a prepared interview guide. A face-to-face interaction between two persons in which the interviewer asks questions and the participant answers these questions. Furthermore, the important characteristic of a face-to-face interview is direct personal contact between the interviewer and the participant (Loosveldt, 2012: 201).

According to Creswell (2013), the researcher must first gain permission from an area of study to gather data immediately after approval from the university or gatekeepers. Fortunately, in this study, there were no gatekeepers, permission and consent was sought from the sampled population. Smallholder farmers, the FPSU committee and Tribal Council members were contacted individually via telephone to inquire about their interest in the research and to extend invitations to those who showed interest. Consent forms were signed by all participants, and they all understood that their participation was voluntary. The researcher also took the group dynamics of the participants into account, as emphasised by Leedy and Ormord (2010:105). The participants were encouraged to speak freely and to narrate versions of events using their own words. Each interview lasted approximately 45 minutes, and all the interviews were conducted by the researcher. At the end of each interview, the researcher reminded the participants about their desire for a second face-to-face interaction with them to discuss the study findings and to ensure that the study findings reflected their own experiences.

DiCicco-Bloom and Crabtree (2006) state that semi-structured interviews are often the sole data source for a qualitative research project and are typically organised in advance at a specific time and location outside of everyday events. Additionally, they are often arranged around a set of predefined open-ended questions, with further questions emerging from the discussion between the interviewer and the interviewee(s). Miles, Huberman and Saldaña (2018) argue that research questions reflect what the research aims to achieve. The semi-structured questionnaire used in this qualitative study included open-ended questions so that the participants were able to provide detailed feedback. These questions are useful in providing participants with an opportunity to provide details that the researcher might have otherwise overlooked.

3.5.2. Secondary data collection

Secondary data analysis (SDA) was conducted by analysing existing documents, including journals, articles, books, government policies and publications on the topic. According to Johnston (2014), the SDA method is useful for conducting investigations when a systematic process is used. Desktop literature reviews were used to gather data from important, peer-reviewed journal articles as well as other research reports and official publications such as dissertations and theses. The analysis of the data gathered from each source was guided by a complete evaluation plan that included specific assessment questions, and specific data collection methods were developed for individual interviews. Using the qualitative data analysis programme ATLAS.ti, all the data gathered from all the sources were coded in accordance with the evaluation criteria. Church (2002) noted that secondary data analysis might be based either on published data or original data. It includes data that have been previously acquired and analysed by someone else (Mazhar *et al.*, 2021: 07). The level ten design cited in Madziakapita (2008: 87) describes secondary data collection as information collected through literature, publications, media, and other non-human sources.

3.6. Sampling Methods

During primary data collection, it is almost impossible and costly for the researcher to collect data from a whole target group or population. Therefore, the researcher selected a sample for this research study. Sekaran and Bougie (2016) define sample size as the proportion of a population that is chosen to draw conclusions that are accurate and reliable. On the other hand, Adwok (2015: 95) defines sampling as the technique of selecting a smaller set of participants to tell us basically what a larger population might tell us if we asked every member of the larger population the same questions.

The research selected twenty (20) vegetable and grain smallholder farmers, which included smallholder farmers, the FPSU committee and the Tribal Council. This sample size was carefully chosen based on the comprehensive understanding of the effectiveness of agricultural interventions in increasing food security, the types of interventions required to address food insecurity in Sokhulumu village, land use management, the number of beneficiaries of the project and the overall performance of the farms. The selection process accommodates diverse factors, such as women, youth, and elderly individuals. The database of these smallholder farmers was obtained from the Department of Agriculture Land Reform and Rural

Development (DALRRD) and the Gauteng Department of Agriculture Rural Development and Environment (GDARDE), and each of the chosen sample sizes had a representative smallholder farm owner/manager and/or director, chairperson and/or secretary and diverse typology.

Sampling has various techniques: cluster sampling, probability (stratified) and non-probability (purposive). For this study, purposive was used to select a sample. According to Miles *et al.* (2018: 41), qualitative research approaches tend to use smaller samples that represent the chosen context of the study and thus tend to be rather purposive than random. Vasileiou, Barnett, Thorpe and Young (2018: 02) suggested that qualitative samples are purposeful and chosen based on their ability to provide richly textured information that is relevant to the evaluation of the effectiveness of agricultural interventions in boosting food security in Sokhulumi village.

3.7. Data Analysis Strategies

According to Caudle (2004: 417), qualitative data analysis means making sense of relevant data collected from primary sources such as individual interviews, onsite observations, and secondary data and then responsibly presenting what the information reveals. It involves the interpretation, identification, and scrutinisation of patterns and themes in textual information and determines how these themes and patterns help understand a phenomenon via a deeper method of responding to current research questions (Islam and Aldaihani, 2022: 06).

Data analysis is the ongoing act of providing order, structure, and meaning and posing questions about the amount of acquired data (Rossman and Rallis, 2012: 273). Liamputtong (2009) suggests that qualitative data analysis should commence early in the study process because researchers immerse themselves in their fieldwork, such as interviews, observations, or published texts, and then study and reread the data to make sense of the data generated. On the other hand, Caudle (2004: 419) stated that it is essential that relevant data from both primary and secondary sources be gathered to the maximum possible extent to be of any analytical use.

Data were gathered by utilising semi-structured interviews and secondary sources. In this study, qualitative data analysis was used to identify emergent patterns from the collective actions of individuals, variations, similarities, and new issues in response to the research problem. The findings from the analysed data assisted in the review, synthesis, and interpretation of the phenomenon under study to gain deeper insight.

Qualitative data analysis is a critical component of qualitative research because it enables the researcher to make sense of large volumes of non-numerical data such as interview transcripts and field notes. It involves systematically organising, interpreting, and identifying patterns or themes within the data to generate meaningful insights into human experiences and social phenomena (Creswell and Poth, 2017). Without rigorous analysis, qualitative data remain descriptive and fail to contribute to theoretical understanding or practical implications (Braun and Clarke, 2019).

The process of qualitative data analysis assisted the researcher in moving beyond surface-level descriptions to uncover underlying meanings, relationships, and contexts that shaped participants' perspectives (Denzin and Lincoln, 2018). It is through this interpretive process that researchers can develop rich, in-depth explanations that reflect participants' realities and contribute to knowledge generation. Furthermore, qualitative analysis ensures credibility and trustworthiness by allowing for triangulation, reflexivity, and transparent documentation of analytical decisions (Lincoln and Guba, 1985).

In essence, qualitative data analysis transforms raw data into coherent findings that capture the complexity and diversity of social life. This enabled the researcher to draw connections between participants' narratives and broader theoretical frameworks, thereby ensuring that qualitative research remained both meaningful and methodologically rigorous (Saunders, Lewis and Thornhill, 2019).

This study used Colaizzi's method of descriptive phenomenological data analysis to articulate the experiences of smallholder farmers depending on agricultural intervention to combat food insecurity in Sokhulumi village. According to Morrow, Rodriguez, and King (2015), descriptive phenomenology is concerned with uncovering the essence or essential structure of any phenomenon under research, that is, the characteristics that distinguish it from something else. It is utilised to achieve authentic meanings by delving deeply into reality (Shosha, 2012: 31).

Praveena and Sasikumar (2021) state that bracketing, intuiting, analysing, and identifying are the four important steps in descriptive phenomenology. Prior to describing the analytical procedure of the dataset, a brief description of the data collection and transcript formation was provided, as mentioned in section 3.5.1. above, including telephonically arranging a meeting to inform the participants that the study findings reflect their own experiences. Twenty (20) participants were included in the study, and the transcripts were thoroughly double checked by

the researcher. The following steps represent the Colaizzi process for phenomenological data analysis (cited in Morrow *et al.*, 2015):

Step 1: Read and reread transcripts to obtain a general sense of the entire content.

In this study, evaluating the effectiveness of agricultural interventions in boosting food security in Sokhulumi village, the researcher personally conducted interviews, which helped to gain a holistic sense related to the entire experience of the respondents. The researcher familiarised himself with the data, and each transcript was read several times to gain a sense of the whole content. This process was suggested by Colaizzi (cited in Praveena and Sasikumar, 2021: 914), who suggested that the researcher read the transcript many times to clearly understand the content. As a result of this exercise, the researcher was able to focus on the experiences of the participants and set aside his first-hand experiences to take a new perspective on the phenomenon being studied, also called “bracketing”. Praveena and Sasikumar (2021) described bracketing as the process of putting in abeyance preconceived thoughts and opinions concerning the phenomena under study. The researcher should desist from imposing their assumption on the data collection process or the structure of the data, according to (Shosha, 2012). Bracketing requires the researcher to suspend his or her judgement about the natural world and its existence (Kim, Jun, Rhee, and Wreen, 2020).

Step 2: Extract significant statements.

In this stage of analysis, as per Colaizzi (1978), the researcher extracted significant phrases and statements from the transcript that together form a whole meaning of the experience. The researcher read and re-read the transcripts and analysed each transcript to identify all statements in the accounts that are of direct relevance to the evaluation of the effectiveness of agricultural interventions in boosting food security in Sokhulumi village. He wrote these statements separately for each participant and coded them as transcript page numbers and line numbers.

Step 3: Meaning is formulated from these significant statements.

The meanings were formulated from the significant statements and discussed with the same participants. Each underlying meaning was coded in one category, as they reflected an exhaustive description. In this step, bracketing is important because it helps avoid misinterpretation of the participants’ views Husserl 1960 (cited in Praveena and Sasikumar, 2021: 916). Although Colaizzi recognises that complete bracketing is never possible, he asserts that the researcher must reflexively bracket his pre-suppositions to stick closely to the phenomenon as experienced (Morrow *et al.*, 2015).

Step 4: Organisation of formulated meanings into category clusters of themes and themes.

After the meanings are formulated from significant statements, the researcher clusters the identified meanings into themes that are common across all accounts. As mentioned in step 3 above, bracketing of presuppositions was crucial for avoiding any potential influence of existing theory. Each theme cluster then shrank into emergent themes. All these themes are internally convergent and externally divergent, which implies that each “formulated meaning” comes from only one theme cluster (Mason, 2002). The research participants were then given these clusters of themes for

checking its accuracy.

Step 5: Developing an exhaustive description.

At this step of the analysis, the researcher incorporated all the themes produced in step 4 into an exhaustive description of the phenomenon “evaluation of the effectiveness of agricultural interventions in boosting food security in Sokhulumi village”. This was made possible by combining all the theme clusters and emergent themes and formulating meanings into descriptions to create an overall structure.

Step 6: Describing the fundamental structure of the phenomenon.

At this step of Colaizzi (1978), the researcher reduced the exhaustive description to avoid repetitions and made short, dense statements that captured only those aspects deemed essential to the structuring of the evaluation of the effectiveness of agricultural interventions in increasing food security in Sokhulumi village.

Step 7: Returning to the participants to validate the findings from the study participants.

To ensure that the findings were valid, reliable, and authentic, the researcher returned to the research participants in a single interview session about the findings. He also incorporated emergent data from these interactions into the results of the research study. In this regard, he tried to be consistent with the dialectical, linguistic, and continual connectedness of the description and interpretation process. Through this process, the participants were able to accept the findings presented by the researcher. Even though Giorgi (2006) criticised the process of returning the results to the participants on the basis that both the researcher and participants inevitably have different perspectives—the researcher from a phenomenological perspective and the participants from the ‘natural attitude’. Hycner (1985: 291) emphasises that an excellent validity check requires the researcher to return to the research participants with

written summaries and themes and engage in a dialogue with the participants concerning what the researcher has found thus far.

3.8. Measures Used to Ensure the Trustworthiness of the Study

According to Shenton (2004:11), the trustworthiness of qualitative research is frequently questioned. Essentially, qualitative studies must always demonstrate trustworthiness in providing rigour and strength to study validity and reliability in all steps, including data collection, data analysis and descriptions (Speziale, Streubert, and Carpenter, 2011). Furthermore, Connelly (2016: 435) suggested criteria that should be applied by researchers to ensure the trustworthiness of qualitative studies: credibility, dependability, authenticity, transferability, and conformity.

In the phenomenological approach, validity and reliability are important concepts for ensuring that research reflects the subjective experience of the study participants. Colaizzi's method of descriptive phenomenology emphasises rigour and robustness to ensure the credibility and reliability of its findings. According to Tracy (2013: 228), reliability refers to the researcher's ability to be always consistent and stable, whereas Betram and Christiansen (2014: 202) refer to credibility as the extent to which the data are gathered, and the study findings reflect the "reality" and lived experiences of the participants. As such, Colaizzi's work requires that the researcher establish the validity and reliability of their findings to ensure that they accurately portray the participants' experiences. Again, Colaizzi emphasised the importance of bracketing in descriptive phenomenology.

In this case, the researcher reflected his own presuppositions about the perceptions of altered body image and coping strategies by bracketing. As explained earlier, bracketing requires the researcher to suspend his or her judgement about the natural world and its existence (ibid). All transcripts were double checked by a bilingual translator who is competent in both IsiNdebele, Sepedi and English. According to Creswell and Creswell (2009), the utilisation of an external auditor for review purposes and additional checking for the coding process and analysis are important.

In summary, this study described the process of descriptive phenomenology, which was applied to evaluate the effectiveness of agricultural interventions in boosting food security in Sokhulumi village. Colaizzi's process of phenomenological data analysis has provided an active strategy for describing the living experience of smallholder farmers. The process includes

understanding the data and identifying significant statements, which in turn are transformed into formulated meanings. Thereafter, groups of theme clusters were developed to establish the final thematic construct. The trustworthiness of the research study was assessed by utilising different approaches and strategies to achieve each approach effectively. The accurate application of Colaizzi's process of descriptive phenomenology provides an exhaustive description of the body of knowledge about human experience and therefore represents an effective strategy for establishing a basis for future research.

3.9. Pilot Testing of Data-gathering Instruments

According to Vosloo (2014: 343), pilot testing of data gathering instruments refers to a small study conducted prior to a larger research study to determine whether the methodology, sampling, instruments, and analysis are sufficient and appropriate to study. Pilot testing of the data collection instruments was conducted with a smaller portion of the sample. It was done to ascertain that appropriate words were used in the interview guides and that the language was not too scientific or academic for respondents to comprehend.

Since the sample consisted of 20 smallholder farmers, the pilot test consisted of five smallholder farmers. With the pilot test, the researcher established the computer literacy of the participants and determined whether the interview questions would be completed online or printed and if the interviews would be conducted online or via telephone. Any other discrepancies in the data collection instruments were identified, and where necessary, the instruments were modified or changed accordingly. Wilkinson and Birmingham (2003: 52) stated that researchers can begin to identify and correct errors by testing the interview questions with a few selected participants to establish their clarity. This process plays a significant role in eliminating ambiguous questions, as well as in generating useful feedback on the structure and flow of the planned interview (Vosloo, 2014: 343).

3.10. Ethical Considerations

Rahman (2017: 107) noted that ethical issues are of paramount importance not only in primary data collection but also in secondary data collection because there are ethical issues pertaining to fair and unbiased selection of sources and analysis. Rahman further emphasises that, as a researcher, it is worth standing back for a moment to consider what effect your actions might have on others, as the result can be quite damaging to oneself. To ensure that the ethical review

has been adhered to, the research first sought approval from the UNISA Research Ethics Committee (CREC) to conduct the research study. However, Creswell (2013: 174) argues that researchers are faced with a plethora of ethical issues that are obvious during the data collection, analysis, and dissemination of qualitative studies.

3.10.1. Informed consent

Consent was obtained from all research participants prior to the commencement of the study; the purpose and process of the study were communicated to all concerned parties. Neuman (2014) stated that it is not sufficient to simply provide prospective participant information; respondents need to be aware of exactly what they are agree to and should not be coerced or enticed. Fisher and Anushko (2008: 99) describe informed consent as a process where potential participants are given all the information needed to make an informed decision. In this context, the researcher disclosed any information that would have influenced the potential participant to decide otherwise. Flower (2013: 142) elaborates that the signing of consent forms by participants is an indication that they understand the significance of the study, that they are satisfied with the facts presented and that permission is granted to the researcher for data collection. The researcher assured all the participants that their identities would remain confidential and emphasised that no one would be aware of their participation in the study.

3.10.2. Voluntary participation

The participants were informed that their involvement was purely voluntary and that at any point during the interviews, they felt that they needed to quit and that they were welcome to do so. No promises were made to the participants, they understood that the research was purely for academic purposes, and no compensation would be received in return for their participation. Alasuutari, Brannen, and Bickman (2008) stated that financial remuneration, particularly enormous sums of money, may undermine the objective of study because the motivation for involvement may not be to contribute to the research but rather to be reimbursed.

3.10.3. Anonymity and confidentiality

The researcher deliberately did not ask the participants for personal details that would make it easy or possible for any party to recognise any of the participants. This was because Vaino (2013: 687) insists that any personal information that could be used to identify respondents, such as age, nationality, and ethnic origin, should not be included in the report. The participants were assured that their names would be coded with a number or pseudonym and would be kept in that manner in the data and publications. All personal information, including records

provided by the respondents, should be treated with secrecy, according to the University of South Africa (UNISA) policy on research ethics (UNISA, 2016:16). While agreeing that maintaining anonymity during data collection is important, Tiidenberg (2018: 473) contends that such an attempt should not degrade the context's quality and negate its scientific value. The participants were assured that no information would be disclosed that they had not given permission to be shared.

3.10.4. The right to privacy

Section 14 of the constitution of the Republic of South Africa guarantees every citizen of the right to privacy (Constitution of the Republic of South Africa, 1996). This simply means that the researcher respected the participants' rights while conducting research. All researchers studying human beings are obligated to respect participants' rights to privacy (Leedy and Ormrod, 2010:102). According to Mabunda (2014:15), privacy implies keeping to oneself what is usually not intended for others to watch or analyse. Guided by the UNISA policy on research ethics, the researcher identified measures that assisted the research study in maintaining privacy, which included identifying participants using codes to break obvious connections between data and individuals (UNISA, 2016: 17). In this study, the researcher adhered to the principles of privacy as guided by section 14 of the constitution and UNISA's policy on research ethics by ensuring that participants remained anonymous throughout the research.

3.10.5. Do no harm

The researcher identified and informed the participants of any possible physical or emotional harm and mitigated it. According to Fisher and Anushko (2008: 96), the researcher should always ensure that the benefits of the research outweigh the potential harm. Harm can include a dent on a participant's self-esteem and confidence, causing the participants to lose their livelihoods, be sued, or be arrested (Miles *et al.*, 2018: 70). The consequences of such a nature should be disclosed to participants as potential harm and as part of informed consent.

3.10.6. Honesty and professionalism

The researcher adhered to ethical considerations of honest behaviour and professional conduct in the research study. Failure to carefully consider ethical issues results in negligence in society (De Vos *et al.*, 2011: 127). The most ethical consideration for a qualitative researcher is to describe the experiences of participants in the most faithful way possible (Fry, 2016: 115). In this study, the researcher was bound by ethical considerations to report and describe the findings in the most authentic way, even if it was different from the aims and objectives of the

study (Fry, 2016:116).

As emphasised in Colaizzi's 1978 that an excellent validity check requires the researcher to return to the research participants with written summaries and themes and engage in a dialogue with the participants concerning what the researcher has found thus far. All transcripts were returned to the participants and accepted as true reflections of their own words to ensure that confidentiality was maintained. The researcher ensured that the findings of the research study were comprehensively, honestly, and objectively reported.

3.11. Storage of Research Data

According to Mahlangu (2022: 61), if the storage of data is not properly handled, it could harm participants' confidence. Therefore, the researcher should be extremely careful in ensuring that no unauthorised person gains access to the collected data. In this context, the researcher stored electronic copies on Google Drive Cloud as a backup, and hard copies were stored in a secured location and locked in a cupboard/filing cabinet. All transcripts, both soft and hard copies, will be permanently destroyed once the researcher has confirmed that his final dissertation has met the required standards.

3.12. Chapter Summary

This chapter details how the research methodology was applied, how participants were chosen, the method utilised for the research design, the methods used to ensure the trustworthiness of the study, pilot testing of data-gathering instruments, ethical considerations and how the entire chapter was conducted. The aim of this study was to evaluate the effectiveness of agricultural interventions in boosting food security in Sokhulumu village. The following chapter discusses the data analysis and focuses on themes and patterns emerging from the participants.

CHAPTER 4: PRESENTATION, INTERPRETATION AND DISCUSSION OF FINDINGS

4.1. Introduction

This chapter presents the findings and an analysis of data gathered through patterns or themes. Thematic analysis was employed to interpret and present the results. Maguire and Delahunt (2017: 3352) define thematic analysis as a systematic way of identifying patterns or themes. It is the initial qualitative approach that researchers should learn about, as it provides core skills that will be useful for conducting various kinds of analysis (Braun and Clarke, 2006). Maguire and Delahunt further stated that the objective of thematic analysis is to identify themes that are significant or interesting and utilise these themes to address the research topic. Themes were distilled in line with the findings of the study, which sought to address the following objectives: to analyse the effectiveness of agricultural interventions in boosting food security in Sokhulumi village; to analyse how agricultural development initiatives have an impact on food security in Sokhulumi village; to determine whether agricultural resources are allocated and managed properly in Sokhulumi village; and to investigate how villagers navigate food security challenges in Sokhulumi village.

4.2. Findings On Demographics and Socio-Economic Conditions

4.2.1. Demographic representation of the participants

Research participants were purposefully selected based on their understanding of the impact of agricultural interventions in boosting food security in Sokhulumi village. A total of twenty (20) participants were interviewed individually, comprising twelve (12) smallholder farmers, five (5) members of the Farmers Production Support Unit (FPSU) committee, and three (3) members of the traditional council. The participants' ages ranged from 18--65 years, with two participants aged 18, one each aged 24, 26, and 29, two aged 32, and one participant each aged 46, 48, 52, 56, and 65 years. All participants were black Africans, with a gender distribution of thirteen (13) females and seven (7) males. With respect to marital status, five (5) participants were married, ten (10) were not married, and five (5) did not disclose their marital status. In terms of farming experience, ten (10) females and two (2) males reported having a minimum of eight (8) years of farming experience, whereas two (2) males and three (3) females reported

having between eight and twelve years of farming experience. Additionally, three older male participants, aged between 50 and 65 years, reported more than twelve years of farming experience. Table 4.1 below provides a detailed overview of the demographic characteristics of the participants.

Table 4.1: Demographical information of the participants

Variable	Description			Total
Gender	Male 7	Female 13		20
Age	2	4		6
18 -35	3	7		10
36 - 49	1	3		4
50 -65				
Race	7	13		All African (20)
Marital status	Yes	No	N/A	20
	5	10	5	
Education level	Male	Female		
Matric				
3-year Diploma	8	7		
Honours degree	1	3		
Master’s degree	0	0		
	0	1		
Participants group	Male			

Smallholder farmers		Female	
FPSU committee	2	10	12
Traditional council	2	3	5
	3	0	3
Farming experience	Male	Female	
8 years	2	10	
8- 12 years	2	3	
12 years	3	0	

Source: Data collected by the researcher

4.3. Impact of Agricultural Interventions on Food Security

Five Important Themes Were Identified in This Study:

a) Living experience

The level of experience presented by participants provides a rich view of life in Sokhulumi village within the CTMM, South Africa. Touch upon various sides of the community's daily experiences and challenges. These narratives collectively illustrate a community dominated by poverty and Socio-economic conditions. Experience in Sokhulumi village reveals variations in the government interventions of agricultural farmers and working conditions among smallholder farmers. The ability of participants to endure the diverse experiences of other smallholder farmers demonstrates the resilience and adaptability of individual smallholder farmers with the village. The village is largely dependent on smallholder farmer farming and the exploitation of other natural resources. Similarly, almost two-thirds of the world's poor living in rural areas of low-income countries depend primarily on subsistence farming and other natural resources for a living (Paudel Khatiwada, Deng, Paudel, Khatiwada, Zhang and Su, 2017).

b) Agricultural interventions

Agricultural interventions in Sokhulumi, as revealed by participants, revealed that effective agricultural interventions for increasing food security have the potential to increase the livelihoods of smallholder farmers and increase food security, which yields positive results in local rural communities at large in terms of job creation and poverty reduction.

The participants shared the same view that since the advent of democracy, the South African government has developed several agricultural interventions aimed at poverty reduction through increasing food security. The same sentiments were shared by Sihlobo and Zantsi (2024), and smallholder farmers, who are typically located in homelands, have been the key focus of national policies. Hence, governments invest in agricultural development. However, the effectiveness of agricultural interventions in boosting food security in Sokhulumi village remains unclear.

c) Access to resources

From the participants' point of view, smallholder farmers in Sokhulumi village, located in the Tshwane Metropolitan Municipality's Region 7, rely heavily on effective resource allocation for the sustainability of their agricultural activities and overall food security. The village has fertile land and favourable climatic conditions, but its agricultural potential remains underutilised due to limited access to critical resources such as land, water, financial support, and agricultural inputs. According to Mofokeng (2019), the state's capacity to eradicate poverty and improve food security depends largely on how resources are distributed and managed to ensure equitable Socio-economic development. In Sokhulumi, this is evident, as many smallholder farmers depend on government or municipal interventions for access to farming equipment, seeds, and irrigation support. The allocation of resources such as land, water, and funding determines the productivity of smallholder farmers in a village. The FAO (2016) noted that limited access to essential farming resources reduces productivity and affects both crops and livestock, which are key assets for rural livelihoods.

d) Rural livelihood strategies

From the participants' viewpoint, the rural livelihoods in Sokhulumi village are primarily based on small-scale subsistence farming, supported by social grants and limited off-farm income opportunities. Most households depend on agriculture for food security, but production remains low because of inadequate access to land, water, and farming inputs. Resource allocation from government programmes plays a vital role in supporting smallholder farmers; however, uneven distribution and poor infrastructure continue to hinder productivity. Many households diversify

their income through informal trading, casual work, and remittances to cope with poverty and environmental challenges such as drought and erratic rainfall. Gender inequality further limits women's participation in agricultural activities, as they often lack ownership and access to productive resources. Overall, livelihoods in Sokhulumi reflect a mix of resilience and vulnerability, with sustainability largely dependent on effective resource allocation, improved infrastructure, and inclusive rural development interventions.

Environmental constraints also play a major role in defining livelihoods. The reliance on rainfed agriculture exposes farmers to droughts and climate variability, while a limited water supply for irrigation—exacerbated by poor municipal infrastructure—further restricts agricultural output (Chauke, 2017; Mbatha, 2019). Consequently, rural households often employ coping mechanisms such as dietary adjustments, borrowing, or temporary migration to nearby towns for seasonal work, echoing the adaptive strategies highlighted by Ngidi and Hendriks (2014).

e) Agricultural development

According to the participants, agricultural development in Sokhulumi village has played a vital role in improving livelihoods, enhancing food security, and creating limited income opportunities for smallholder farmers. Through government-supported programmes such as input provision, training, and land access, households have managed to increase food production and reduce vulnerability to hunger (Nesengani *et al.*, 2016). However, the overall impact remains constrained by inadequate infrastructure, limited access to markets, water scarcity, and insufficient technical support. While agricultural initiatives have contributed to poverty reduction and strengthened community resilience, the sustainability of these gains depends on continued investment, effective resource allocation, and consistent monitoring of development programmes. Indeed, Ngema, Sibanda and Musemwa (2018) concurred that the sustainability and long-term impact of these interventions depend largely on effective resource allocation, continuous investment, and consistent monitoring and evaluation by relevant authorities. These are presented with themes and subthemes in the interpretation of the results that follow.

4.4. Group 1: Findings from Interviews with Smallholder Farmers

The researcher aimed to study participants' perspectives from smallholder farmers regarding the following:

- Living experience in Sokhulumi village
- Engagement with government departments and the private sector
- Impact of agricultural development initiatives
- The extent of food security challenges in Sokhulumi village
- Allocation and management of agricultural resources
- Rural livelihood coping strategies.

The table below shows the categories and themes that were discovered in the interviews.

Table 4.2: Categories and themes from smallholder farmer interviews

Categories	Themes
Category 1: Living experience	4.2.1 Unemployment 4.2.2 Poverty 4.2.3 Economic challenges
Category 2: Agricultural Interventions	4.2.4 Access to funding 4.2.5 Capacity building 4.2.6 Access to markets
Category 3: Resource allocation	4.2.7 Production inputs 4.2.8 Irrigation system
Category 4: Role of technology	4.2.9 Effects of climate change 4.2.10 Transformation
Category 5: Extent of poverty	4.2.11 Land availability

Source: Data collected by the researcher

Category 1: Living experiences.

The living experiences in Sokhulumi were described through an in-depth understanding of participants' opinions and perspectives and how they view the experience. They touched upon various aspects of the village's daily experiences and challenges. These narratives collectively

illustrate that a village is dominated by poverty, a high unemployment rate and economic struggles, as the village is isolated from economic activities that constitute income into the area. However, Sokhulumi village is a tribal land that possesses great agricultural potential with land parcels that should be utilised in their entirety so that it becomes the producer of agricultural products and creates employment opportunities. Like many rural communities, villages are troubled by the Socio-economic conditions mentioned above; their residents are resilient and have a strong desire to engage in small-scale farming activities. Its people rely more on agriculture and subsistence farming for food and income/exchange benefits. These themes are discussed with evidence of statements being made by the participants.

4.4.1. Unemployment

Almost all the participants in this study indicated that unemployment is a serious challenge in the village. Most villagers spend more time at home without much to do with their time. This is mainly because South Africa faces a significant challenge of unemployment, which affects millions of people and contributes to socioeconomic challenges such as poverty, inequalities and social unrest (Modiba, Ndlovu, Musiyandaka, Khanyile and Semu, 2024). The participants noted the following:

Participant TMR001 stated that “There is a higher unemployment rate in the village, those who are employed work on surrounding farms on a temporary basis, and few are employed in the town of Bronkhorstspuit”.

Participant TMR002 indicated that “Sokhulumi village is mainly residential with several smallholder farms and no economic activities that constitute income into the area, hence unemployment situation is dire”.

According to Participant TMR003, “the reason why this village doesn’t have an influx of illegal immigrant is because it has no income opportunities to offer, only smallholder farming put food on the table and for a limited “few”.

The findings presented above are similar to those of Rutherford and Addison (2019), who argued that in most communities, illegal immigrants often prefer to work for smallholder farmers because such farms typically operate within informal agricultural labour markets, where employment terms are flexible and regulatory oversight is minimal. Smallholder farmers frequently depend on seasonal and low-cost labour to remain competitive and maintain production efficiency, making them more willing to employ undocumented workers (Bailey, 2020).

4.4.2. Findings on poverty

The results from the in-depth interviews show that poverty is the main issue that has a negative impact on hunger and access to healthy food. The participants noted the following:

Participant TMR 009 noted that “poverty is a major challenge in the area as with the rest of the country. It is estimated that more than 50% of the total population in the area do not have any source of income and another half of the population is dependent on social grants”.

Participant TMR011 highlighted that at least people feel better when there is a funeral within the village, because they are guaranteed a plate of food after the funeral”, while Participant TMR010 noted that “Poverty situation in this village is like heat; you need to experience it to explain it”.

These findings are similar to the views expressed by FAO (2020), which noted that poverty has a profound and multidimensional impact on smallholder farmers, affecting their productivity, livelihoods, and overall food security. Limited financial resources restrict farmers’ access to critical agricultural inputs such as quality seeds, fertilisers, irrigation systems, and modern farming equipment. Consequently, many smallholder farmers remain trapped in subsistence-level production and are unable to achieve economic growth or improve their living standards. Participant TMR 007 also noted that *“Because of poverty, we cannot even grow food on our land, as we lack support or access to credit.”* This was also highlighted by Myeni, Moeletsi, Thavhana, Randela and Mokoena (2019), who argued that most smallholder farmers have very limited access to credit owing to a lack of collateral, mainly because they do not possess title deeds on their farms. Consequently, they depend on government grants or their own savings to pay for their operational expenses due to a lack of credit (Mutero, Munapo and Seaketso, 2016).

4.4.3. Findings on Economic challenges

The findings indicate that Sokhulumi village is a community that is isolated from economic activities; as such, no businesses are willing to invest in this community. The lack of infrastructure, such as roads, storage facilities, and markets, further isolates poor farmers from profitable value chains and competitive markets (Tsaui, 2021).

“Most of the roads are in bad condition and some are worst during rainy season as they are not accessible. As a result, outside people cannot buy our produce, and we cannot easily take our produce to the market” – Participant TMR008

“Lack of service delivery and development makes this village unattractive to investors, that’s

why there are no economic activities that constitute income” – Participant TMR014. The findings above support studies that argued that the vandalism of road infrastructure during service delivery protests severely affects smallholder farmers by disrupting transport and market access, leading to delays in input delivery, higher transport costs, and loss of perishable produce. Damaged roads also hinder access to extension services, financial institutions, and markets, reducing productivity and income (Nkuna and Mokoena, 2020; Mahlangu, 2021). Consequently, such disruptions undermine rural livelihoods and food security, as smallholder farmers rely heavily on functional infrastructure to sustain agricultural operations (FAO, 2020; Ndlovu, 2022).

Category 2: Agricultural intervention.

The findings of the participants revealed that efforts to support agricultural interventions in food security have the potential to benefit smallholder farmers’ livelihoods and have a positive impact on rural communities at large in terms of reducing poverty, inequality, and unemployment. The participants said the following regarding agricultural interventions related to poverty and unemployment reduction:

4.3.4 Access to funding

According to the responses gathered, access to funding is a significant barrier for smallholder farmers in Sokhulumi village because most smallholder farmers lack collateral, such as formally owned land or valuable assets, which financial institutions require for loans. Sokhulumi village has limited access to banks and credit services, and where they do exist, loan procedures are generally difficult and costly. The participants share the same sentiment that funding determines whether a smallholder farmer will survive. Below are some of the informants’ responses:

“Access to funding helps us enhance our production capacity and employ more people to meet the demand” – participant TMR015.

These findings are similar to the views of the FAO (2020), which noted that access to funding has a major positive influence on smallholder farmers' production, income, and sustainability. Farmers who have access to financial resources can purchase quality inputs such as improved seeds, fertilisers, insecticides, and sophisticated farming equipment, which leads to higher yields and better-quality produce (FAO, 2020).

“Through funding, I can buy a bakkie to transport my produce to the market and even expand my production capacity because my products will reach the markets fresh and on time” - participant TMR001.

“It’s easy to enter into contractual agreements with formal markets if there is access to funding
“– participant TMR003”

The findings presented above are similar to the views of Barrett *et al.* (2019), who argued that access to finance allows smallholders to invest in modern inputs and technology, leading to higher and more consistent yields — a key requirement for engagement with formal markets. Furthermore, Minten, Randrianarison and Swinnen (2009) argued that when farmers are financially empowered, they can meet the quantity, quality, and timeliness standards demanded by formal buyers such as supermarkets and agro-industries

4.4.4. Capacity building

The findings show that participants are in full support of extension and advisory support services programmes, as they provide smallholder farmers with the necessary knowledge of farming strategies.

“Extension and advisory service helps me a lot, because I get invitations to attend trainings on farm management and technical skills” Participant TMR001.

“When there is an outbreak or disasters, extension and advisory service programme provides farmers with the necessary support, even though sometimes its not enough” – participant TMR002”.

These findings support Anderson and Feder’s (2007) conclusions that extension and advisory services play a critical role in assisting smallholder farmers in coping with and recovering from agricultural shocks such as pest outbreaks, animal diseases, and natural disasters. These interventions provide timely access to relevant information, technical guidance, and early warning systems that enable farmers to take preventive or adaptive actions.

4.3.6 Market access

The findings indicate that road infrastructure plays an important role in connecting rural farmers with the local market. Most roads are in poor condition and inaccessible during the rainy season. Therefore, there is an urgent need for intervention by the municipality and sister departments.

Participant TMR009 said that “I prefer to sell my produce at the farm gate to the local

community and also participate in market days, instead of transporting my produce to the market due to bad road conditions”.

“Lack of storage facilities worsen our situation because we end up experiencing post-harvest losses” Informant TMR005.

“Due of poor road infrastructure we miss-out on formal reliable markets due to inconsistencies”- informant TMR010.

The findings presented above are similar to those of Mutero *et al.* (2016), who argued that, owing to a lack of transportation and distance from the market, most smallholder farmers produce at their farm gates or through middlemen or loss of production due to a lack of buying power within the community.

Category 3: Resource allocations

The participants reported that numerous constraints hinder smallholder farmers' ability to grow effectively and boost food security effectively in their village in comparison to commercial farmers. As postulated by Chepape and Maoba (2020), these constraints include a lack of access to land or property rights; limited access to finance; a lack of access to markets; poor physical and institutional infrastructure; limited access to credit; and a lack of production, technology and climate change.

Failure of farmers to access much-needed resources leads to low productivity of farms and even affects crops that rely on much-needed resources. The results further indicate that poor administration and a lack of proper allocation of resources pose greater challenges to smallholder farmers. The uneven distribution of resources was also a concern for participants. Maphosa (2016) argued that while the allocation of resources has direct benefits, it does not automatically guarantee food security, which is important because of the ability to sustain the effective utilisation of resources that increase food security and improve livelihoods.

4.3.7 Production inputs

Comprehensive Agricultural Support Programme (CASP) provides support services that are inclusive of training/capacity building, technical and assistance to historically disadvantaged landowners and smallholder farmers. The CASP is regarded as the prime mover of poverty reduction initiatives. However, most of the participants viewed the programme as follows:

“Due to corruption and nepotism, government resources are not equally distributed” – Participant TMR004”.

In addition to the above, participant TMR013 said that “resources are not evenly distributed amongst men and women. In most cases women are allocated less resources compared to their male counter parts”.

This was also highlighted by Chepape and Maoba (2020), who argued that, compared with 37% of female farmers, 63% of smallholder farmers who benefited from agricultural interventions, particularly production inputs, were male farmers.

Both participants TMR013 and TMR004 strongly believed “that smallholders are still deprived of resources as compared to commercial farms who are mostly white”

These findings are similar to the views of Mokgomo (2019), who also believe that black smallholder farmers receive less financial support/resources than their white counterparts do, even though various initiatives were in place to support them.

4.4.5. Irrigation system

“Sokhulumi currently does not have sufficient access to water reticulation. The village is serviced by various water sources, namely three (3) boreholes, elevated water tanks, a reservoir and tap water”- Participant TMRO14.

According to participant TMR011 “There is enough water for household purposes, but not for vegetable gardens and irrigation purposes, most smallholder farmers within the village are not fully operational due to the lack of water irrigation”.

Participant TMR009 states that “ILLIMA/LETSEMA programme which was designed for enhancing food production and reforming irrigation system within the village has not yielded the desired results”.

Irrigation enhances crop production by ensuring reliable water availability throughout the growing season. Studies have shown that irrigated agriculture can double or even triple yields compared with rain-fed farming (FAO, 2021). A consistent water supply allows smallholder farmers to minimise crop failure and improve crop quality. According to You, Ringler, Wood-Sichra, and Robertson (2011), irrigation increases land productivity and supports the cultivation of high-value crops such as vegetables and fruits, which generate higher income.

Category 4: Role of technology

The participants highlighted the importance of the advancement of technology in both commercial and smallholding agriculture as important contributors to the increase in the productivity of agricultural projects during an Imbizo with the then-Minister of the Department

of Rural Development and Land Reform at Sokhulum. According to the DALRRD (2023), an enormous gap exists in technological advancement, particularly in transforming the livelihoods of rural communities, and the deployment of technologies to rural areas has not been scaled up. The DAFF (2014) released a report warning that the SA population is expected to increase from 57 million to 82 million by 2035. Therefore, food demand will exceed resource limits if investments in research and technological developments are not prioritised.

According to both participants, TMR001, TMR005 and TMR019, “there is only little that smallholders can do without the help of technology advancements, such as irrigations, rapid response to climate change and responsive pesticides”.

The findings of the FAO (2022) support that improved seeds, fertilisers, mechanised tools, and precision farming equipment are examples of technological improvements that dramatically increase productivity. According to the Africa Agriculture Status Report (AGRA, 2021), improved agricultural technologies can increase smallholder yields by 20–50%, especially when combined with best management practices. Improved seed varieties, for example, those that are resistant to pests and drought, produce greater and more consistent yields.

4.3.9 Effects of climate change

“Due to climate change, rainfall is no longer predictable as it was before. But with technological advancements such as irrigation system and pivot, a farmer can plough both winter and summer crops all year round and harvest more than twice as much” – participant TMR016.

Participant TMR008 suggested that “technological advancements help with the development of production inputs and crops varieties that can adapt to difficult and challenging climate “conditions”. Technology plays a vital role in enhancing the capacity of smallholder farmers to adapt to the impacts of climate change.

This was also highlighted by Aker (2011), who argued that digital tools such as mobile applications, remote sensing, and climate information systems provide farmers with real-time weather forecasts, early warnings, and agronomic advice, allowing them to make informed decisions about planting, irrigation, and harvesting. Moreover, access to such information helps reduce the risks associated with unpredictable rainfall, droughts, and floods (Khatri-Chhetri, Aggarwal, Joshi and Vyas; 2017).

4.4.6. Transformation

“Rural agriculture needs to be transformed so that it is attractive for young people to work local and contribute to the economy” – participant TMR012.

Participant TMR011 believes that “we are leaving in the error of technology. Therefore, the sector should be modernised, and more investments are needed from both government and private sector”.

“Without technological advancements, subsistence and smallholder farmers won’t thrive” – participant TMR019”.

The findings presented above are similar to those of Khapayi and Celliers (2016), who argued that the transformation of the agricultural sector in this century is dominated by technological developments, particularly the commercial sector. Therefore, it is important that technological advancements reach both subsistence and smallholder farmers in rural communities. Consequently, South Africa’s lack of information about smallholder and subsistence farming prevents technical improvements from reaching rural communities (Mbatha, 2019).

Category 5: Extent of poverty

The participants highlighted that the extent of poverty in Sokhulumu is dire such that the majority of the community always looks for ways to start a service delivery protest as a way of looting shops or government buildings. They even target delivery trucks that are involved in an accident so that they can loot anything they can find so that they can bring bread to the table. Poverty is a primary cause of social unrest, including service delivery demonstrations, looting, and vandalism. In many developing countries, pervasive poverty causes discontent, inequity, and a lack of trust in government institutions that fail to deliver basic amenities such as water, electricity, housing, and job opportunities (Alexander, 2010). When poor communities are excluded from economic and social development, protests are frequently used to express discontent and demand accountability (Ngwane, 2019).

“According to participant TMR018, Looting, vandalism, and service delivery protests have severe consequences for smallholder farmers, disrupting their production, market access, and overall livelihoods”

“Participant TMR012 further stated that these disruptions often lead to post-harvest losses and income reduction, as perishable goods cannot reach consumers in time”.

These findings are similar to the views of Von Holdt *et al.* (2011), who argued that looting and vandalism can occur as protests intensify, expressing both economic desperation and social discontent for many underprivileged people; looting is not just a form of resistance but also a survival strategy in the face of prolonged unemployment and food scarcity. Poverty generates conditions in which communities resort to disruptive forms of protest to bring attention to their marginalisation and unmet necessities (Burger and Christian, 2020).

During protests, road blockages and destruction of transport infrastructure make it difficult for farmers to deliver produce to markets or access agricultural inputs such as seeds, fertilisers, and fuel (Mofokeng, 2021).

4.4.7. Land availability

“Majority of land that is available is not arable and not even fertile enough for livestock to graze and increase crop production” – participant TMR017.

“The land that we have needs a huge capital investments and infrastructure development for rural agriculture to thrive” – participant TMR015.

Women make majority of those who work the land but even after 30 years of democracy they still do not have legal authority to the land – participant TMR014.

Participant TMR012 indicated that “without legal claim to the land it is impossible to use it as collateral to secure bank loans and gain access to the necessary resources”.

These findings were also highlighted by Place (2009), who argued that land that is legally owned can be used as collateral to obtain loans from financial institutions, which enables smallholder farmers to purchase the inputs, mechanisation, and other technologies needed to improve production, notes that financial institutions are more willing to lend to farmers with documented land rights, which strengthens agricultural commercialisation. In addition, Deininger (2003) argues that secure land ownership reduces the fear of land loss and encourages sustainable land management.

4.5. Group 2: Interviews with the Farmers Production Support Unit Committee

Table 4.3: Categories and themes from FPSU committee interviews

Categories	Themes
Category 1: Rural livelihood strategy	4.4.1 On farm & Off-farm income 4.4.2 Old – age and child support grant 4.4.3 Dietary adjustments 4.4.4 Diversification of farming
Category 2: Agricultural development	4.4.5 Agricultural village 4.4.6 Road infrastructure
Category 3: Resource allocation	4.4.7 Access to fertilisers 4.4.8 Capacity building
Category 4: Agricultural interventions	4.4.9 Food security initiatives 4.4.10 Post development interventions
Category 5: Living experiences	4.4.11 Unemployment 4.4.12 Poverty

Source: Data collection by a researcher.

4.4.1 Category 1: Rural livelihood strategy

The results indicate that participants are important for policy makers to better understand the factors that influence villagers’ coping strategies so that improved policies can be developed to realise rural economic growth. The following are some of the rural livelihood strategies detailed by the participants:

4.4.1.1 On-farm and off-farm income

Participant TMR019 mentioned that “they rely more on agricultural and subsistence farming for putting food on the table, income exchange of family benefits.

Participant TMR002 stated that “am one of those who use livestock as currency and for supplementing household income”. Livestock serves as both a source of livelihood and a form of currency that can be converted into cash or goods when needed for many smallholder farmers.

This was also highlighted by Randolph, Schelling, Grace, Nicholson, Leroy, Cole, Demment, Omore, Zinsstag, and Ruel (2007), who argued that livestock such as cattle, goats, sheep, and chickens act as a store of wealth and a form of insurance, especially in rural areas where access to formal banking and credit services is limited. Farmers sell or exchange animals to meet household expenses such as food, school fees, healthcare, and agricultural inputs, thereby supplementing their income (FAO, 2020).

4.4.1.2 Old age and child support grant

According to participants TMR001 and TMR018, “in my family, we combine my old age together with a child support grant to survive while waiting for our crops to be ready for selling to the informal market and cooking the rest”.

TMR002 concurs with the abovementioned findings because the common livelihood strategy in South Africa among poor rural households is social grants for old age and child support grants, among others, which contribute immensely to increasing food security and poverty reduction.

4.4.1.3 Dietary adjustments

“Most families in this village substitute daily bread with sweet potato, which is a staple meal, since the price of bread is expensive these days, we prefer to plant sweet potatoes in large quantities for household consumption and selling surplus to the villagers” – Participant TMR020.

“In most cases other children are exiled to their aunts or uncles who resides in different communities so that they assist with feeding and provide a better upbringing to the children” – Participant TMR016.

Participant TMR012 indicated that “school nutritional programmes also reduce the household burden of providing three course meal to the children, at least while they’re at school, we are comforted by the fact that the children will be fed during the day”.

This was also highlighted by Alderman and Bundy (2012), who argued that school nutrition programmes play a significant role in addressing food insecurity and reducing poverty among smallholder farmer households. They provide children with daily nutritious meals and improve school attendance, concentration, and overall health outcomes, which contribute to breaking the intergenerational cycle of poverty. Moreover, school feeding initiatives reduce household food expenditure by ensuring that children receive at least one nutritious meal per day at school,

leaving families with more income for other needs, such as healthcare, clothing, and farm inputs (Aurino, Gelli, Adamba, Osei-Akoto and Alderman 2019).

Diversification of farming

The low productivity of farmers due to the much-needed financial support and small pieces of land has motivated farmers in villages to diversify their agricultural practices:

“To ensure that we produce enough for the local market and household consumption, we diversified our process by farming in both the winter and summer seasons” - Participant TMR018.

“Sometimes we even lease a portion of land to those who have the capacity and/or resources as an income-generating method”- participant TMR010

Barrett, Reardon, & Webb (2001) also argued that diversified farms earn more stable incomes because losses in one enterprise can be offset by gains in another. This is especially important in rural communities where price volatility and crop failure are common.

Category 2: Agricultural development

Most of the responses indicate that investments in water infrastructure can positively impact the growth and development of the agricultural sector.

4.5.1. Agricultural village

Participant TMR001 echoed the sentiments shared by informant TMR019 that “they rely more on agricultural and subsistence farming for food and income exchange. Am one of those who use livestock as currency for supplementing household income”.

Participant TMR018 strongly believes that “the idea of an Agri-village can integrate residential development with agriculture in order to improve the livelihood of this rural community, the expansion of this area should place more emphasis on agriculture”.

Participant TMR014 stated that “the village of Sokhulumi presents a unique opportunity for the establishment of an Agri-village as rural development initiative in the region”.

“Water availability is an important part of agricultural development and irrigation is expensive for smallholder farmers, in this regard the idea of an agricultural village might be a long-time dream, even though its good for us economic development of the community” – participant TMR019.

The findings presented above are similar to those of Jones, Shrinivas, & Bezner-Kerr (2014),

who reported that diversified and community-managed farming systems significantly improve household dietary diversity. Because agricultural villages support diversified production and stable access to land and inputs, households are better positioned to produce enough food for consumption. Tacoli (2019) argues that organised rural hubs reduce rural–urban migration by generating stable local employment opportunities that stimulate agricultural villages.

local economies by creating employment in farming, processing, transport, input supply, and service provision.

4.5.2. Road infrastructure

“Roads plays a critical role in connecting rural farmers with the local market but unfortunately in our village roads are in bad state that not even single market is willing to come collect our products, since we struggle with transport” participant TMR011.

Participant TMR001, states that “the only time our roads are graded by the municipality its during election season or when a high-profile politician visits the area”.

“The state of roads is very poor and other important facilities for agricultural growth and development are not accessible to the village and this limits the community from positively contributing to the local economy” – participant TMR009.

“As smallholder farmers, we are located deep in rural areas away from markets and bad roads makes it difficult for us to supply formal markets” – participant TMR010.

“If the City of Tshwane Metropolitan Municipality can improve the roads conditions at least, we will have access to different markets”- participant TMR018.

“I lost a profitable and potential markets because I failed to meet market demands as my old bakkie constantly breaks down due to bad roads conditions, more especially during rainy seasons”- participant TMR019.

The findings related to Dorosh, Wang, You and Schmidt (2012) argue that bad road conditions increase transportation costs and travel time, making it difficult for farmers to deliver produce to markets while still fresh, which often leads to post-harvest losses and reduced income. Limited mobility also discourages traders and suppliers from reaching rural areas, resulting in higher prices for agricultural inputs such as fertilisers, seeds, and equipment (Stifel and Minten, 2017).

Category 3: Resource allocation

Participants agree that one of the major causes of struggling rural agriculture is the unequal distribution of limited resources they receive from government officials.

4.5.3. Access to fertilisers

“I think distribution of resources fertilisers are politicised in region 7 which includes Sokhulumi village. The government give priority to commercial farmers since most are influential politicians, and powerful families participate in that space” – participant TMR020.

“The government neglects poor smallholder’s farmers and rural agriculture in general” – participant TMR001”.

“Sometimes government officials give us seeds/seeds or fertilisers long after planting season has passed”- Participant TMR 007.

This was also highlighted by (FAO, 2020; Chisasa and Makina, 2021; Moyo, 2022), who argued that late delivery of agricultural inputs to smallholder farmers has significant negative implications, primarily leading to reduced crop yields, lower incomes, compromised food security, and decreased technical efficiency in their farming operations. Furthermore, the findings are similar to those of Sebola (2018), who argued that agricultural farming in SA continues to be dominated by the white population, which has decades of experience surviving commercial farming, with the black community’s role restricted to excess labour and unsuccessful subsistence farming. Hence, smallholder farmers often feel neglected by the government because of limited access to agricultural support services, inadequate infrastructure, and weak policy implementation. In many developing countries, agricultural policies tend to prioritise large-scale commercial farming over smallholder production, leaving small-scale farmers with minimal access to subsidies, credit, and market support (Jayne *et al.*, 2016). This policy bias contributes to persistent inequality and low productivity among rural farmers.

4.5.4. Capacity building

“Through extension services we seldom receive skills development trainings although their mostly generic and not tailor made to address specific challenges” – participant TMR018.

“Due to technological advancements and climate change conditions, there’s a constant need for skills training so that there is sustainability in our smallholder farmers” – participant TMR006.

These findings are similar to the views of Anderson and Feder (2018), who argued that capacity building improves smallholders’ knowledge of agronomy, soil health, pest management, and

irrigation. Training and extension programmes significantly increase farm-level efficiency and productivity.

Category 4: Agricultural interventions

The participants shared the same view that since the advent of democracy, the South African government has developed several agricultural interventions that target poverty reduction, food insecurity and improved Socio-economic conditions. However, to date, black subsistence and smallholder farmers still feel marginalised.

4.5.5. Food security initiatives

Participant TMR004 highlight that “the problem is that in most cases, agricultural interventions programme lasts for at least five (5) years, before it could make an impact the new administration replace it with a new programme and a different mandate”.

Micro Agricultural Financial Institutions of South Africa (MAFISA) was designed to address financial needs for smallholder farmers by providing loans to enhance agricultural production, but commercial and influential people are the one who benefits” – Participant TMR011.

According to participant TMR005, “at least Ilima-Letsema was a programme that supplied smallholder farmers with production inputs in a grant format so we can expand on infrastructure, but the problem was that they respond to applications after a year or so, which is mostly late”.

The findings are similar to the views of GCIS (2015;2017), who noted that Fetsa Tlala Initiatives (“Defeat Food Hunger Initiative”), a programme introduced by DAFF in 2013 with the primary aim of assisting vulnerable households, subsistence and smallholder farmers in creating their own food security by ensuring that 1 million hectares of land are utilised for production by 2030.

4.5.6. Post development support

Participant TMR013 said that “it is difficult for our smallholder farms to be sustainable post development support because distribution of resources prioritises commercial farmers and urban influential people. If we receive support its usually fertilisers /Seedings of poor standards”.

“Again, lack of access to markets and other needed resources makes challenging to be sustainable and become commercial one day” – participant TMR005.

Participant TMR008, states that “the little support that farmers receive from government tend to benefit them but not the entire community”.

These findings are similar to the views expressed by IFAD (2020), which noted that numerous development initiatives focus on short-term outputs rather than long-term institutional strengthening. As a result, once project staff leave, local institutions such as cooperatives, farmer groups, and extension services often lack the capacity to maintain new systems. Without strong local structures, project gains fade over time.

Post-project sustainability is affected by farmers’ inability to access affordable credit, quality seeds, fertilisers, and machinery. When subsidies or donor inputs stop, farmers revert to low-input traditional systems (World Bank, 2021). Financial barriers prevent them from scaling up or maintaining improved practices introduced during development projects.

Category 5: Living experiences.

The results show that most villages are not happy with their living experiences or current Socio-economic conditions.

4.5.7. Unemployment

“Smallholder farming is unable to provide full-time employment opportunities, although their seasonal employment created this opportunity benefits illegal foreign because young South Africans equates the wages with exploitation” – participant TMR 019.

“Rural agriculture does not necessarily produce permanent income, only seasonal employment which is regarded as an employment whereby workers are paid wages based on task(s) performed – participant TMR 012.

Participant TMR004 views “Income security is also important for reducing poverty and addressing food insecurity”.

The findings presented above are similar to those of Aliber and Hall (2012), who argued that smallholder agriculture typically requires labour only during peak seasons (planting and harvesting). This creates short-term, irregular employment rather than long-term jobs. Rural agricultural labour opportunities are predominantly seasonal, preventing meaningful reductions in unemployment. Small-scale farming is often perceived as low-paying and unattractive by young people. This reduces labour availability and limits the sector’s capacity to create opportunities for unemployed youth (Bernstein, 2013).

According to participant TMR005, “poverty in the entire South African context seems to have

a black face. From my general observation, black people everywhere are subjected to and experience poverty the most”.

“Owing to high levels of poverty, young people take advantage of service delivery protests and loots whatever they can grab their hands on” – participant TMR009.

4.6. Group 3: Interviews with the Traditional Council

Table 4.4: Categories and themes from traditional council interviews

Categories	Themes
Category 1: Rural livelihood strategies	4.5.1 Family support 4.5.2 Savings society
Category 2: Government approach	4.5.3 Population growth 4.5.4 Development support
Category 3: Living experience	4.5.5 Poverty 4.5.6 Economic challenges
Category 4: Extent of food security	4.5.7 Availability of arable land 4.5.8 Community participation
Category 5: Agricultural development	4.5.9 Technology transfer 4.5.10 Economic growth

Source: Data collected by the researcher.

Category 1: Rural livelihood strategies

The results show that families’ coping strategies vary from one family to another, but every poor family has its own strategies for coping with poverty.

4.6.1. Family support

“Majority of family relatives who are employed in the cities send money on a monthly to the village so that the family can supplement its income” – participant TMR003.

The findings presented above are similar to those of Tacoli (2004), who argued that extended

family members working in towns or cities often send remittances that help smallholder farmers invest in inputs such as seeds, fertiliser, livestock and irrigation. Remittances are a significant livelihood diversification strategy. Rural–urban linkages play a major role in supporting agricultural households through regular financial transfers. Extended families offer financial assistance, food support and emotional stability during hardships such as crop failure, illness or income loss. As noted by Devereux (2001), informal social support systems remain central to rural survival because formal state welfare is often limited or inaccessible.

4.6.2. Savings society

Participant TMR007 indicated that “through this process of saving which is commonly known as “Stokvel”, which an Afrikaans term in South Africa, referring to members regularly contribute an agreed amount and from which they receive a lump sum payment. This system enables us to buy groceries in bulk, which last longer, between 6 and 12 months”.

This was also highlighted by Brannen (2010), who argued that savings societies help households manage seasonal income fluctuations, which are common among smallholder farmers. Members can save during the harvest season and draw on funds during lean periods, reducing vulnerability and food insecurity.

Category 2: Government approach

Informants firmly believe that the government of today has developed policies that favours commercial farmers at the expense of rural agriculture and are seen as compounding factors of food insecurity and poverty for the black majority.

4.6.3. Population growth

“Population growth in the family means more mouths to feed, and feeding more mouth means that more land pressure since we all need to eat and sell to the market. Therefore, we apply more pressure on the land, the more possibilities of soil erosion and degradation, deforestation, and depletion of water sources” – participant TMR001.

Black people have the highest population growth rate and the highest poverty rate. Therefore, it’s obvious that inequalities, poverty, and population growth are related”- Participant TMR017.

“High population growth may lead to competition for limited resources, and as result they maybe damage to cropland, pasture, forests and water sources” – participant TMR002.

These findings are similar to the views of the World Bank (2020), which noted that population

growth increases national and household food requirements. This puts pressure on smallholder farmers to intensify production, often without adequate access to technology, credit, or extension services (World Bank, 2020). The results can include declining yields, reduced food self-sufficiency and increased vulnerability to food insecurity.

4.6.4. Development support

According to participant TMR009, “development support is a make or brake for rural agriculture. Therefore, the government policies that doesn’t make an impact on smallholder farmers contributes to poverty and food insecurity within the village”.

“Lack of proper agriculture development support leads smallholder farmers into becoming dependent on the government rather than sustainable and contributing to the growth of the local economy” – participant TMR011.

The findings presented above are similar to those of FAO (2021), who noted that development support is critical for increasing smallholder farmer production, resilience, and overall livelihood sustainability. Smallholders are the backbone of food production in many developing nations, but they frequently face restricted access to resources, technology, markets, and institutional assistance. Effective development assistance bridges these gaps, allowing smallholders to make more meaningful contributions to rural development and food security.

Category 3: Living experience.

The informants highlighted the Socio-economic conditions affecting the community at large.

4.6.5. Poverty

According to participant TMR002, “poverty situation is a daily reality within the village, and it is worsened by the market system that prefers products from commercial farmers rather than struggling black farmers”.

This was also highlighted by Barrett (2008), who argued that farmers are unable to engage in value addition or crop diversification due to market access limits. Without dependable markets, smallholders cannot confidently produce higher-value crops or invest in processing, limiting income development and reinforcing poverty.

4.6.6. Economic challenges

“One of the factors that create economic challenges is the fact that markets issue contracts to big commercial famers and leaving the rural farmers to sell or supply to the village only, where

there are no buying powers”- participant TMR017.

This was also highlighted by Barrett (2008), who argued that research indicates that smallholder farmers with restricted market access are significantly more likely to live below the poverty line. Improving market integration could increase household incomes and reduce poverty prevalence by up to 30% in some rural regions.

Category 4: Extent of food security

Based on the informants’ responses, recurring vandalism and looting during service delivery protests are indications that the food insecurity situation in the area is rife.

These findings are similar to the views of Barrett (2010), who argued that the vandalism and looting of farms, storage facilities, irrigation infrastructure, and inputs directly undermine production. Even minor damage can result in significant crop losses, particularly for smallholder farmers who lack insurance or financial resilience. Looting of stored crops reduces household food reserves, creating immediate food shortages and limiting the ability to sell surplus produce to generate income (FAO, 2020).

4.6.7. Availability of arable land

According to participant TMR020 “Legal ownership of land with livestock ownership, arable land for crop production with bore hole and irrigation system can surely guarantee me loan or grants so that I can expand my production capacity, create employment, reduce poverty and food insecurity”.

“Because of lack of mechanisation and resources to work my land, I leased the entire portion of arable land so that I can get something, even though it pains me to see someone making profit out of my forefathers land” – participant TMR 012

“Because of high energy cost and constant loadshedding I cut down most of my farm trees for heating system/energy and now I have a serious soil erosion and land degradation problems, and the bank refuse to give me a loan” – participant TMR010.

This was also highlighted by the FAO (2020), which noted that legal ownership of land can be used as security for loans or credit from banks and microfinance companies. Smallholder farmers can utilise the funding to buy inputs or machinery or expand their operations (FAO, 2020). Without established land rights, lenders frequently view farmers as high risk, limiting financial participation.

4.6.8. Community participation

Participant TMR008, “indicated that majority of Sokhulumi households participate in agricultural activities”.

Participant TMR005 stated that “majority of the households participate in agricultural projects because they depend on the sector for livelihood strategy”.

“Most households see agriculture as the source of food, poverty reduction and income generation methods” - Participant TMR006.

The findings presented above are similar to those of Barrett (2008), who argued that communities acting collectively can negotiate better prices for inputs and outputs. By forming cooperatives or farmer associations, smallholders improve their market access and reduce exploitation by middlemen, which increases incomes and reduces poverty. In addition, community participation ensures that all members, including women, youth, and marginalised groups, have a voice in agricultural planning. This inclusion enhances equity, social cohesion, and long-term development outcomes (Quisumbing, Meinzen-Dick, Raney, Croppenstedt, Behrman, J. & Peterman, 2014).

Category 5: Agricultural development

The results show that agricultural development can help fight poverty and unemployment in the community and contribute to the growth of the agricultural sector and the economy while also promoting food security.

This was also highlighted by Downing, Coe and Audickas (2018), who argued that agricultural development support programmes are vital for poverty alleviation and food security and for enhancing agricultural productivity for households in developing countries such as South Africa. Hence, growth in agriculture, particularly smallholder farming, has been the primary focus of government initiatives.

4.6.9. Technology advancements

Participant TMR013 Indicated that “technological advancements are important for the future of farming, they reduce the amount of labour and increase productivity”.

Participant TMR006 believes that technological advancements are the silver bullet for reducing poverty, increased productivity and meet continuous market demands. Therefore, technological advancements must reach all rural farming sector including subsistence and small-scale farming to grow the local economy”.

These findings are similar to the findings of Mbatha (2019), who argued that technological development has played a pivotal role in reducing food insecurity levels around the globe. Additionally, the availability of technology can create job opportunities for rural communities, and rural farmers can transform their traditional agricultural sector to contribute to the economic growth of rural areas through government interventions.

4.6.10. Economic growth

Participant TMR002 & TMR009 “smallholder farming plays an important role in food security and poverty reduction in Sokhulumi village, but it is not sustainable enough to contribute to the growth of local economy due to lack of access to markets and other related challenges”.

This was also highlighted by the FAO (2020), which noted that smallholder farmers provide a significant portion of locally consumed food. By producing staple crops and livestock products, they reduce food scarcity, support nutrition, and stabilise local markets. This reliable supply sustains rural populations and allows surpluses to be sold in local markets, contributing to economic circulation (FAO, 2020).

4.7. Interpretation of Findings

4.7.1. Smallholder farmers

These findings indicate that food security in Sokhulumi is a multifaceted issue influenced by multiple Socio-economic factors. Poverty limits households’ ability to purchase sufficient and nutritious food, whereas high levels of unemployment reduce income-generating opportunities, further constraining access to resources. These conditions collectively exacerbate vulnerability to food insecurity, highlighting the need for integrated interventions that address both economic and social determinants to improve the community’s overall well-being.

Agricultural resources are essential for sustaining smallholder farming and ensuring household food security. However, the scarcity and mismanagement of these resources pose significant challenges, limiting productivity and undermining the ability of households to secure sufficient and nutritious food. Addressing these issues is crucial for improving agricultural efficiency, enhancing livelihoods, and promoting sustainable food security in rural communities.

4.7.2. Farmers production support unit

The findings suggest that while various agricultural interventions exist to increase food security, their benefits are disproportionately skewed towards commercial farmers. In contrast,

subsistence and smallholder farmers face challenges in meeting market demands and accessing the resources or support necessary to compete effectively. This disparity highlights the need for more inclusive strategies that address the constraints of smallholder farmers and ensure that interventions contribute equally to improving food security across all farming communities.

The findings reveal that agricultural interventions primarily benefit the households of smallholder farmers rather than the wider community. While these initiatives may improve the livelihoods and food security of participating households, their limited reach restricts broader community impact. This suggests a need for interventions that are designed and implemented in ways that generate inclusive benefits, extending support and resources beyond individual households to strengthen overall community development.

4.7.3. Traditional council

The findings indicate that households employ a range of livelihood strategies to enhance food security. These strategies include supplementing income through pensions or social grants, adjusting diets by substituting staple foods with more affordable alternatives, maximising agricultural productivity by cultivating land across multiple seasons, and maintaining livestock as a form of economic security. Collectively, these adaptive measures reflect households' efforts to cope with resource constraints and sustain their livelihoods in the face of food insecurity.

The findings suggest that improving market access and agricultural productivity is heavily dependent on the development of water and road infrastructure. Without adequate irrigation systems and reliable transport networks, smallholder farmers face significant barriers to efficiently producing and marketing their crops. Prioritising these infrastructural needs is therefore essential for enhancing farm productivity, facilitating market participation, and ultimately improving food security and livelihoods.

The findings indicate that agricultural interventions can significantly enhance food security, but their effectiveness depends on proper management and equitable distribution. Without careful planning and oversight, the benefits of such interventions may be unevenly realised, limiting their potential impact on improving livelihoods and ensuring consistent access to food within farming communities.

The findings suggest that holding title deeds or legal ownership of land enhances farmers' ability to access financial resources such as loans and grants. Securing land tenure provides the necessary assurance for financial institutions to extend credit, enabling farmers to invest in

agricultural inputs, expand production, and improve their livelihoods.

4.8. Chapter Summary

This chapter presented the phenomenological qualitative results of the interviews conducted with smallholder farmers, farmer production support unit committees and traditional councils. The five themes that emanated from these groups were as follows: Living experience, agricultural interventions, Access to resources, Rural livelihood strategies and agricultural development. The data collected suggest that agricultural interventions play a significant role in fighting poverty and unemployment while promoting food security. However, more work still needs to be done to ensure that agricultural interventions related to food security improve the socio-economic situations in Sokhulumi village. The following chapter focuses on the findings and recommendations, which originate from the main findings that were obtained and discussed in this chapter.

CHAPTER 5: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1. Introduction

This chapter summarises the conclusions and recommendations originating from the study. This study analysed the effectiveness of agricultural interventions in boosting food security in Sokhulumi village, Tshwane Metropolitan Municipality. Sokhulumi is regarded as one of the villages within region seven (7) with high agricultural potential, and it is a predominantly rural community with high levels of subsistence and smallholder farming faced with the challenges of a lack of much-needed resources and support. A lack of adequate agricultural interventions poses challenges that negatively affect the productivity and sustainability of farms.

The study focused on factors such as the impact of agricultural development initiatives in boosting food security, determining whether resources intended for smallholder farmers are allocated and managed properly, and the livelihood strategies of smallholder farmers in Sokhulumi village. Although many studies have been conducted on the effectiveness of agricultural interventions in boosting food security, this study emphasises that few studies have focused on the effectiveness of agricultural interventions in boosting food security in the context of poverty alleviation. The purpose of this study was to provide insight into the causes of food insecurity in Sokhulumi village, Tshwane Metropolitan Municipality, and to make recommendations for potential ways to address these challenges. The conclusions were derived from the findings of this study on the experiences of the smallholder farmers, traditional council and farmer production support unit of Sokhulumi village. Based on the study's findings and research questions, conclusions were reached.

To accomplish the study's goals, the researcher utilised a phenomenological approach. Semi-structured qualitative interviews were conducted with individuals from three groups, i.e., smallholder farmers, the FPSU committee and the traditional council. These groups were chosen strategically to participate in the interviews because of their reach and dynamic knowledge of the subject. The interviews were conducted in English face-to-face, transcribed, and then subjected to analysis.

5.2. Summary of the Study

A total of five (5) themes, which consisted of subthemes, emerged from the data collected from individuals belonging to three groups. The findings were discussed according to the themes, a brief discussion of the themes and how the themes connected to the research to the research question.

Theme 1: Living experience

Theme 2: Agricultural interventions

Theme 3: Resource allocations

Theme 4: Rural livelihood strategies

Theme 5: Agricultural development

5.3. Themes and Their Implications for Participants

5.3.1. Theme 1: Living experience

This study established that a lack of food security affects the majority of villages, as described by both smallholder farmers, farmers' production support units and traditional councils. This challenge is largely caused by the fact that villages rely mainly on subsistence and smallholder farming for food and income exchange benefits. According to Ngidi and Hendrics (2014), it is important for policy makers to better understand the living experiences of households' food insecurity so that improved response measures and appropriate interventions to mitigate food insecurity can be designed.

Through the in-depth experience of participants, the study established that the village is affected by poverty, a high unemployment rate and economic struggles, as it is isolated from economic activities that constitute income into the area. The participants strongly believe that Sokhulumi should not have been experiencing these challenges, as it is a tribal land that possesses great agricultural potential, with land parcels that should be utilised in its entirety so that it becomes the major producer of agricultural products within the region with improved food security. These findings indicate that high levels of small-scale agricultural practices exist in Sokhulumi village. Most smallholder farmers, farmer production support unit committees and traditional council participants agree that there is arable land for agricultural practices on most farms, but the availability of that land does not guarantee food security or contribute to the

growth of the local economy. Low production capacity and a lack of market access are the

reasons why households struggle with food security.

5.3.2. Theme 2: Agricultural interventions

According to Garbero and Jäckering (2021), agricultural interventions can improve food security, particularly for beneficiaries of agricultural programmes living in food-insecure nations. Although, in most cases, agricultural interventions are not sufficient, participants revealed that through agricultural interventions, smallholder farmers and the community benefit greatly in terms of food security, poverty reduction and income generation.

Although corruption, mismanagement of funds coupled with fruitless and wasteful expenditures are a cancer, the government has developed an effective and efficient funding mechanism that ensures that funds allocated for food security programmes are not transferred to farmers' accounts but rather utilised to procure equipment or infrastructure, as stipulated in their business plans. However, Loki, Aliber and Sikwela (2021) noted that not all black smallholder farmers enjoy these benefits, particularly those who are in isolated and marginalised areas. Those who benefited from this intervention indicated that the government intervention programmes were able to acquire various types of farming equipment and materials on their behalf. In addition, after agricultural intervention, there was better income exchange, increased food security and surplus to sell to the market.

The National Planning Commission (NPC, 2002) emphasises that for South Africa to achieve food security, reduce poverty and realise economic growth, agricultural interventions should be a priority. The informants who represented the three groups in chapter 4 expressed their dissatisfaction with intervention initiatives that favour commercial and influential farmers at the expense of black farmers, who are generally marginalised.

5.3.3. Theme 3: Resource allocations

The Food and Agricultural Organisation (FAO, 2016) asserts that failure to provide farmers with the required agricultural resources leads to low productivity of farms and food insecurity because crops and animals are seriously affected. Without a doubt, irrigation systems are the primary resources necessary for ensuring that small-scale agriculture is sustainable and productive since almost all rural farmers have the desire to sell their produce to the market (Mbatha and Masuku, 2018). Programmes such as the Comprehensive Agricultural Support Programme (CASP), Food Security Programme (FSP) and Ilima/Letsema programme share the common objective of providing subsistence and smallholder farmers with much-needed resources such as infrastructure, equipment, production inputs (seeds, seedlings, fertilisers) and

chemicals. However, mismanagement and uneven allocation of agricultural resources have been described by informants as serious concerns. Mofokeng (2019) noted that the government's objective of eradicating poverty and enhancing food security is dependent on the availability and effectiveness of resources to realise socioeconomic well-being for all. The informants voiced that resources that are supposed to empower subsistence and smallholder farmers benefit commercial farmers and politically connected farmers. Ordinarily, poor management of administration and a lack of proper allocation of resources pose greater challenges for smallholder farmers (Sikrweqe, 2013).

5.3.4. Theme 4: Rural livelihood strategies

The participants indicated that poor villages are plagued by high levels of unemployment and poverty and are solely dependent on farming for food security. People rely on pensions and social grants to supplement their household income and fund some of their farming activities. Only a few people are employed on farms, but as seasonal workers, this is due to low productivity and a lack of market access.

The strategy adopted by both subsistence and smallholder farmers is diversification of farming, whereby they plant on a rotational basis during the winter and summer seasons to produce sufficient food and hope to sell surplus food to the market. Social grants play a central role in contributing to food security in households. The participants highlighted that other rural livelihood strategies include dietary adjustments, which means avoiding high costs of daily bread by resorting to sweet potatoes as a substitute. Other strategies include participating in society saving schemes that enable the sharing of necessities such as maize meal and cooking oil, which last for approximately six months. The possibility of relying on family members who work in cities to send money home to supplement household income is considered.

5.3.5. Theme 5: Agricultural development

The informants highlighted that the key to agricultural development is the availability of water and infrastructure development; without water, nothing will survive on the farms. Sokhulum is a land with great potential that presents a unique opportunity for the establishment of an agricultural village as a rural development initiative to increase local economic development. Agricultural development significantly improves agricultural growth and contributes to improved livelihoods and food security. According to Binuomote, Adeleke and Omodunbi (2012), government investments in agricultural development are the key to economic growth. The informants highlighted that a lack of service delivery frustrates efforts to improve

agricultural development because without proper roads, water and communication infrastructure, attracting and delivering produce to the market becomes difficult. Informants are further informed that constant service delivery protests worsen the situation, as the little existing infrastructure is vandalised and the main roads that lead to the market are blocked in the process.

5.4. Summary of Findings

This study evaluated the effectiveness of agricultural interventions in boosting food security in Sokhulumi village, Tshwane Metropolitan Municipality. The respondents' aspirations are to improve food security within their households, improve livelihoods and contribute to the local economy.

As described by respondents, most beneficiaries of agricultural interventions are dependent on farming for food security and income exchange. Farming is purely for feeding the households and selling surplus to the market as a source of income generation. Mbatha & Masuku (2018) also highlighted that most rural households in South Africa participate in agriculture for the purpose of food security in their households and income generation.

The findings also revealed that agricultural interventions related to food security have the potential to benefit household/smallholder farmers' livelihoods and impacts positively in reducing poverty and improved socio-economic conditions. Most households and smallholder farmers revealed that in most cases, agricultural interventions were able to benefit household/smallholder farmers but not the entire community to improve food security. Nesengani, Mudau and Netshandama (2016:113) agree that food security interventions contribute to poverty alleviation for beneficiaries and, to a lesser extent, community members.

As many respondents agreed that agricultural interventions have positive effects, their concern is that the positive contribution to black smallholder farmers is less than that to commercial, urban, and influential farmers. Even though interventions were made to priorities women and African black rural farmers, they still do not have title deeds that they can utilise to secure access loans or grants. The researcher is of the view that there is ineffective implementation of agricultural intervention programme to cover the target population of black smallholder farmers. As such, black smallholder farmers receive more financial support than their white counterparts do (Mokgomo,2019). Therefore, rural development interventions have been ineffective in improving food security and stimulating local economic growth (Chepape and

Maoba, 2020: 32).

The respondents noted that agricultural interventions related to food security are of prime importance because most households are mostly anxious about where their next meal will come from, and they consume what they are able to produce from their farms. Some households have developed different livelihood strategies, which include keeping livestock in currency and depending on family members who work in cities to send money to supplement household income. The respondents believe that agricultural interventions related to food security are significant because low productivity and a lack of income result in dietary adjustments and become dependent on social grants as a livelihood strategy.

According to Mbatha and Masuku (2018: 33), the government of South Africa considers the participation of rural communities in the agricultural sector a significant strategy to improve rural economies. The effectiveness of governments' ability to eradicate poverty and enhance food security depends on the availability of agricultural resources to improve livelihoods for all (Mofokeng, 2019). Rural farmers are experiencing low productivity, infertility of soil, insufficient water, climate change and technological development to meet their household needs (Mbatha and Masuku, 2018). The findings indicated that failure to access much-needed resources leads to low productivity of farms and even affects crops that rely on much-needed resources. The results further indicated that poor administration, not only does the dearth of allocation of resources pose a greater challenge to smallholder farmers, but the uneven distribution of resources is also a concern for participants. Similarly, Sikrweqe (2013) warned that poor administration and a lack of proper allocation of resources are greater challenges for households and smallholder farmers.

Agricultural development is seen as a panacea to food security and poverty alleviation. Almost 90% of rural households depend on agriculture as a primary source of income. Hence, agriculture is an essential component of rural development and is concerned with the material and social well-being of people (Udemezue and Osegbue, 2018). The respondents highlighted that, for farmers to realise agricultural development, several factors should be considered:

- (a) investing in water infrastructure can increase productivity and positively impact the growth and development of the sector.
- (b) Improving the road infrastructure so that rural farmers are connected to local markets both formally and informally.
- (c) Adapting to transformation so that farmers may move away from traditional methods of

farming into modern systems of farming, and

(d) Adapting to technological advancements is crucial for both commercial and smallholder farmers because climate change threatens the productivity of the agricultural sector (Mbatha & Masuku, 2018).

5.5. Conclusions of the study

This study evaluated the effectiveness of agricultural interventions in increasing food security in Sokhulumi village while paying attention to the dilemmas faced by household and smallholder farmers. The findings revealed that the village depends mainly on subsistence and smallholder farming for food security and income exchange benefits. Therefore, subsistence and smallholder agriculture fail to increase food security and positively contribute to the rural economy since farmers produce products that barely reach the market. The dilemmas faced by rural farmers include a lack of and mismanagement of resources, government intervention programmes that favour influential and commercial farmers, a lack of transformation of the rural agricultural sector, climate change, and poor road infrastructure, which have made it impossible for rural farmers to access the market and compete with commercial farmers. As a result, if rural development is not expedited and integrated with agricultural development, the challenge of food insecurity will not be properly addressed even if proper agricultural interventions are in place.

5.6. Recommendations of the study

This section focuses on the recommendations made by the researcher following the recommendations of the Sokhulumi smallholder farmers, farmer production support unit committee and traditional council. These recommendations emanate from the limited data provided, including a detailed comprehensive analysis involving a small sample size and additional perspectives, would provide a more accurate understanding of agricultural interventions on food security in Sokhulumi.

5.6.1. Recommendations for smallholder farmers

- Urgent attention is required for the transformation of the traditional agricultural sector into a productive source of economic growth.
- Climate change poses a greater threat to both commercial and rural farmers. Therefore,

it is important for smallholder farmers to adapt to climate change strategies such as farm diversification when managing smallholder farming practices.

- There is an urgent need for households and smallholder farmers to develop self-sufficient interventions that limit dependence syndrome.

5.6.2. Recommendations for farmer production support unit committees

- The government and stakeholders should develop agricultural intervention programme that discriminate against commercial farmers and focus strictly on rural farmers so that they may eventually graduate into commercial farmers.
- Policies that dictate that the market should buy 70% of products from rural farmers, especially women and youth, should be developed. This will improve access to markets, which has proven to be a threat to rural farmers in general.

5.6.3. Recommendations for traditional council

- Because Sokhulumi has great agricultural potential, establishing and declaring the area as an agricultural village is strategic, whereby interventions are packaged such that all subsistence and smallholder farmer needs are catered for in one programme and ultimately meet the needs and demands of the market.
- Expedite and prioritise issuing title deeds, particularly for single-headed women households, so that they may use land as a guarantee to secure loans/grants.
- There is an urgent need to integrate community development with agricultural development to have water infrastructure, access to roads, telecommunications, and digital infrastructure to improve the livelihoods of rural communities.

5.7. Recommendations for Further Research

The purpose of this study is to contribute to the body of knowledge. The limitations identified and the findings of the study area should be considered. The study revealed that limited empirical evidence indicates that agricultural interventions in their current form are creating food security, and the findings further suggest that government food security policies benefit urban and commercial farmers instead of rural farmers. Therefore, these factors have left some questions to researchers regarding which responses are expected to be provided by further research on the following recommended topics:

- Assessing whether agricultural interventions are perceived as correct and relevant mechanisms.
- Assessing whether resource allocations guarantee improved productivity and sustainability of rural agriculture.
- Evaluating whether agricultural interventions are responsive or compound the challenges faced by smallholder farmers.

5.8. Chapter Summary

This chapter presented the summary, conclusions and recommendations for this study. Overall, the study assessed agricultural interventions related to food security in Sokhulumi village while paying attention to the dilemmas faced by households and smallholder farmers. The findings revealed that the village depends mainly on subsistence and smallholder farming for food security and income exchange benefits. Therefore, subsistence and smallholder agriculture fail to positively contribute to the rural economy since farmers produce products that barely reach the market. The dilemmas faced by rural farmers include a lack of and mismanagement of resources, government intervention programmes that favour influential and commercial farmers, a lack of transformation of the rural agricultural sector, climate change, and poor road infrastructure, which have made it impossible for rural farmers to access the market and compete with commercial farmers. As a result, if rural development is not expedited and integrated with agricultural development, the challenge of food insecurity will not be properly addressed even if certain agricultural interventions are in place.

REFERENCES

- Adem, M. A Teresa, F., (2020). Intensity of income diversification among small-farmers holder in Asayita Wodreda, Afar Region, Ethiopia. *Cogent Economics & Finance*, 8(1): 17549394.
- Adu, M.O., Yawson, D.O., Armah, F. A., Abano, E.E and Quansah, R., (2018). Systematic review of the effects of agricultural interventions in Northern Ghana. *PLOS One*.13(9): 0203605.
- Adwork, J., (2025). Probability Sampling-A guide for quantitative health care research. *Annals of African Surgery*.
- Agbaeze, E.K., Ohunyeye, F.O., Obamen, J. and Ibe, G.I., (2020). Management of food crop for National Development: Problems and challenges of cassava processing in Nigeria. *SAGE Open*, 10(2): 2158244020919778.
- AGRA (2021). *Africa Agriculture Status Report 2021*. Nairobi: Alliance for a Green Revolution in Africa.
- Alexander, P. (2010). Rebellion of the Poor: South Africa's Service Delivery Protests – A Preliminary Analysis. *Review of African Political Economy*, 37(123): 25–40.
- Aliber, M. and Hall, R., (2012). Support for smallholder farmers in South Africa: Challenges of scale and strategy. *Development Southern Africa*, 29(4): 548–562.
- Aliber, M., (2015). *Exploring the potential for smallholder farming in South Africa*. Working Paper 0006, Institute for Poverty, Land and Agrarian Studies (PLAAS), University of the Western Cape.
- Akanbi, R.T., Davis, N. and Ndarana, T., (2021). Climate change and maize production in the Vaal catchment of South Africa: assessment of farmers' awareness, perceptions and adaptation strategies. *Climate Research*, (82): 191-209.
- Alasuutari, P., Brannen, J. and Bickman, L. (2008) *The SAGE handbook of social research methods*. London: SAGE Publications.
- Alderman, H. and Bundy, D. (2012). School Feeding Programs and Development: Are We Framing the Question Correctly? *World Bank Research Observer*, 27(2): 204–221.

Anderson, J.R. and Feder, G. (2007). Agricultural Extension. In: R. Evenson and P. Pingali (eds.), *Handbook of Agricultural Economics*, Vol. 3. Amsterdam: Elsevier, 2343–2378.

Anderson, J.R. and Feder, G. (2018) *Agricultural extension: Good intentions and hard realities*. Washington, DC: World Bank.

Antunes, P., Santos, R., Cosme, I., Osann, A., Calera, A., De Ketelaere, D., Spiteri, A., Mejuto, M.F., Andreu, J., Momblanch, A. and Nino, P., (2017). A holistic framework to assess the sustainability of irrigated agricultural systems. *Cogent Food & Agriculture*, 3(1): 1323542.

Aker, J.C. (2011). Dial “A” for Agriculture: Using Information and Communication Technologies for Agricultural Extension in Developing Countries. *Agricultural Economics*, 42(6): 631–647.

Aseete, P., Barkley, A., Katungi, E., Ugen, M.A. and Birachi, E., (2023). Public–private partnership generates economic benefits to smallholder bean growers in Uganda. *Food Security*, 15(1): 201-218.

Asiema, P. (1994). Africa’s Green Revolution. *Biotechnology and Development Monitor*, (19): 17-18.

Aurino, E., Gelli, A., Adamba, C., Osei-Akoto, I. and Alderman, H. (2019). Food for Thought? Experimental Evidence on the Learning Impacts of a Large-Scale School Feeding Program in Ghana. *Journal of Human Resources*, 54(2): 436–462.

Barrett, C.B., Reardon, T. and Webb, P. (2001). ‘Nonfarm income diversification and household livelihood strategies in rural Africa and Latin America’, *Food Policy*, 26(4): 315–331.

Barrett, C.B. (2008). Smallholder market participation: Concepts and evidence from eastern and southern Africa. *Food Policy*, 33(4): 299–317.

Barrett, C.B. (2010). Measuring food insecurity. *Science*, 327(5967): 825–828.

Bernstein, H. (2013). *Commercial agriculture, agrarian change, and the agrarian question in South Africa*. Oxford: Oxford University Press.

Bhalotra, S., (2020). A shadow pandemic of domestic violence: The potential role of job loss and unemployment benefits. *VoxEU.org*, 13.

Bhattacharjee, A. (2012). *Social science research: Principles, methods, and practices*.

Tampa, FL: University of South Florida.

Black, A., Conradie, B. and Gerwel, H., (2014). Should agriculture receive greater support as part of an inclusive growth strategy. *Institute for Poverty, Land, and Agrarian Studies (PLAS). Cape Town: University of Cape Town.*

Barrett, D. and Twycross, A., (2018). Data collection in qualitative research. *Evidence-Based Nursing*, 21(3): 63-64.

Barrett, C.B., Carter, M.R. and Timmer, C.P. (2019). A Century-Long Perspective on Agricultural Development. *American Journal of Agricultural Economics*, 101(2): 325–347.

Barroga E, Matanguihan GJ. A. 2022. Practical Guide to Writing Quantitative and Qualitative Research Questions and Hypotheses in Scholarly Articles. *J Korean Med Sci*. 37(16): e121. doi: 10.3346/jkms.2022.37.e121. PMID: 35470596; PMCID: PMC9039193.

Batung, E.S., Mohammed, K., Kansanga, M.M., Nyantakyi-Frimpong, H. and Luginaah, I., (2023). Credit access and perceived climate change resilience of smallholder farmers in semi-arid northern Ghana. *Environment, Development and Sustainability*, 25(1): 321-350.

Bertram, C. and Christiansen, I. (2014). *Understanding research. An introduction to reading research*. First Edition. Pretoria: Van Schaick Publishers.

Berg, B.L. (2001). *Qualitative Research Methods for the Social Science. 4th edition*. California State University, Long Beach.

Blustein, D.L., Duffy, R., Ferreira, J.A., Cohen-Scali, V., Cinamon, R.G. and Allan, B.A., (2020). Unemployment in the time of COVID-19: A research agenda. *Journal Of Vocational Behavior*, 119, 103436.

Bijman, J., van der Slangen, G. and Doorneweert, R.B., (2012). *Support for Farmers' Cooperatives: country report The Netherlands*. Wageningen UR.

Binuomote, S.O., Adeleke, O. and Omodunbi, C., (2012). The Effect of Government expenditure on agricultural productivity in Nigeria (1960-2008). A Bounds Testing Approach. *Continental Journal of Agricultural Science*, 6(2): 30-37.

Birmingham, P. and Wilkinson, D., (2003). Using research instruments: A guide for researchers. Routledge.

Birmingham, P. and Wilkinson, D., (2003). Using research instruments: A guide for researchers. London: RoutledgeFalmer.

Bisht, I.S., Rana, J.C. and Pal Ahlawat, S., (2020). The future of smallholder farming in India: Some sustainability considerations. *Sustainability*, 12(9): 3751.

Bizikova, L., Jungcurt, S., McDougal, K. and Tyler, S., (2020). How can agricultural interventions enhance contribution to food security and SDG 2.1? *Global Food Security*, 26, 100450.

Brannen, C. (2010). *An Impact Study of the Village Savings and Loan Association Program in Zanzibar, Tanzania*. Wesleyan University.

Braun, V. and Clarke, V., (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2): 77-101.

Braun, V. and Clarke, V. (2019). Reflecting on Reflexive Thematic Analysis. *Qualitative Research in Sport, Exercise and Health*, 11(4): 589–597.

Bryman, A. (2016). *Social Research Methods*. 5th edn. Oxford: Oxford University Press.

Bonache, J. and Festing, M., (2020). Research paradigms in international human resource management: An epistemological systematisation of the field. *German Journal of Human Resource Management*, 34(2): 99-123.

Bourguignon, F. and Pleskovic, B. eds., (2008). *Rethinking infrastructure for development* (Vol. 2). Washington ,DC: World Bank Publications.

Buheji, M., da Costa Cunha, K., Beka, G., Mavric, B., De Souza, Y.L., da Costa Silva, S.S., Hanafi, M. and Yein, T.C., 2020. The extent of covid-19 pandemic socio-economic impact on global poverty. a global integrative multidisciplinary review. *American Journal of Economics*, 10(4): 213-224.

Burger, R. and Christian, C. (2020). *Service Delivery Protests and Socio-Economic Inequality in South Africa*. *Development Southern Africa*, 37(2): 179–194.

Burney, J.A. and Naylor, R.L. (2012). *Smallholder Irrigation as a Poverty Alleviation Tool in Sub-Saharan Africa*. *World Development*, 40(1): 110–123.

Caraher, M., Coveney, J., and Chopra, M. (2023). Introduction to the Handbook of

Food Security and Society. In *Handbook of Food Security and Society*, Cheltenham, UK: Edward Elgar Publishing. available from: <<https://doi.org/10.4337/9781800378445.00010>> [Accessed 27 May 2024]

Carelsen, C.P.R., Ncube, B. and Fanadzo, M., (2021). Classification and characterisation of smallholder farmers in South Africa: a brief review. *South African Journal of Agricultural Extension*, 49(2): 97-106.

Caudle, S.L., (2004). Qualitative data analysis. *Handbook of practical program evaluation*, 2(1): 417-438.

Church, R.M., (2002). The effective use of secondary data. *Learning and motivation*, 33(1): 32-45.

Chauke, S., (2017). *Basic service delivery challenges with regards to water and sanitation in Gauteng province: A case of City of Johannesburg and City of Tshwane Metropolitan Municipalities* (Master's Dissertation, Pretoria, University of South Africa).

Chepape, R.M. and Maoba, S., (2020). Impact of agricultural developmental programmes on smallholder farmers of Bronkhorstspuit region in Tshwane Metropolitan Municipality, Gauteng province. *South African Journal*, 40(1): 31-41.

Chibwana, C., Fisher, M., Jumbe, C., Masters, W.A. and Shively, G., (2010). Measuring the Impacts of Malawi's farm input subsidy program. *Available at SSRN 1860867*.

Chisasa, J. and Makina, D. (2021) 'Input delivery delays and productivity among smallholder farmers in sub-Saharan Africa', *African Journal of Agricultural Research*, 16(4): 211–219.

City of Tshwane, (2023). Integrated Development Plan (IDP) 2023/2024. Pretoria: City of Tshwane Metropolitan Municipality.

Creswell, J.W. (2008). Research design: Qualitative, quantitative, and mixed methods approaches. (2nd ed). Thousand Oaks, CA. Sage.

Creswell J, W. and Creswell, J.D., (2009). Research design: Qualitative, quantitative, and mixed methods approach. Los Angeles London New Dehli Singapore: Sage Publications.

Creswell, J.W. (2013). Research design: Qualitative, quantitative, and mixed methods approaches. Sage publications, Inc., London.

Creswell, J.W. and Creswell, J.D. (2018) *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. 5th edn. Thousand Oaks, CA: Sage.

Creswell, J.W. and Poth, C.N. (2017) *Qualitative Inquiry and Research Design: Choosing Among Five Approaches*. 4th edn. Thousand Oaks, CA: Sage.

Connelly, L.M., (2016). Trustworthiness in qualitative research. *Medsurg nursing*, 25(6): 435.

Cousins, B., (2010). *What is a 'smallholder'? Class-analytic perspectives on small-scale farming and agrarian reform in South Africa*. Working Paper 16, PLAAS, University of the Western Cape.

Dannels, S.A. (2018). *Research design. In The reviewer's guide to quantitative methods in the social sciences*. Routledge.

Department of Agriculture, Forestry and Fisheries (DAFF), (2016). *Comprehensive Agricultural Support Programme (CASP) Revised Framework*. Pretoria: DAFF.

De Schutter, O., (2011). *The right to food and agricultural policies*. Briefing Note 01, United Nations Special Rapporteur on the Right to Food.

DeMarrais, K., Roulston, K. and Copple, J. (2024). *Qualitative Research Design and Methods: An Introduction*. Stylus Publishing, LLC.

Denzin, N.K. and Lincoln, Y.S. (2018) *The Sage Handbook of Qualitative Research*. 5th edn. Thousand Oaks, CA: Sage.

Deininger, K. (2003) *Land Policies for Growth and Poverty Reduction*. Washington, DC: World Bank.

Devereux, S. (2001). Livelihood insecurity and social protection: A re-emerging issue in rural development. *Development Policy Review*, 19(4): 507–519.

De Vos, AS, Strydom, H, Fouche, CB, and Delport, CSL. (2011). *Research at grass roots: For the social sciences and human service professions*. Pretoria. South Africa: Van Schaik.

DiCicco-Bloom, B. and Crabtree, B.F., (2006). The qualitative research interview. *Medical education*, 40(4): 314-321.

Dimant, T., Lebone, K., Mackay, G., Moloi, L., Ndebele, T., Phung, R. and Van

Heerden, G., (2016). South Africa survey. *Institute of race relations, Johannesburg, Republic of South Africa*, 1-5.

Downing, E., Coe, S. and Audickas, L., (2018). Brexit: Future UK agriculture policy. *Health*, 24: 42-46.

Dorosh, P., Wang, H.G., You, L. and Schmidt, E. (2012). *Road Connectivity, Population, and Crop Production in Sub-Saharan Africa. Agricultural Economics*, 43(1): 89–103.

Dorward, A., Kydd, J., Morrison, J. and Urey, I., (2004). A policy agenda for pro-poor agricultural growth. *World Development*, 32(1): 73–89.

Eliazer Nelson, A.R.L., Ravichandran, K. and Antony, U., (2019). The impact of the Green Revolution on indigenous crops of India. *Journal of Ethnic Foods*, 6(1):1-10.

Fanadzo, M. and Ncube, B., (2018). Challenges and opportunities for revitalising smallholder irrigation schemes in South Africa. *Water SA*, 44(3): 436-447.

Fayet, L. and Vermeulen, W.J., (2014). Supporting smallholders to access sustainable supply chains: Lessons from the Indian cotton supply chain. *Sustainable Development*, 22(5): 289-310.

Goyal, A. and Nash, J., (2016). *Reaping Richer Returns, Preliminary Overview: Public Spending Priorities for African Agriculture Productivity Growth*. World Bank.

Farrow, R., Iniesto, F., Weller, M. and Pitt, R., (2020). *GO-GN research methods handbook*. Global OER Graduate Network. [Online] Available at <https://go-gn.net/wp-content/uploads/2020/07/GO-GN-Research-Methods.pdf>.

Fisher, C.B. and Anushko, A.E., (2008). Research ethics in social science. *The SAGE handbook of social research methods*, 95-109.

Flood, A., (2010). Understanding phenomenology. *Nurse researcher*, 17(2): 7-15.

FAO, IFAD, UNICEF, WFP & WHO (2025) *The State of Food Security and Nutrition in the World 2025*. Rome: FAO. Available at: <https://data.unicef.org/resources/sofi-2025/> (Accessed: [23 January 2026]).

Food and Agriculture Organisation (FAO). (2010). *Undernourishment around the world in 2010*.

Food and Agriculture Organisation (FAO). (2012). The state of food and agriculture. Investing in agriculture for a better future.

FAO. (2015). *The state of food and agriculture: Social protection and agriculture – breaking the cycle of rural poverty*. Rome: Food and Agriculture Organization of the United Nations.

Food and Agriculture Organisation. (2016). The impact of combining agricultural interventions and social protection interventions. What do we know and what else do we need to know? Research Brief.

Food and Agriculture Organisation. (2018). *Transforming rural livelihoods and landscapes: The role of agricultural interventions*. Rome: Food and Agriculture Organization of the United Nations.

Food and Agriculture Organization of the United Nations. (2019). The State of Food and Agriculture 2019: Moving forward on food loss and waste reduction. Rome: FAO.

Food and Agriculture Organisation. (2020). *The State of Food and Agriculture 2020: Overcoming Water Challenges in Agriculture*. Rome: FAO.

Food and Agriculture Organisation (2021). *Irrigation and sustainable water management*. Food and Agriculture Organization of the United Nations, Rome.

Food and Agriculture Organisation. (2021) *The State of Food and Agriculture 2021*. Food and Agriculture Organization of the United Nations.

Food and Agriculture Organisation. (2022). *State of Food and Agriculture: Innovation in Agriculture*. Rome: Food and Agriculture Organization of the United Nations.

Fowler Jr, FJ. (2013). *Survey research methods*. Sage publications.

Fry, J.P. 2016. A descriptive phenomenological study of independent midwives' utilisation of intuition as an authoritative form of knowledge in practice (*Doctoral dissertation, Bournemouth University*).

Gidi, L.S. (2013). Rural households' livelihoods' strategies and opportunities with regard to farming: a case of Intsika Yethu Local Municipality.

Girabi, F. and Mwakaje, A.E.G., 2013. Impact of microfinance on smallholder farm productivity in Tanzania: The case of Iramba district. *Asian Economic and Financial*

Review, 3(2): 227.

Girma, D., Assefa, K., Chanyalew, S., Cannarozzi, G., Kuhlemeier, C. and Tadele, Z., 2014. The origins and progress of genomics research on Tef (*Eragrostis tef*). *Plant Biotechnology Journal*, 12(5): 534-540.

Giorgi, A. (2006). Concerning variations in the application of the phenomenological method. *The Humanistic Psychologist*, 34(4): 305-319.

Goyal, A. and Nash, J., 2016. Reaping Richer Returns. *Preliminary Overview: Public Spending Priorities for African Agriculture Productivity Growth*, World Bank, Washington DC.

Harvey, C.A., Rakotobe, Z.L., Rao, N.S., Dave, R., Razafimahatratra, H., Rabarijohn, R.H., Rajaofara, H. and MacKinnon, J.L., 2014. Extreme vulnerability of smallholder farmers to agricultural risks and climate change in Madagascar. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 369(1639): 20130089.

Hendriks, S. 2014. Food security in South Africa: Status quo and policy imperatives. *Agrekon*, 53(2):1-24.

Hendriks, S.L. & Olivier, N.J.J., 2015. Review of the Southern African Agricultural Legislative Framework: Food security implications. *Development Southern Africa*. 32(5): 555-576.

Hermans, F., Geerling-Eiff, F., Potters, J. and Klerkx, L., 2019. Public-private partnerships as systemic agricultural innovation policy instruments—Assessing their contribution to innovation system function dynamics. *NJAS-Wageningen Journal of Life Sciences*, 88:76-95.

Hossain, M.S., Alam, M.K. and Ali, M.S., 2024. Phenomenological approach in the qualitative study: Data collection and saturation. *ICRRD Quality Index Research Journal*, 5(2):148-172.

Hycner, R.H., 1985. Some guidelines for the phenomenological analysis of interview data. *Human studies*, 8(3): 279-303.

Iannotti, L. Kleban, E. Fracassi, P. Oenema, S. and Lutter, C., 2024. Evidence for Policies and Practices to Address Global Food Insecurity. *Annual Review of Public Health*, 45:1.

IFAD (2020) *Rural development report: Fostering inclusive rural transformation*. Rome: International Fund for Agricultural Development.

Islam, M.A. and Aldaihani, F.M.F., 2022. Justification for adopting qualitative research method, research approaches, sampling strategy, sample size, interview method, saturation, and data analysis. *Journal of International Business and Management*, 5(1): 01-11.

Jayne, T.S., Mather, D. and Mghenyi, E. (2016). *Smallholder Farming in Africa: Trends, Constraints and Opportunities*. *Food Policy*, 67: 1–15.

Johnston, M.P., 2014. Secondary data analysis: A method of which the time has come. *Qualitative and quantitative methods in libraries*, 3(3): 619-626.

Jordan, C., Donoso, G. and Speelman, S., 2023. Irrigation subsidy policy in Chile: lessons from the allocation, uneven distribution, and water resources implications. *International Journal of Water Resources Development*, 39(1):133-154.

Jones, A.D., Shrinivas, A. and Bezner-Kerr, R. (2014) ‘Farm production diversity is associated with household dietary diversity in Malawi’, *Food Policy*, 46: 1-12.

Kamara, A., Conteh, A., Rhodes, E.R. and Cooke, R.A., 2019. The relevance of smallholder farming to African agricultural growth and development. *African Journal of Food, Agriculture, Nutrition and Development*, 19(1):14043-14065.

Kamaludin, M., Narmaditya, B.S., Wibowo, A. and Febrianto, I., 2021. Agricultural land resource allocation to develop food crop commodities: lesson from Indonesia. *Heliyon*, 7(7).

Khan, M.A., 2014. Water management and irrigation systems in developing countries: Challenges and prospects for sustainable agriculture. *Journal of Agricultural Science and Technology*, 16(2): 45–57.

Khanal, N.R., Nepal, P., Zhang, Y., Nepal, G., Paudel, B., Liu, L. and Rai, R., 2020. Policy provisions for agricultural development in Nepal: A review. *Journal of cleaner production*, 261,121241.

Khandker, S.R., 2005. Microfinance and poverty: Evidence using panel data from Bangladesh. *The world bank economic review*, 19(2): 263-286.

Khapayi, M. and Celliers, P.R., 2016. Factors limiting and preventing emerging farmers

to progress to commercial agricultural farming in the King William's Town area of the Eastern Cape Province, South Africa. *South African Journal of Agricultural Extension*, 44(1): 25-41.

Khatri-Chhetri, A., Aggarwal, P.K., Joshi, P.K. and Vyas, S. (2017). Farmers' Prioritization of Climate-Smart Agriculture Technologies. *Agricultural Systems*, 151: 184–191.

Khoza, T.M., Senyolo, G.M., Mmbengwa, V.M. and Soundy, P., 2019. Socio-economic factors influencing smallholder farmers' decision to participate in agro-processing industry in Gauteng province, South Africa. *Cogent Social Sciences*, 5(1):1664193.

Kapungu, S.T. 2013. *A study of rural women farmers' access to markets in Chirumanzu* (Doctoral dissertation, Stellenbosch: Stellenbosch University).

Kasai, D.R. and Rdhadhika, D., 2021. An Overview of Different Aspects of Commercial Farming. *International Journal of Modern Agriculture*, 10(2): 2874-2882.

Kaseva, J.M., 2017. Effect of microfinance on poverty reduction in Tanzania: A case study of the African microfinance limited. *Tanzanian Economic Review*, 4(1-2).

Kirsten, J.F. and Van Zyl, J., (1998). Defining small-scale farmers in the South African context. *Agrekon*, 37(4): 551-562.

Kirsten, J.F., (2020). The future of smallholder agriculture in South Africa: Opportunities, constraints, and policy options. *Agrekon*, 59(3): 235–252.

Kirsten, J. and Machethe, C., 2005. *Poverty, food security and agricultural policy in South Africa*. In: Nieuwoudt, L. and Groenewald, J. (eds.) *The challenge of change: Agriculture, land and the South African economy*. Pietermaritzburg: University of KwaZulu-Natal Press, pp.35–66.

Kloppers, H.J. and Pienaar, G.J., 2014. The historical context of land reform in South Africa and early policies. *Potchefstroom Electronic Law Journal/Potchefstroomse Elektroniese Regsblad*, 17(2): 676-706.

Koch, A. and Hammarsköld, L., 2022. Factors of public-private partnerships (PPP) attracting private investors in developing countries: A quantitative research study of inexperienced and experienced private investors.

Kim, H.K., Jun, M., Rhee, S. and Wreen, M., 2020. Husserlian phenomenology in

Korean nursing research: Analysis, problems, and suggestions. *Journal of Educational Evaluation for Health Professions*, 17.

Kivunja, C. and Kuyini, A.B., 2017. Understanding and applying research paradigms in educational contexts. *International Journal of Higher Education*, 6(5): 26-41.

Kivunja, C., 2018. Distinguishing between theory, theoretical framework, and conceptual framework: A systematic review of lessons from the field. *International Journal of Higher Education*, 7(6): 44-53.

Kumar, P., 2007. Green revolution and its impact on environment. *International Journal of Research in Humanities & Soc. Sciences*, 5(3): 54-57.

Kusek, J.Z. and Rist, R.C. (2004) *Ten steps to a results-based monitoring and evaluation system: A handbook for development practitioners*. Washington, DC: World Bank.

Leavy, P. (2022). Research design: Quantitative, qualitative, mixed methods, arts-based, and community-based participatory research approaches. 2nd edition: Guilford Publications.

Leedy, P. D., and Ormrod, J. E. (2010). *Planning and design (9th ed.)*. New York, NY: Pearson.

Liamputtong, P., (2009). Qualitative data analysis: conceptual and practical considerations. *Health Promotion Journal of Australia*, 20(2): 133-139.

Lincoln, Y.S. and Guba, E.G. (1985) *Naturalistic Inquiry*. Beverly Hills, CA: Sage.

Liu, P., (2014). Impacts of foreign agricultural investment on developing countries: evidence from case studies. *FAO Commodity and Trade Policy Research Working Papers*, (47):1.

Loki, O., Aliber, M. and Sikwela, M.M., (2021). Assessment of socio-economic characteristics that determine farmers' access to agricultural extension services in Eastern Cape, South Africa. *South African Journal of Agricultural Extension*, 49(1): 198-209.

Louw, A. and Jordaan, D., 2016. Supply chain risks and smallholder fresh produce farmers in the Gauteng province of South Africa. *Southern African Business Review*, 20(1):286-312.

Loosveldt, G., 2012. Face-to-face interviews. In *International handbook of survey*

methodology. Routledge.

Mabunda, D.Q., 2014. *The challenges in establishing partnership policing in Soshanguve* (Doctoral dissertation, University of South Africa).

Madziakapita, A., 2008. *An evaluation of the impact of food aid on food security: The case of Ngabu Area in Malawi* Doctoral dissertation, University of South Africa.

Mahlombe, C., 2018. The role of agricultural development projects in poverty reduction in the OR Tambo District Municipality of the Eastern Cape Province, South Africa. University of Pretoria (South Africa).

Malatsi, E., Maake, M.M.S. and Masekoameng, M.R., 2023. Contribution of homestead food gardens towards food availability in Tshwane Metropolitan Municipality-Region 7, Gauteng Province of South Africa. *African Journal of Food, Agriculture, Nutrition and Development*, 23(4): 22963-22983.

Mahlangu, R.C. 2022. *The role of social housing in urban regeneration: The case of Johannesburg* (Unpublished Master's Dissertation, Pretoria: University of South Africa).

Mangeni, B., 2019. The role of public-private partnerships (PPPs) in ensuring technology access for farmers in sub-Saharan Africa. *African Journal of Food, Agriculture, Nutrition and Development*, 19(1): 14137-14155.

Majid, M.A.A., Othman, M., Mohamad, S.F., Lim, S.A.H. and Yusof, A., (2017). Piloting for interviews in qualitative research: Operationalization and lessons learnt. *International Journal of Academic Research in Business and Social Sciences*, 7(4): 1073-1080.

Maguire, M. and Delahunt, B., (2017). Doing a thematic analysis: A practical, step-by-step guide for learning and teaching scholars. *All Ireland Journal of Higher Education*, 9(3).

Maphanga, M. and Mazenda, A., (2019). The effectiveness of the expanded public works programme as a poverty alleviation strategy. *Administration Publica*, 27(3): 7-26.

Maphosa, B., (2016). Alleviating poverty through resource provision: The case of a South African agricultural project. *International Journal of African Renaissance Studies-Multi Inter- and Transdisciplinary*, 11(1): 45-6.

Mashele, M.T., 2013. *Experiences of the Nkomazi Local Municipality in the Provision of Water Services to Poor Communities*. (Master's Dissertation, Johannesburg: University of

the Witwatersrand).

Masimova, L., 2023. The role of agricultural sector in the development of the Netherlands. *Quarterly Journal of International Agriculture*, 215 - 227.

Mason, J., (2002). Qualitative researching 2nd edition Sage.

Mazhar, S.A., Anjum, R., Anwar, A.I. and Khan, A.A., (2021). Methods of data collection: A fundamental tool of research. *Journal of Integrated Community Health*, 10(1): 6-10.

Mbaka, N. and Isiramen, O.M., (2021). The changing role of an exploratory research in modern organisation. *GPH-International Journal of Business Management*, 4(12): 27-36.

Mbatha, MW. (2019). The sustainability of agricultural projects in enhancing rural economic development in Msinga local municipality. Doctoral dissertation, University of Zululand.

Meemken, E.M. and Bellemare, M.F., (2020). Smallholder farmers and contract farming in developing countries. *Proceedings of the National Academy of Sciences*, 117(1): 259-264.

Meinzen-Dick, R., Quisumbing, A., Doss, C. and Theis, S. (2019). *Women's Land Rights as a Pathway to Poverty Reduction: Framework and Review of Available Evidence. Agricultural Systems*, 172: 72–82.

Mmbengwa, V.M., Rambau, K., Rakuambo, J.N. and Qin, X., (2020). Key factors for the improvement of smallholder farmers' participation in agro-processing industries of Gauteng province of Republic of South Africa: lessons for the extension advisory services. *South African Journal of Agricultural Extension*, 48(2): 153-165.

Mncina, S.D. and Agholor, A.I., (2021). Comprehensive agricultural support programme as the prime mover of agricultural development agenda in South Africa. *South African Journal of Agricultural Extension*, 49(1): 122-140.

Modi, R., 2018. The role of agriculture for food security and poverty reduction in sub-Saharan Africa. In *The Palgrave handbook of contemporary international political economy* London: Palgrave Macmillan UK, 391-410.

Miles, M.B., Huberman, A.M. and Saldana, J., (2018). *Qualitative data analysis: A*

method sourcebook. Thousand Oaks, CA: Sage.

Ministry of Agriculture and Land Affairs. (1998). *Agricultural Policy in South Africa: A discussion document*. Pretoria: Government Printer.

Minten, B., Randrianarison, L. and Swinnen, J.F.M. (2009). *Global Retail Chains and Poor Farmers: Evidence from Madagascar*. *World Development*, 37(11): 1728–1741.

Mittal, S. and Sethi, D., (2009). *Food security in South Asia: Issues and opportunities* (No. 240). working paper.

Modi, R. and Cheru, F. eds., (2013). *Agricultural development and food security in Africa: the impact of Chinese, Indian and Brazilian investments*. Bloomsbury Publishing.

Modiba, M., Ndlovu, T., Musiyandaka, D., Khanyile, S. and Semu, T., (2024). *Unemployment in Gauteng*. Gauteng City-Region Observatory.

Mofokeng, W.N., (2019). *Assessment of budget allocation and funding of community food security projects in Emfuleni Local Municipality* (Doctoral dissertation, North-West University (South Africa)).

Mokgomo, M.N., (2019). *The effects of government agricultural development support on the livelihoods of small-scale farmers in South Africa* (Unpublished Masters Dissertation, University of South Africa).

Mokgomo, M.N., Chagwiza, C. and Tshilowa, P.F., (2022). The impact of government agricultural development support on agricultural income, production and food security of beneficiary small-scale farmers in South Africa. *Agriculture*, 12(11):1760.

Mosha, D.B., Vedeld, P.O., Katani, J.Z., Kajembe, G.C. and Tarimo, A.K., (2018). Contribution of Paddy Production to Household Income in Farmer-Managed Irrigation Scheme Communities in Iringa Rural and Kilombero Districts, Tanzania.

Morrow, R., Rodriguez, A. and King, N., (2015). Colaizzi's descriptive phenomenological method. *The Psychologist*, 28(8): 643-644.

Moyo, S. (2022) *Agricultural Inputs and Food Security in Africa: Challenges and Policy Responses*. Cape Town: HSRC Press.

Mutero, J., Munapo, E. and Seaketso, P., (2016). Operational challenges faced by smallholder farmers: a case of Ethekwini Metropolitan in South Africa.

Muzekenyi, M., Nyika, F. and Hoque, M., (2023a). A Small-Scale Farming Intervention Plan for Inclusive Economic Development in Rural South Africa. *International Journal on Food, Agriculture and Natural Resources*, 4(2): 46-52.

Muzekenyi, M., Zuwarimwe, J. and Kilonzo, B.M., (2023b). Economic challenges limiting small-scale commercial farming development in rural areas of South Africa. *African Journal of Food, Agriculture, Nutrition and Development*, 23(4): 23026-23038.

Myeni, L., Moeletsi, M., Thavhana, M., Randela, M. and Mokoena, L., (2019). Barriers affecting sustainable agricultural productivity of smallholder farmers in the Eastern Free State of South Africa. *Sustainability*, 11(11): 3003.

Myeni, L. and Moeletsi, M.E., (2020). Factors determining the adoption of strategies used by smallholder farmers to cope with climate variability in the Eastern Free State, South Africa. *Agriculture*, 10(9): 410.

Myeni, L., Moeletsi, M.E., Nyagumbo, I., Modiselle, S., Mokoena, L. and Kgakatsi, I.B., (2021). Improving the food and nutritional security of smallholder farmers in South Africa: Evidence from the InnovAfrica project. *Sustainability*, 13(17): 9902.

Nduhura, A., Molokwane, T., Lukamba, M.T., Mugerwa, B., Nuwagaba, I., Twinomuhwezi, J., Kadondi, A. and Mbabazi, M., (2022). Food security: The application of public–private partnerships to feed the hungry and prosper Africa. *African Journal of Public Administration and Environmental Studies*, 1(1): 42–59.

Neuman, W.L. (2014). *Social Research Methods: Qualitative and Quantitative Approaches* (6th ed.). Boston: Pearson.

Nesengani, T.J, Mudau, M.J, and Netshandama, V.O., (2016). Contribution of Food Security Projects on Poverty Alleviation to the Communities of Limpopo Province, South Africa. *South African Journal of Agricultural Extension*, 44(1):113-119.

Ngema, P.Z, Sibanda, M. and Musemwa, L., (2018). Household food security status and its determinants in Maphumulo local municipality, South Africa. *Sustainability* 10(9): 3307.

Ngwane, T. (2019). Insurgent Citizenship and the Struggle for Service Delivery in South Africa. *Journal of Southern African Studies*, 45(1): 123–139.

Ngidi, M.S.C. and Hendriks S.L., (2014). Coping with food insecurity in rural South

Africa: The case of Jozini, Kwazulu-Natal. *Mediterranean Journal of Social Sciences*, 5(25): 278-289.

Njie, B. and Asimiran, S., 2014. Case study as a choice in qualitative methodology. *Journal of research & method in Education*, 4(3): 35-40.

Norton, G. W, Alwang, J. and Masters, W. A., 2016. *Economics of agricultural development: World food systems and resource use*. Routledge.

OECD (2010) *Glossary of key terms in evaluation and results-based management*. Paris: Organisation for Economic Co-operation and Development.

Ojija, F., Abihudi, S., Mwendwa, B., Leweri, C.M. and Chisanga, K., 2017. The Impact of Climate Change on Agriculture and Health Sectors in Tanzania: A review. *International Journal of Environment, Agriculture and Biotechnology*, 2(4): 238849.

Ojoyi, M., Mutanga, O., Kahinda, J.M., Odindi, J. and Abdel-Rahman, E.M., 2017. Scenario-based approach in dealing with climate change impacts in Central Tanzania. *Futures*, (85): 30-41.

Olabanji, M.F., Davis, N., Ndarana, T., Kuhudzai, A.G. and Mahlobo, D., 2021. Assessment of smallholder farmers' perception and adaptation response to climate change in the Olifants catchment, South Africa. *Journal of Water and Climate Change*, 12(7): 3388-3403.

Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA). 2017. Farm support programs. Canada: OMAFRA.

Paudel Khatiwada, S., Deng, W., Paudel, B., Khatiwada, J.R., Zhang, J. and Su, Y., 2017. Household livelihood strategies and implication for poverty reduction in rural areas of central Nepal. *Sustainability*, 9(4): 612.

Pawlak, K. and Kołodziejczak, M., 2020. The role of agriculture in ensuring food security in developing countries: Considerations in the context of the problem of sustainable food production. *Sustainability*, 12(13): 5488.

Place, F. 2009. 'Land tenure and agricultural productivity in Africa: A comparative analysis', *World Development*, 37(8):1326–1336.

Pienaar, P.L., 2013. Typology of smallholder farming in South Africa's former

homelands: Towards an appropriate classification system (Doctoral dissertation, Stellenbosch: Stellenbosch University).

Pienaar, L. and Traub, L., 2015. Understanding the smallholder farmer in South Africa: Towards a sustainable livelihood's classification.

Pingali, P.L., 2012. Green revolution: impacts, limits, and the path ahead. *Proceedings of the national academy of sciences*, 109(31):12302-12308.

Praveena, K.R. and Sasikumar, S., 2021. Application of Colaizzi's method of data analysis in phenomenological research. *Med Leg Updat*, 21(2): 914-918.

Pretorius, L., 2024. Demystifying research paradigms: Navigating ontology, epistemology, and axiology in research. *The Qualitative Report*, 29(10): 2698-2715.

Polit, D.F. and Beck, C.T., 2014. *Essentials of nursing research: Appraising evidence for nursing approach*. (8th ed). Wolters Kluwer Health, Philadelphia.

Quisumbing, A., Meinzen-Dick, R., Raney, T., Croppenstedt, A., Behrman, J. & Peterman, A. (2014) *Gender in agriculture: Closing the knowledge gap*. Springer: Dordrecht.

Rahman, M.S., 2017. The Advantages and Disadvantages of Using Qualitative and Quantitative Approaches and Methods in Language "Testing and Assessment" Research: A Literature Review. *Journal of Education and Learning*, 6(1): 102-112.

Rankin, M., Nogales, E.G., Santacoloma, P., Mhlanga, N. and Rizzo, C., 2016. Public-private partnerships for agribusiness development. A review of international experiences. Food and Agriculture Organization. Available from: <http://www.fao.org/3/a-i5699e.pdf> (Accessed: 30 September 2024).

Rehman, A.A. and Alharthi, K., 2016. An introduction to research paradigms. *International Journal of Educational Investigations*, 3(8): 51-59.

Randolph, T.F., Schelling, E., Grace, D., Nicholson, C.F., Leroy, J.L., Cole, D.C., Demment, M.W., Omore, A., Zinsstag, J. and Ruel, M. (2007). *Role of Livestock in Human Nutrition and Health for Poverty Reduction in Developing Countries*. *Journal of Animal Science*, 85(11): 2788-2800.

Rossmann, G.B. and Rallis, S.F. (2012). *Learning in the Field: An Introduction to Qualitative Research*. 3rd Edition, Sage, Los Angeles.

Ruete, M., (2015). Financing for Agriculture: How to boost opportunities in developing countries Policy Brief# 3 Investment in Agriculture.

Ruttan, V.W. and Hayami, Y., (2015). Payoff input models. *Agricultural Productivity: Measurement and Explanation*, 247.

Rutherford, T. and Addison, L. (2019) 'Informal employment and small-scale agriculture: Policy implications in sub-Saharan Africa', *Journal of Rural Studies*, 68: 145–153.

Sandøy, A.Ø., 2018. *How Can the Public and Private Sector Work Together to Ensure More Sustainable Farming for Smallholder Farmers? -A Study of Public-Private Partnerships* (Unpublished Master's thesis, NTNU).

Saunders, M., Lewis, P. and Thornhill, A. (2019) *Research Methods for Business Students*. 8th edn. Harlow: Pearson Education.

Sebola, M.P., 2018. Financing emerging black farmers for agricultural development in South Africa: A wasteful and unworkable model for creating black farmers. *TD: The Journal for Transdisciplinary Research in Southern Africa*, 14(1):1-7.

Sekaran, U. and Bougie, R. (2016). *Research Methods for Business. A Skill Building Approach. (5th ed.)*. John Wiley & Sons, Inc.

Serrat, O. and Serrat, O., (2017). The sustainable livelihoods approach. *Knowledge solutions: Tools, methods, and approaches to drive organizational performance*, 21-26.

Shenton, A.K., (2004). Strategies for ensuring trustworthiness in qualitative research projects. *Education for Information*, 22(2): 63-75.

Shosha, G.A., (2012). Employment of Colaizzi's strategy in descriptive phenomenology: A reflection of a researcher. *European Scientific Journal*, 8(1):31-43.

Shukla, S., Das, S. and Arora, D., (2021). The impact on environment due to technological advancement in agriculture. *Asian Journal of Multidimensional Research*, 10(10): 358-365.

Sibisi, N.B., (2015). *Agricultural extension and post-settlement support of land reform beneficiaries in South Africa: the case of Ixopo in the province of KwaZulu-Natal* (Master's Dissertation: KwaZulu Natal, University of KwaZulu Natal).

Sihlobo, W. and Nel, L., (2016). Is South Africa's agricultural sector addressing

inclusive socio-economic development. *Opportunity for Change*, 68: 65-81.

Zantsi, S., 2024. How can we build a more inclusive South African agriculture? *South African Journal of Science*, 120(7/8). doi:10.17159/sajs.2024/18121

Sinyolo, S., Wale, E. and Mudhara, M., (2016). The impact of social grant dependence on smallholder farmers' participation in agricultural investment: The case of KwaZulu-Natal, South Africa. *South African Journal of Agricultural Extension*, 44(2): 42–56.

Sikrweqe, N.P., (2013). Integrated development planning: as a poverty reduction strategy in the King Sabata Dalindyebo Municipality, Eastern Cape Province, 1-130.

Stifel, D. and Minten, B. (2017). *Market Access, Well-being, and Nutrition: Evidence from Ethiopia*. *World Development*, 90: 229–241.

South Africa. Human Science Research Council (HSRC) 2024. Food survey shows need for area specific interventions in South Africa. Available from <https://hsrc.ac.za/news/food-security/food-survey-shows-need-for-area-specific-interventions-in-sa/>(Accessed: 20 August 2024).

South African Government.1996. *Constitution of the Republic of South Africa of 1996*. Pretoria: Government Printers.

South African Government. 1913. *Natives Land Act, No. 27 of 1913*. Pretoria: Government Printer.

South Africa. Statistics South Africa.2022. Census 2022. *The Extent of Food Security in South Africa*. Pretoria: Government Printers.

South Africa. Statistics South Africa. 2022. *South Africa sees improvement on social challenges*. Pretoria: Government Printer.

South Africa. Department of Agriculture, Forestry and Fisheries (DAFF), 2018. *Annual Report 2017/2018*. Pretoria: Department of Agriculture, Forestry and Fisheries, Republic of South Africa.

South Africa. Gauteng Department of Agriculture and Rural Development. 2019. Mechanisation Policy. Research and Technology Development Services. Pretoria: Government Printers.

South Africa. Council for Scientific and Industrial Research (CSIR). 2019. “Our Urban

Future: South Africa's Settlement Growth Story." In Green Book National Overview. Available online at : <https://pta-gis-2-web1.csir.co.za/portal/apps/GBCascade/index.html?appid=5180459a765c4e63bfb3fa527c7302b3>. (Accessed: 09 September 2024).

South Africa. Department of Agriculture. 2002. Integrated Food Security Strategy. Pretoria: Government Printers.

South Africa. Department of Agriculture, Forestry and Fisheries. 2010. Strategic plan for Department of Agriculture Forestry and Fisheries 2010/2011. Online Available from: https://www.gov.za/sites/default/files/gcis_document/201409/daffstraplan2010.pdf (Accessed: 22 July 2024).

South Africa. Department of Agriculture, Forestry and Fisheries. 2014. The national policy on food and nutrition security. Pretoria: Government Printers.

South Africa. Department of Agriculture, Land Reform and Rural Development. 2023. Pretoria: Government Printers.

South Africa. Department of Agriculture, Land Reform and Rural Development (DALRRD). 2023. *Farmer Production Support Units (FPSU) programme overview*. Pretoria: Government of South Africa.

South Africa. Department of Rural Development and Land Reform. 2013. Implementation of Evaluation of the Comprehensive Rural Development Programme (CRDP): Final Full Report. Available from: https://www.dalrrd.gov.za/phocadownloadpap/Evaluation_Reports/Implementation%20Evaluation%20of%20the%20Comprehensive%20Rural%20Development%20Programme.pdf. (Accessed on 02 October 2024).

South African. Gauteng Department of Agriculture and Rural Development (GDARD). 2015. *Gauteng agro-processing strategy*. Final Draft (October 2015). Johannesburg, RSA

South Africa. 2012. National Development Plan: Vision for 2030. Pretoria. National Planning Commission.

South Africa. National Planning Commission (NPC), 2022. *National Development Plan Review: Reflecting on Progress and the Path Forward*. Pretoria: The Presidency, Republic of South Africa.

South Africa. Statistics South Africa. 2024. 2024. Mid-year population estimates. Media Release. 30 July 2024. Pretoria: Statistics South Africa. Available from: <https://www.statssa.gov.za/?p=17440> (Accessed: 13 August 2024).

South Africa. Statistics South Africa. 2021. *Quarter Assessing food inadequacy and hunger in South Africa in 2021 using the General Household Survey (GHS)* Pretoria: Statistics South Africa.

South Africa. (2014). Department of Planning, Monitoring and Evaluation. 2014. The Medium-Term Strategic Framework (MTSF) 2014/2015. Pretoria: Government Printers.

South Africa. (2012). National Development Plan: Vision for 2030. Pretoria. National Planning Commission.

South Africa. Government Communications and Information System. 2015. South Africa Yearbook 2015/16: Online Available from: Agriculture.<http://www.gcis.gov.za/sites/www.gcis.gov.za/files/docs/resourcecenter/yearbook/Agriculture-SAYB1516n.pdf>. (Accessed: 18 September 2024).

South Africa. Government Communications and Information System. (2017). South Africa Yearbook 2017/18: Online Available from: Agriculture.<http://www.gcis.gov.za/sites/www.gcis.gov.za/files/docs/resourcecenter/yearbook/Agriculture2017.pdf>. (Accessed: 18 September 2024).

Speziale, H.S., Streubert, H.J. and Carpenter, D.R., (2011). *Qualitative research in nursing: Advancing the humanistic imperative*. Lippincott Williams & Wilkins.

Sundler, A.J., Lindberg, E., Nilsson, C. and Palmér, L., (2019). Qualitative thematic analysis based on descriptive phenomenology. *Nursing open*, 6(3):733-739.

Swanepoel, J. W., J. A. Van Niekerk, and Luc D’Haese. (2017). The socio-economic profile of urban farming and non-farming households in the informal settlement area of the Cape Town metropole in South Africa. *South African Journal of Agricultural Extension* 45 (1): 131-140.

Takács, G., Tibor, B. and Wu, Y., 2022. The importance of agriculture, in the light of global security changes and trends. *Precision Agriculture*, 1.

Tacoli, C. (2004). ‘Rural–urban linkages and pro-poor agricultural growth’, *OECD/ODI Working Paper*. London: Overseas Development Institute.

Tacoli, C. (2019). *Rural–Urban Economies and Migration Trends in Africa*. London: IIED.

Thanh, N.C., and Thanh, T.T., (2015). The interconnection between interpretivist paradigm and qualitative methods in education. *American journal of educational science*, 1(2): 24-27.

Theofanidis, D. and Fountouki, A., (2018). Limitation and delimitations in the research process. *Perioperative Nursing*, 7(3):155-162.

Thi Ut, T.R.A.N. and Kajisa, K., 2006. The impact of green revolution on rice production in Vietnam. *The Developing Economies*, 44(2):167-189.

Tiidenberg, K., 2018. Ethics in digital research. *The SAGE handbook of qualitative data collection*, 466-479.

Tomaszewski, L.E., Zarestky, J. and Gonzalez, E., (2020). Planning qualitative research: Design and decision making for new researchers. *International Journal of Qualitative Methods*, 19, 1-7.

Toenniessen, G., Adesina, A. and DeVries, J., (2008). Building an alliance for a green revolution in Africa. *Annals of the New York academy of sciences*, 1136(1): 233-242.

Touch, V., Tan, D.K., Cook, B.R., Li Liu, D., Cross, R., Tran, T.A., Utomo, A., Yous, S., Grunbuhel, C. and Cowie, A., (2024). Smallholder farmers' challenges and opportunities: Implications for agricultural production, environment and food security. *Journal of Environmental Management*, 370, 122536.

Tracy, S.J. (2013). *Qualitative Research Methods. Collecting evidence, crafting analysis, communicating impact*. (1st ed). West Sussex: Wiley- Blackwell.

Tsaurai, K., (2021). Investigating the impact of agriculture on economic growth in BRICS: does financial development matter. *Academy of Accounting and Financial Studies Journal*, 25(1): 1-11.

Udemezue, J.C, and Osegbue, E.G., 2018. Theories and models of agricultural development. *Annals of Reviews and Research*, 1(5): 134-137.

United Nations. 2017. Sustainable Development Goal 2. Sustainable Development Goals Action Platform.

United Nations. (2022). Sustainable Development Goal 2. *Sustainable Development Goals Action Platform*.

University of South Africa. (2016). *Policy on Research Ethics*. Pretoria.

Van Rooyen, A.F., Ramshaw, P., Moyo, M., Stirzaker, R. and Bjornlund, H., (2017). Theory and application of agricultural innovation platforms for improved irrigation scheme management in Southern Africa. *International Journal of Water Resources Development*, 33(5): 804-823.

Van der Walldt, G., (2015). Government Interventionism and Sustainable Development: The Case of South Africa. *African Journal of Public Affairs*, 8(2): 35-51.

Vaismoradi, M., Turunen, H. and Bondas, T., 2013. Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study. *Nursing & health sciences*, 15(3): 398-405.

Vainio, A., (2013). Beyond research ethics: Anonymity as ‘ontology’, ‘analysis’ and ‘independence’. *Qualitative Research*, 13(6): 685-698.

Vasileiou, K., Barnett, J., Thorpe, S. and Young, T., (2018). Characterising and justifying sample size sufficiency in interview-based studies: systematic analysis of qualitative health research over a 15-year period. *BMC Medical Research Methodology*, (18):1-18.

Varpio, L., Paradis, E., Uijtdehaage, S. and Young, M., (2020). The Distinctions Between Theory, Theoretical Framework, and Conceptual Framework. *Academic Medicine*, 95(7): 989-994.

Von Loeper, W., Musango, J., Brent, A. and Drimie, S., (2016). Analysing challenges facing smallholder farmers and conservation agriculture in South Africa: A system dynamics approach. *South African Journal of Economic and Management Sciences*, 19(5): 747-773.

Von Holdt, K., Langa, M., Molapo, S., Mogapi, N., Ngubeni, K., Dlamini, J. and Kirsten, A. (2011). *The Smoke That Calls: Insurgent Citizenship, Collective Violence and the Struggle for a Place in the New South Africa*. Johannesburg: Centre for the Study of Violence and Reconciliation (CSVR).

Vosloo, J.J., (2014). *A sport management programme for educator training in accordance with the diverse needs of South African school's* Doctoral dissertation University of North- West.

Wheeler, S.A., Carmody, E., Grafton, R.Q., Kingsford, R.T. and Zuo, A., (2020). The rebound effect on water extraction from subsidising irrigation infrastructure in Australia. *Resources, Conservation and Recycling*, 159: 104755.

Wickham, R.J., (2019). Secondary Analysis Research. *Journal of The Advanced Practitioner in Oncology* 10 (4): 395–400.

Wilkinson, D. and Birmingham, P., (2003). *Using Research Instruments: A Guide for Researchers*. London: Routledge Falmer.

Wise, T.A., (2020). Failing Africa's farmers: An impact assessment of the Alliance for a Green Revolution in Africa.

Wisdomlib.org (2025) *Improving the food and nutritional security of smallholder farmers in South Africa*. Available at: <URL> (Accessed: 25 January 2026).

Westermann, O., Förch, W., Thornton, P., Körner, J., Cramer, L. and Campbell, B., (2018). Scaling up agricultural interventions: Case studies of climate-smart agriculture. *Agricultural Systems*, (165): 283-293.

World Bank (2017) *Agriculture for development*. Washington, DC: World Bank.

World Bank Group. (2018). *Overcoming Poverty and Inequality in South Africa: An Assessment of Drivers, Constraints and Opportunities*. World Bank, Washington, DC. © World Bank.

World Bank. (2020). *Ending Poverty and Boosting Shared Prosperity: 2020 Report*. World Bank Group.

World Bank. (2021). *Future of food: Promoting agribusiness and market integration for smallholders*. Washington, DC: World Bank Group.

Wu, X., Lu, Y., Zhou, S., Chen, L. and Xu, B., (2016). Impact of climate change on human infectious diseases: Empirical evidence and human adaptation. *Environment International*, (86): 14-23.

Xaba, T. and Dlamini, C.S., (2015). The Comprehensive Agricultural Support Programme's training and capacity building: An impact analysis on income levels of emerging farmers in Limpopo Province, South Africa. *Am. J. Econ. Fin. Manage*, 1(3):153-163.

Yobe, C.L., Mudhara, M. and Mafongoya, P., (2019). Livelihood strategies and their

determinants among smallholder farming households in KwaZulu-Natal province, South Africa. *Agrekon*, 58(3): 340-353.

You, L., Ringler, C., Wood-Sichra, U. and Robertson, R. (2011). What is the irrigation potential for Africa? *Food Policy*, 36(6): 770–782.

APPENDICES

Appendix A: Ethical Clearance



College of Human Sciences_CREC

Date: 27/03/2025

Dear: Mr Sello Ernest Makgatho

**Decision: Ethics Approval from 25
March 2025 to 26 March 2026**

NHREC Registration # : (Rec-240816-052)
Ref #: 3880
Name: Mr Sello Ernest Makgatho
Student #: 48600083

Researcher: Mr Sello Ernest Makgatho

Sokhulum village

Pretoria

48600083@mylife.unisa.ac.za 0716022513

Supervisor: Professor Busani Mpofu mpofub@unisa.ac.za

**Evaluation of agricultural interventions on food security in Sokhulum village, Tshwane
Metropolitan Municipality**

Qualification: MA Development Studies

Thank you for the application for research ethics clearance by the College of Human Sciences_CREC for the above-mentioned research study. Ethics approval is granted for one year.

The **low-risk application** was reviewed by the College of Human Sciences_CREC on **27 March 2025** in compliance with the Unisa Policy on Research Ethics and the Standard Operating Procedure on Research Ethics Risk Assessment.

The proposed research may now commence with the provisions that:

1. The researcher(s) will ensure that the research project adheres to the values and principles expressed in the UNISA Policy on Research Ethics.
2. Any adverse circumstance arising in the undertaking of the research project that is relevant to the ethicality of the study should be communicated in writing to the College of Human Sciences_CREC.
3. The researcher(s) will conduct the study according to the methods and procedures set out in the approved application.
4. Any changes that can affect the study-related risks for the research participants, particularly in terms of assurances made with regards to the protection of participants' privacy and the confidentiality of the data, should be reported to the Committee in writing, accompanied by a progress report.

Appendix B: Human Participation Information Sheets



PARTICIPANT INFORMATION SHEET

Ethics clearance reference number: 3880

Research permission reference number (if applicable):

08 April 2025

Title: Evaluation of the effectiveness of agricultural interventions in boosting food security in Sokhulumu village, Tshwane Metropolitan Municipality.

Dear Prospective Participant

My name is Sello Makgatho, and I am doing research study with Busani Mpofu, a professor, in the Department of Development studies towards a master's degree in development studies at the University of South Africa. We are inviting you to participate in a study entitled "Evaluation of the effectiveness of agricultural interventions in boosting food security in Sokhulumu village, Tshwane Metropolitan Municipality".

WHAT IS THE PURPOSE OF THE STUDY?

I am conducting this research to evaluate the effectiveness of agricultural interventions in boosting food security in Sokhulumu village, Tshwane Metropolitan Municipality.

WHY AM I INVITED TO PARTICIPATE?

You were selected to participate in this study because you form part of the smallholder farmers in Sokhulumu village. Database which the researcher obtained is from the Department of Agriculture Land Reform and Rural Development (DALRRD), Gauteng Department of Agriculture Rural Development (GDARD) and City of Tshwane Metropolitan Municipality (CTMM). Approximate twenty (20) number of participants are invited to participate in the proposed study.

WHAT IS THE NATURE OF MY PARTICIPATION IN THIS STUDY?

The study will collect qualitative data from smallholder farmers owners/managers in Sokhulumu village within the City of Tshwane Metropolitan Municipality. The

researcher will access database of smallholder farmers from the DALRRD, GDARD and CTMM.

As a participant, your actual role in the study is to provide feedback to semi-structured interviews, which is key to the success of this study and your participation will be highly appreciated. The attached individual interviews guide will be used to collect data relating to this study and completion of the interviews would take between 30 & 60 minutes of your time.

CAN I WITHDRAW FROM THIS STUDY EVEN AFTER HAVING AGREED TO PARTICIPATE?

Participation is voluntary and you are free to withdraw from this study at any point during data collection stages. Since participation is voluntary, there are no consequences or loss of benefits due to withdrawal of participation.

WHAT ARE THE POTENTIAL BENEFITS OF TAKING PART IN THIS STUDY?

There are no benefits in cash or in any kind for taking part in this research study. Your participation will strictly be voluntary hence, you can withdraw at any point during data collection. However, it envisages that the findings will add to the existing body of knowledge on improved livelihoods through food security.

ARE THERE ANY NEGATIVE CONSEQUENCES FOR ME IF I PARTICIPATE IN THE RESEARCH PROJECT?

No, there is no adverse impact or victimisation for not participating in this research study.

WILL THE INFORMATION THAT I CONVEY TO THE RESEARCHER AND MY IDENTITY BE KEPT CONFIDENTIAL?

Participants information with the utmost confidentiality. No names, identity numbers, home addresses, or names of companies will be collected. You have the rights to insist that your name is not recorded anywhere and that no one, apart from the researcher and identified members (supervisor, coder, or translator) of the research team, will know about your participation in this research. All personal information, including records provided by the respondents shall be treated with secrecy and contact information of the participants will not be requested in the interview guide.

Your answers will be given a code pseudonym, and you will be referred to in the data, any publications, or other research reporting methods.

HOW WILL THE RESEARCHER(S) PROTECT THE SECURITY OF DATA?

Hard copies of your answers will be stored by the researcher for a minimum period of five years in a locked cupboard/filing cabinet, raw data will be stored on the UNISA repository. Future use of the stored data will be subject to further Research Ethics Review and approval if applicable (such as using the data for a purpose unrelated to the aim and objectives of this study).

Should the need to destroy this data arise, hard copies will be shredded, and/or electronic copies will be permanently deleted from the hard drive of the computer using a relevant software programme.

WILL I RECEIVE PAYMENT OR ANY INCENTIVES FOR PARTICIPATING IN THIS STUDY?

Participants will not be reimbursed or receive any incentive/payment for participating in individual interviews.

HAS THE STUDY RECEIVED ETHICS APPROVAL?

This study has received written approval from the Research Ethics Review Committee of Unisa, A copy of the approval letter can be obtained from the researcher if you so wish.

HOW WILL I BE INFORMED OF THE FINDINGS/RESULTS OF THE RESEARCH?

If you would like to be informed of the final research findings, please contact Sello Makgatho on +2771 602 2513 or email 48600083@mylife.unisa.ac.za. The findings are accessible for five (5) years. Should you require any further information or want to contact the researcher about any aspect of this study, please contact Professor Busani Mpofu on 012 429 6653 or mpofub@unisa.ac.za.

Should you have concerns about the way in which the research has been conducted, you may contact Dr Beatrice Dube 012 429 6653 or maphob@unisa.ac.za. Alternatively, contact the research ethics chairperson of the ethics review committee, Dr Richard Lehasa Moloi and contact details are moloirl@unisa.ac.za or 012 429 6441.

Thank you for taking time to read this information sheet and for participating in this study.



Sello Makgatho.

Appendix C: Consent to Participate in the Study



CONSENT TO PARTICIPATE IN THIS STUDY

I, _____ (participant name), confirm that the person asking my consent to take part in this research has told me about the nature, procedure, potential benefits and anticipated inconvenience of participation.

I have read (or had explained to me) and understood the study as explained in the information sheet.

I have had sufficient opportunity to ask questions and am prepared to participate in the study.

I understand that my participation is voluntary and that I am free to withdraw at any time without penalty (if applicable).

I am aware that the findings of this study will be processed into a research report, journal publications and/or conference proceedings, but that my participation will be kept confidential unless otherwise specified.

I agree to the recording of the semi – structured individual interviews.

I have received a signed copy of the informed consent agreement.

Participant Name & Surname..... (please print)

Participant Signature.....Date.....

Researcher's Name & Surname: Sello Makgatho (please print)

A handwritten signature in blue ink, appearing to read "Sello Makgatho", with a horizontal line extending to the right.

Researcher's signature:

Date: 08.04.2025

Appendix D: Smallholder Farmers Interview Questions



SEMI-STRUCTURED INTERVIEWS FOR THE SMALLHOLDER FARMERS IN SOKHULUMI VILLAGE

Topic: Evaluation of the effectiveness of agricultural interventions in boosting food security in Sokhulumi village, Tshwane Metropolitan Municipality.

Dear Participant

You are hereby invited to participate in research conducted by Sello Makgatho, a master's student from the Department of Development Studies at the University of South Africa. The purpose of the study is evaluation of the effectiveness of agricultural interventions in boosting food security in Sokhulumi village, Tshwane Metropolitan Municipality.

Please Note the Following Important Information:

1. The study is anonymous. Your name will not be disclosed, and your answers will be treated confidentially.
2. Participation in this study is optional. You may decide to withdraw anytime you wish to do so.
3. This study will be used for academic purposes, which include publishing an article in an academic journal. You will also receive a report on the findings.

SECTION A: BIOGRAPHY INFORMATION

Interview Number: Date Time: Place
Teams.....

Biographical Data

Age:

Race:

Gender:

Marital status:

Educational Qualifications:

SECTION B: SMALLHOLDER FARMER'S CONTRIBUTION TO THE STUDY

1. Can you tell me about your experience and role living in Sokhulumu village?

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2. To what extent have you engaged with government departments and private institutions that smallholder farmers needs are met?

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3. Have you noticed any agricultural development initiatives impact on food security in Sokhulumu village over time? If so, what changes have you observed?

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4. What is the extent of food security challenges in Sokhulumi village?

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5. How are agricultural resources allocated and managed in Sokhulumi village?

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6. What are the villagers/smallholder farmers coping strategies?

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Thank you for time and contributions.

Appendix E : Farmers Production Support Unit Interview Questions



SEMI-STRUCTURED INTERVIEWS FOR THE FARMERS PRODUCTION SUPPORT UNIT IN SOKHULUMI VILLAGE

Topic: Evaluation of the effectiveness of agricultural interventions in boosting food security in Sokhulumi village, Tshwane Metropolitan Municipality.

Dear Participant

You are hereby invited to participate in research conducted by Sello Makgatho, a master's student from the Department of Development Studies at the University of South Africa. The purpose of the study is evaluation of the effectiveness of agricultural interventions in boosting food security in Sokhulumi village, Tshwane Metropolitan Municipality.

Please Note the Following Important Information:

1. The study is anonymous. Your name will not be disclosed, and your answers will be treated confidentially.
2. Participation in this study is optional. You may decide to withdraw anytime you wish to do so.
3. This study will be used for academic purposes, which include publishing an article in an academic journal. You will also receive a report on the findings.

SECTION A: BIOGRAPHY INFORMATION

Interview Number: Date Time: Place
Teams.....

Biographical Data

Age:

Race:

Gender:

Marital status:

Educational Qualifications:

SECTION B: FARMER'S PRODUCTION SUPPORT UNIT CONTRIBUTION TO THE STUDY

1. Can you tell me about your experience and role living in Sokhulumi village?

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2. To what extent have you engaged with government departments and private institutions that smallholder farmers needs are met?

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3. Have you noticed any agricultural development initiatives impact on food security in Sokhulumi village over time? If so, what changes have you observed?

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4. What is the extent of food security challenges in Sokhulumi village?

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5. How are agricultural resources allocated and managed in Sokhulumi village?

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6. What are the villagers/smallholder farmers coping strategies?

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Thank you for time and contributions.

Appendix F: Traditional Council Interview Questions



SEMI-STRUCTURED INTERVIEWS FOR TRADITIONAL COUNCIL IN SOKHULUMI VILLAGE

Topic: Evaluation of the effectiveness of agricultural interventions in boosting food security in Sokhulumi village, Tshwane Metropolitan Municipality.

Dear Participant

You are hereby invited to participate in research conducted by Sello Makgatho, a master's student from the Department of Development Studies at the University of South Africa. The purpose of the study is evaluation of the effectiveness of agricultural interventions in boosting food security in Sokhulumi village, Tshwane Metropolitan Municipality.

Please Note the Following Important Information:

1. The study is anonymous. Your name will not be disclosed, and your answers will be treated confidentially.
2. Participation in this study is optional. You may decide to withdraw anytime you wish to do so.
3. This study will be used for academic purposes, which include publishing an article in an academic journal. You will also receive a report on the findings.

SECTION A: BIOGRAPHY INFORMATION

Interview Number: Date Time: Place
Teams.....

Biographical Data

Age:

Race:

Gender:

Marital status:

Educational Qualifications:

SECTION B: TRADITIONAL COUNCIL CONTRIBUTION TO THE STUDY

1. Can you tell me about your experience and role living in Sokhulumi village?

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2. To what extent have you engaged with government departments and private institutions that smallholder farmers needs are met?

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3. Have you noticed any agricultural development initiatives impact on food security in Sokhulumi village over time? If so, what changes have you observed?

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4. What is the extent of food security challenges in Sokhulumi village?

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5. How are agricultural resources allocated and managed in Sokhulumi village?

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6. What are the villagers/smallholder farmers coping strategies?

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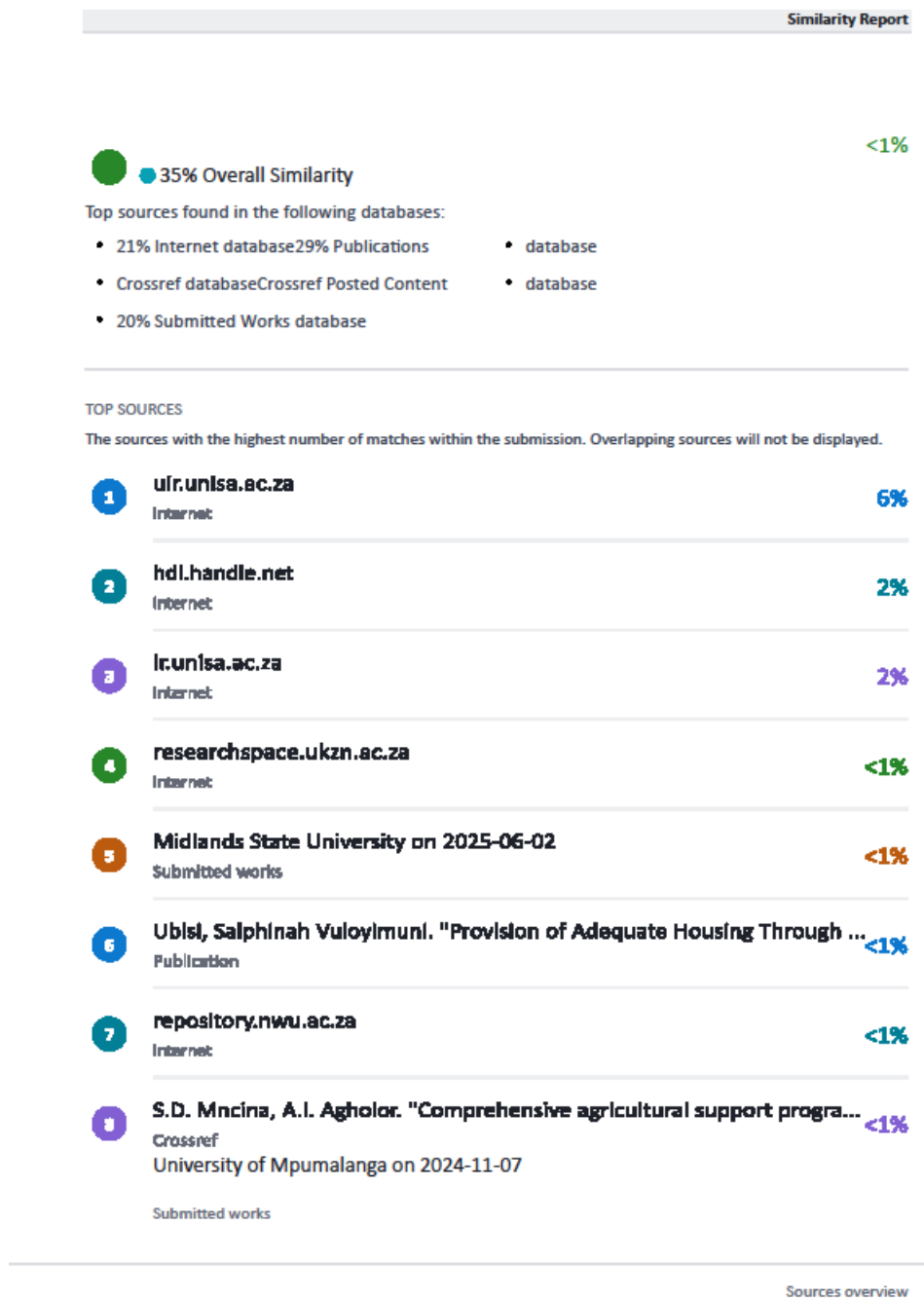
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Thank you for time and contributions.

Appendix G: Turnitin Report





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AUTHOR

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Appendix H: Editing Certificate

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authored by SELLO ERNEST MAKGATHO		
has been edited and proofread to improve grammar, consistency, readability, flow, and logic.		
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