

Contextual analysis of government projects for food security in Kabokweni Ehlanzeni district, South Africa

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**A dissertation submitted in fulfilment of the requirements for the Master's degree in
Agricultural Extension and Rural Resource Management**

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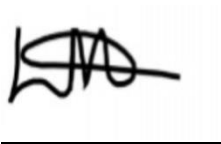
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DECLARATION

I, Lethu Inneth Mgwenya, with student number 201971976, hereby declare that this dissertation submitted in fulfilment of the requirements for the Master's degree in Agricultural Extension and Rural Resource Management is my own work and that it has not been previously submitted for assessment or completion of any postgraduate qualification to another University or for any other qualification. All sources and materials used in the study have been properly acknowledged.



Lethu Inneth Mgwenya

DEDICATION

This research is dedicated to my mother (Sarah Makana) for her continuous support. Your prayers, teachings, support, love and encouragement have brought me this far and continue to give me the motivation to press on.

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ACRONYMS

1. ABET: Adult Basic Education and Training
2. BASED: Broadening Agricultural Service and Extension Delivery
3. CSSP: Comprehensive Social Security Project
4. CDP: Community Development Project
5. DAFF: Department of Agriculture, Forestry and Fisheries
6. DALRRD: Department of Agriculture Land Redistribution and Rural Development
7. FAO: Food and Agriculture Organisation
8. FNST: Food and Nutrition Security Theory
9. FSCBP: Food Security Capacity Building Project
10. GDP: Gross Domestic Product
11. GHS: General Household Survey
12. IDP: Integrated Development Planning
13. INFSP: Integrated Nutrition and Food Safety Project
14. LED: Local Economic Development
15. SANHANES: South African National Health and Nutrition Examination Study
16. SPFS: Special Project for Food Security
17. SPSS: Statistical Package for Social Sciences
18. UNEP: United Nations Environment Program
19. WB: World Bank
20. WFC: World Food Conference
21. WFS: World Food Summit
22. WHO: World Health Organisation

ABSTRACT

Food Security is a major concern for different countries across the world including South Africa. Factors such as climate change, droughts and frequent floods, and the diversion of food products for production of biofuels have led to sharp increases in the prices of food products. A survey was carried out among 294 respondents in Kabokweni, a location in Ehlanzeni District of Mpumalanga Province in South Africa, through one-on one contact interviews. The aim of the study was to contextually analyse government projects for food security in Kabokweni Ehlanzeni district, South Africa. The specific objectives of the study were: to contextualise the approach of government projects on food security in the study area, to analyse the effectiveness of government projects for food security in the study area, to determine the challenges of government projects for food security in the study area, and to examine the level of participation in government projects for food security in the study area. The four stated objectives are very important because they identified conflicting activities in the study and provided a clear and concise way of defining the goal to be achieved. A simple random sampling process was used to choose the 294 participants. Data were gathered using a standardized questionnaire instrument, which was physically distributed to respondents with the aid of trained enumerators. Descriptive and inferential statistics were employed to analyse the data using SPSS version 28 software. Descriptive statistics including frequency, percentage, mean, standard deviation, tables and charts were used for analysis in the study. Descriptive statistics were used for the first, second, and third objectives. Inferential statistics were used for analysing the fourth objective. The type of inferential statistics used is linear regression model. In this study, the R-square was obtained to test the model. Therefore, the obtained R-square value of 0.896 and 0.904 in the first and second step from the analysis for this study indicates that the model fit the observations or data at an appropriate level in the study. The results of the study showed that most of the participants were females (64.29%). The variable age revealed that 25.17% of the respondents were between 29 and 39 years and a further 13.95% were older than 62. In terms of education level, results showed that most of the farmers (55.44%) had secondary school education, whilst 12.24% had no formal education. Farm sizes of between 6 and 9 acres were owned by 35.7% of participants. An annual farm income of R23000 was earned by 55.44% of farmers whilst 27.21% earned between R17000-22000 per annum. In terms of farm enterprise type, 57.14% were practicing crop production only. According to the findings of the study, 83.7% of the participants had access to the Social Grant and Unemployment project, making

it the most accessible government project. About 7.5% of the respondents had access to the Special project for food security, and 6.5% had access to the Support for Emerging Farmers project. However, it was found that participants had limited accessibility to other government projects for food security. Only 0.7% of the participants had access to the skills and development project, and only 1.6% had access to other government projects for food security including the Masibuyele Emasimini project for small-scale farmers and the Presidential Employment Stimulus Initiative (PESI) vouchers. Political instability ($M=4.60$) and a lack of money for the projects ($M=4.26$) were cited by participants as the two main obstacles to participating in these projects. Insufficient distribution and supply chain management ($M=4.29$) and monitoring of government efforts for food security ($M=4.37$) were the least mentioned challenges. The empirical results show that level of education (P -value of 0.001), employment status (P -value of 0.181), farm size in acres (P -value of 0.003), type of farm enterprise (P -value of 0.001), and level of awareness about government projects (P -value of 0.001) aimed at enhancing food security were the significant variables and positively correlated to participation in government projects for food security. In conclusion, to increase participation in government projects for food security, the monitoring and distribution approach must be improved. The conclusion of the study serves as the foundation for the creation of a policy framework to help address the severe food insecurity seen in the study area. The study recommends that the community should be well informed about the benefits of government projects for food security.

Keywords: Food security, government projects, participation, policy framework, community.

CHAPTER ONE

1. INTRODUCTION

1.1. Background of the study

Out of 8.1 billion people in the world, almost 240 million reside in Africa and are food insecure (Greenberg, 2018). A shortage in fat, protein, and macronutrients, which are essential for releasing needed energy and maintaining physical health, affects 40% of African children under the age of five (Chakona & Shackleton, 2019). When a nation fails to secure enough food for its population, it is extremely concerning because food security is defined as ensuring that everyone has adequate access to safe and nourishing food (Battersby, 2019). According to FAO (2014) report titled “The state of food insecurity in the world”, there are about 805 million people who are chronically undernourished around the world. Although, the report suggests that there has been a decrease in the prevalence of undernourishment from 18.7 to 11.3 percent globally in the period 2018 - 2021, the number of people who are still undernourished is still a major concern for many countries (Adler, 2022). Despite a major improvement globally, Sub Saharan Africa has the highest level of undernourishment and there has been very modest progress in these countries in the recent years. One person out of four still suffers from undernourishment in these areas. To alleviate the problems related to food security, political commitment is a must and food security should be on the priority list of political parties in these countries (Aliber, 2022).

Food insecurity cannot be solved by only one sector or stakeholder and there should be better coordination among different stakeholders along with an enabling environment set up by government policies and leadership (Aliber et al., 2018). However, government policies can play

a major role in reducing food insecurity since they can ensure adequate investment in major projects to increase food production, encourage the use of modern technology in agriculture, ensure proper coordination among different stakeholders, set up appropriate legal frameworks, and initiate major institutional reforms amongst others. Government policies must be developed based on specificities of different countries since the causes of food insecurity may not be the same (Arneson, 2018).

The global food crisis is affecting millions of people around the world. In 2023, record levels of acute food insecurity persist due to protracted food crisis and new shocks. In 48 countries, 238 million people are facing high levels of acute food insecurity- 10% more than in 2022 (Scooner, 2019). According to the Mid-Year Update of the Global Report on Food Crisis, there are currently at least 238 million acutely food insecure people around the world, with 10% increase on the 2022 figure (Cousins, 2018). The drivers of food insecurity in the world are interlinked and mutually reinforcing. Food insecurity is caused by a combination of factors that feed off each other and by the interaction between hazards and people specific vulnerabilities. The main drivers are conflict, economic shock and weather extremes (De Vaus, 2018). Amidst an international deterioration in global food security for the third consecutive year, South Africa's position out of 113 monitored countries has improved from the 70th in 2021 and 69th in 2020 to 59th in 2022 (Adler, 2022).

There are three crucial dimensions of food security. The first one is Food availability. This dimension plays a prominent role in food security. Supplying enough food to a given population is necessary (Reardon & Gulati, 2022). Major contributions to food availability cannot come from agriculture only, but also from fisheries, aquaculture and forest products. It is estimated that between 15 and 20 percent of all animal protein consumed is derived from aquatic animals, which are highly nutritious and serve as a valuable supplement to diets lacking essential vitamins and

minerals. Forests provide a wide range of highly nutritious foods, in the form of leaves, seeds, nuts, honey, fruits, mushrooms, insects and wild animals (Erasmus, 2018). It has been reported that 100 grams of a fruit from the baobab tree correspond to 100 percent of a child's recommended daily allowance of iron and potassium, 92 percent of the recommended daily allowance of copper and 40 percent of the recommended daily allowance of calcium (Greenburg, 2018). An estimated 2.4 billion people, or about one-third of the population in developing regions, depend on fuelwood for cooking, sterilizing water and preserving food.

The second dimension is Access to food. The ability to access food lies on two pillars, economic and physical access. Improvements in economic access to food can be reflected by poverty rates (Cousins, 2018). Economic access to food is also determined by food prices and people's purchasing power. The domestic food price index, defined as the ratio of food purchasing power parity (PPP) to general PPP, captures the cost of food relative to total consumption. The ratio has been on an increasing trend since 2021 (Zwane et al., 2019). Improvements in physical access such infrastructure and roads can enhance the potential of government projects on food security.

Food utilization is the third dimension, and it includes two distinct elements. The first is captured by anthropometric indicators affected by undernutrition that are widely available for children under five years of age. These include wasting (being too thin for one's height), stunting (being too short for one's age) and underweight (being too thin for one's age). Measurements of children fewer than five years of age are considered effective approximations of the nutritional status of the entire population (Tshuma, 2018). The second dimension is captured by a number of determinants or input indicators that reflect food quality and preparations, health and hygiene conditions, determining how effectively available food can be utilized (Abbadia, 2022). Outcome indicators of food utilization convey the impact of inadequate food intake and poor health. Wasting, for

instance, is the result of short-term inadequacy of food intake, an illness or an infection, whereas stunting is often caused by prolonged inadequacy of food intake, repeated episodes of infections and/or repeated episodes of acute under nutrition (Zwane et al., 2019).

South Africa also faces the problem of food insecurity as any country in this part of the world. However, South Africa has its own specificities and context; it is a conservative country that depends on countries of the world for one commodity or another (Azna and Besley, 2018). The recent food crises of 2018 and 2020-2021, the increase in prices of some commodities such as fuel and grain, the rising consumption rate over production rate and extreme weather conditions are solid arguments for Government to give more serious considerations to the issue of food security (National Economic Social Council, 2018). South Africa is a rainbow nation with great resources and land. However, the country still depends heavily on imports as most of its food requirements are imported (NESC, 2018). On the other hand, the contribution of the agricultural sector to the GDP of the country is continuously decreasing and this is an alarming factor that can lead serious problem of food security in future.

South Africa ranks among the countries with the highest rate of income inequality in the world. Compared to other middle-income countries, it has extremely high levels of absolute poverty. The South African government has committed to halving poverty between 2018 and 2021. Achieving household food security is a critical component in meeting that objective. Access to food and water is perhaps unlike other areas of delivery, since they are essential to well-being and human development (Abalkin, 2023). The link between poverty, incomes and household food security is not at all clear. While South Africa may be food secure as a country, large numbers of households within the country are food insecure. To understand household food security status in this country, it is necessary to investigate how the workings of the food distribution system and resources of a

household determine its access to food. There are distributional and accessibility problems that need to be understood (Afonso & Jalles, 2021). Ideally, poverty and food insecurity would be addressed by expanding employment opportunities thereby enhancing household incomes. Employment has expanded substantially since the mid-1990s, but not enough to meaningfully address income poverty. Income security is an essential ingredient to address food insecurity. The evidence shows that social grants have played an important role in improving household food security since 2021, but that improvements in employment status are also important (Aliber & Van der Berg 2018).

In the context of large-scale poverty and unemployment, as well as the present economic downturn, it is probable that reliance on grants will continue, if not increase. In a highly unequal society with high unemployment, this redistribution through income transfers is essential. However, it makes poor households vulnerable to national policy choices and politics (Acemoglu & Robinson, 2018). It is essential that creative and meaningful solutions are found to drawing marginalised work-seekers into economic participation as part of a long-term poverty reduction and food security strategy. As part of this effort, a third potential contributor to food security might be small scale agricultural production. It seems counter-intuitive to promote subsistence or small-scale agricultural production in a semi-industrialised economy like South Africa (Muzaffarli & Ahmadov, 2018). However, many countries have successfully supported small scale production in Europe and in Japan and Indonesia, often as partial contributors to household food baskets and livelihoods. Because South Africa has invested so little in this area, it deserves investigation. However, the potential contribution of small-scale farming to household food security is the subject of some controversy (Aliber, 2019).

There is no specific and accepted measure of food security in South Africa, and currently there are no regularised ways of monitoring it. This is not an acceptable state of affairs in a middle-income country that has such a high proportion of food insecure households (Cousins, 2018). There are numerous challenges in identifying targets and strategies for household food security. Food security is multidimensional in nature and changes over time, making accurate measurement and policy targeting a challenge. There is sometimes confusion between national food security and the actual experience of households of obtaining food. Access to adequate food at household level increasingly depends on extent of poverty, and employment. Moreover, there is no clear composite measure that defines food security to enable the setting of food security goals and monitoring systems (Abalkin, 2023). As stated above, food security cannot be understood in isolation from other developmental questions such as social protection, sources of income, rural and urban development, changing household structures, health, access to land, water and inputs, retail markets, or education and nutritional knowledge.

The multiple factors that influence access to food are not well understood, and this impacts negatively on the ability to identify appropriate policies to improve individual and household access. These gaps restrict the ability of policy makers to address food insecurity (Department of Agriculture Forestry and Fisheries, 2020). Policy makers are constrained in their ability to identify interventions appropriate to different situations and needs. There are also deep institutional barriers to successfully translating policy into implementable programmes. This is exacerbated by weak links between government, the private sector and civil society organisations. The problem of household food insecurity is further exacerbated by a range of additional factors that have recently come into play and drive the cost of food (Basinello, 2019). Domestic electricity supply constraints and rising oil prices are examples of important factors in this regard. The price of electricity is set

to rise by at least 100% between 2018 and 2021. Even if the oil price declines for a period, the advent of peak oil is expected to cause a long-term rise in prices. This will affect the supply of fertiliser because petroleum is an input for chemical fertiliser, and agro-food transport costs (Brunel, 2018). Other factors that are increasingly affecting food prices are bio-fuel production (which results in the reallocation of resources and outputs to the supply of feedstock), speculation in commodity markets and the power of agents within the agro-food chain, namely supermarkets, processors and distributors (Scooner, 2019).

Rising food prices, particularly of maize and wheat which are the staple diet of the poor in South Africa, pose serious problems for the urban and rural poor as most are net buyers of food. Recent information from the Food and Agricultural Organisation (FAO, 2019) supported by independent sources (Heady & Fan, 2018) suggest that food prices will increase steadily over the next decade even if there are some fluctuations and the occasional drop in prices (Evans, 2019). Given the increases in linkages between the local level and national and international commodity chains and economic networks, rural households in South Africa are still impacted by these networks. Unless there are new policy directions, poor households will increasingly be forced to allocate a greater proportion of their expenditure to food, with the result that diets will become less diverse, lower in quality, and energy intake (calories consumed) will drop as people try to cope with the situation. Most severely affected will be the chronically urban and rural poor, the landless and female headed households (FAO, 2019). The Centre for Poverty, Employment and Growth (CPEG) at the Human Sciences Research Council (HSRC) was established to identify approaches to halving unemployment and poverty between 2018 and 2021 on a sustainable basis. Achieving household food security is a critical focus area as part of this contribution. Numerous underlying causes have been explored in the body of research produced by CPEG and others. Real solutions to household

food insecurity lie in growth and structural change; the population cannot wait for that to happen. People are hungry today and must eat today, they cannot wait until tomorrow. The future growth and development trajectory depends on an inclusive path based on effective human development. Access to sufficient nutritious food and clean water underpins human development. In 2018 and 2019, the Centre for Poverty Employment and Growth drew together a team of researchers to frame a research and policy agenda on household food security (Food and Agriculture Organisation, 2019).

This follows earlier work by the HSRC which focused on land, agriculture, poverty reduction and food security predominantly at the macro-level. The current project has a specific focus on household food insecurity. The first step in this project was to identify what is already known and available data to enable monitoring and evaluation. The purpose was to look at what has been done and what still needs to be done to ensure that it is possible to design effective policy, and to monitor and evaluate the food security situation (Shaw 2018). This initial project was funded by the HSRC and the Com-Mark Trust. Later on the government launched the following projects in an effort to address the issues with food security while also advancing human security. Among the new projects are the Integrated Nutrition and Food Safety Project, Community Development Project and Special Project for Food Security, Support for Emerging farmers and so forth (Drimie et al., 2018).

Those who are poor or live below a sufficient standard of life should receive special consideration in the situation of food security because they are the most desperate members of society (Greenberg, 2018). The government's main strategy is to defend the right to food within the situation of self-provisioning. It acknowledges that people must actively engage in the process of self-provisioning based on a human rights approach and cannot be passive (Battersby, 2019). The

FAO food security policy guideline also includes provisions for the poor and pledges the government to taking action to safeguard their livelihoods by ensuring access to resources and safeguarding individual assets. This requirement places the state's role in ensuring food security at the centre of accountability. For food activists, the inclusion of food security as a right in national constitutions has taken on increasing importance (Ceasar & Crush, 2019).

The main motivation for doing a thorough review on literature with the goals of presenting a synthesis of what is known about the governance of the food system in South Africa, emphasizing the essential elements of governance and discovering persistent knowledge gaps (Bachmann & Earles, 2020). It can be difficult to sift through the extensive and diverse literature to find the main issues, the things that are in risk, and the processes that are now taking place (Candel, 2019). Due to this, along with social welfare and environmental sustainability, food insecurity has gradually come to be seen as one of the repercussions of the food system (Claasen & Lemke, 2019).

1.2. Problem statement

A key development failure in South Africa is the country's inability to significantly improve the lives of the underprivileged through food security programmes and address extreme income and wealth disparity 27 years after democracy (Zizzamia et al., 2019). South Africa has a strong economy and is the most industrialized nation in Africa, but 52.2% of its people live in poverty (Zizzamia et al., 2019). Even though there are projects designed to combat poverty and promote food security, there is inadequate monitoring and implementation, which is the highlighted gap. The greater level of population also causes a significant hindrance to the success of these projects (Claasen & Lemke, 2019). Climatic change and high levels of unemployment leads to a further drop in the success of the government schemes launched for food security in Ehlanzeni district,

South Africa. The enduring problem of food and nutrition insecurity is closely tied to the poverty and inequality challenge.

South Africa has made great efforts to break this impasse, but the problem of food insecurity still exists and has eluded remedies (Crush & Ceasar, 2019). Most households still experience food insecurity today, and many people are said to be either hungry or at risk of going hungry (Chakona & Shackleton, 2019). Food security indicators reveal that the national effort to combat food insecurity has made little progress. 20% of South African households, according to Statistics South Africa, do not have appropriate access to food. 5% of Kabokweni Ehlanzeni households lack appropriate access to food locally (Statistics South Africa, 2018). If you compare the two figures to the estimates from other surveys, you can see that change is happening slowly. According to the 2022 South African National Health and Nutrition Examination Study (SANHANES), 28.3% of South Africans were at danger of being hungry and about 26% of people experienced food insecurity (Misselhorn & Hendricks, 2018). In the 2018 General Household Survey (GHS), 21% of families reported having insufficient access to food, and 11.4% of sampled homes had experienced hunger in the 30 days before to the survey (Hendricks, 2018). The permanence of food security is alarmingly obvious, notwithstanding the variations in estimates and reporting. Children are especially vulnerable because 11% of them live in houses where there is still hunger on a national level (Drimie & McLachlan, 2018). Finally, food security is and must be openly and widely acknowledged as a public, social and economic good.

Such acknowledgment poses a significant challenge to the administration that has not yet been addressed. Despite the efforts of numerous international and nongovernmental groups, government at all levels is ultimately in charge of solving this problem (Bienable, 2018). In order to combat food insecurity; the national government must mobilize the nation's resources. It is commonly

known that structural inequality is what leads to food insecurity. Food security has been recognized as a top national issue since 1994. The Reconstruction and Development Programme (2019), the Integrated Food Security Strategy (2022), and later the National Policy on Food and Nutrition Security all demonstrate this prioritization. Food security has received major policy attention over the past two decades following South Africa's transition to a democratic state, and a variety of interventions have been put in place by the government, NGOs, civil society organizations, and the public sector (Busetto, 2020).

Although the 2018 National Policy on Food and Nutrition Security's implementation plan includes a list of potential indicators, the measures, these have not been formally adopted as official measures for routine reporting across monitoring and evaluation systems in various national departments and bodies (Arneson, 2018). As a result, South Africa has no official measure of food insecurity. Regular nationwide surveys provide information on many aspects of food access, hunger, and nutritional trends. 13–15 million South African homes, or around 26% of all households, are said to have little or very insufficient access to food. Africa Check recently questioned the veracity of such assertions. According to Africa Check, estimating the number of hungry individuals in South Africa is more complicated than just subtracting 26% of the population. (Hendriks, 2018) pointed out that the extensive body of sub-national research studies is largely ignored and could provide crucial information regarding experiences of people, households, and communities to help determine the scope and scale of hunger, malnutrition, and food insecurity in the nation. Food waste is a critical issue in the context of food security, with significant implications for food availability, access, and utilization (Food and Agriculture Organisation, 2020). Food waste occurs at different stages of the food supply chain, from production to consumption, and has negative economic, environmental, and social impacts (FAO,

2020). According to the Food and Agriculture Organization (FAO), one-third of all food produced for human consumption is lost or wasted each year, amounting to about 1.3 billion metric tonnes globally (Adler, 2022). Food waste reduces the availability of food for consumption and can contribute to food insecurity, particularly in low-income countries and among vulnerable populations (Arneson, 2018). Food waste also has significant environmental impacts, including the waste of natural resources, greenhouse gas emissions, and pollution (FAO, 2020). Moreover, food waste has economic implications, such as increased costs for farmers, food producers, and consumers (Sheperd, 2018). Addressing food waste is critical for achieving food security goals and sustainable development. Recent literature has identified several strategies to reduce food waste, including improving storage and transportation infrastructure. Promoting sustainable consumption patterns, reducing food losses at the production and post-harvest stages, and redistributing surplus food to those in need (Veldhuizen et al., 2020). Food waste is a significant issue in the context of food security, with negative implications for food availability, access, and utilization. Addressing food waste is critical for achieving food security goals and sustainable development and requires a multidimensional and interdisciplinary approach. Therefore, the study seeks to contextually analyse government projects in Kabokweni Ehlanzeni district, South Africa in order to enhance their potential and strengthen food security.

1.3. Research objectives

The aim of the study is to contextually analyse government projects in Kabokweni Ehlanzeni district, South Africa in order to enhance their potential and strengthen food security.

The objectives of the study are as follows:

- i To contextualise the approach of government projects on food security in the study area.

- ii To analyse the effectiveness of government projects for food security in the study area.
- iii To determine the challenges of government projects for food security in the study area.
- iv To examine the level of participation in government projects for food security in the study area

1.4. Research questions

For objectives 1 and 2, the research questions are:

- i. What are the government approaches to food security in the study area?
- ii. Are government projects effective for food security in the study area?

For objectives 3 and 4, the research questions are:

- iii. What are the challenges of government projects aimed at enhancing food security in the study area?
- iv. Are the levels of participation in government projects for food security in the study area?

1.5. Hypothesis

The following hypothesis is derived from the fourth objective that is: To examine the level of participation in government projects for food security in the study area. H_0 stands for the null hypothesis and H_1 represents the alternative hypothesis.

- H_0 : There is no relationship between the socio demographic factors and the level of participation in government projects for food security in the study area.
- H_1 : There is a relationship between the socio demographic factors and the level of participation in government projects for food security in the study area.

1.6. Significance of the study

The study contributed a lot on existing literature in government projects for food security. Results of the study had significant policy implications and informed the development of targeted interventions that influenced participation in government projects for food security to improve the livelihood of the people. The study produced results which are accurate and reliable. Results that did not only raise awareness but also produced accurate generalisations on the population of the study. Since the study employed a quantitative research method, therefore; no limits in making conclusions about the obtained results of the study were detected.

Agricultural development in South Africa is crucial since it makes major contributions towards achieving sustainable development and growth in the economy (Cousins, 2018). The adoption of government initiatives for food security in the agricultural sector offers a chance to increase the industry's production and support regional and national economic expansion. One of the most crucial aspects of the agricultural sector is small-scale farming. There is a noticeable growth in the availability and utilization of projects in the nation, as seen by the several sectors and industries in South Africa employing government projects to raise their productivity (Bhandari, 2022). To increase productivity, smallholder farmers might adopt these projects in small-scale farming. Small-scale farmers and agricultural organizations have the opportunity to take full advantage of these government initiatives to expand their operations and support the economy. As a result, this study is both legitimate and current because it evaluates how smallholder farmers participate in government schemes and offers suggestions that would help them become more productive.

The weak performance of smallholder farms, which have been failing to meet the rising demand for food, is the basis for the justification of the study. The results of this study were helpful to the government, policy makers, and participants in the small-scale agricultural sector since they

highlighted significant obstacles to using government initiatives and fostering participation behaviour of smallholder farmers in the application of the projects. Moreover, this study will contribute to existing knowledge on government projects used in small-scale agriculture.

1.7. Limitation

The study was limited by unforeseen circumstances such as funding and strike. Without sufficient money the activities and task which were to be completed by October were hindered, a lump-sum of money was needed in-order for the study to be a success. In the case of strike, the traveling trips which took place during data collection were disturbed and as a result data collection was delayed.

1.8. Delimitation

The study was delimited to Kabokweni only because of time factor; the given timeframe for the study was not enough for data to be collected in the whole of Mpumalanga let alone the whole of South Africa. Therefore, the study was based on the noted research questions, objectives and a sample size of 294 participants.

1.9. Originality of the study

This work is original because it stems from the inability of communities to access government projects for food security in Kabokweni. Sufficient research was not done on the chosen research topic that is why the study seeks to bring the communities to light by contextually analysing government projects for food security so that more awareness is raised on this subject matter. The study is unique because it examined level of participation, which is something that other studies have not done before.

1.10. Chapter outline

The study was structured as follows; Chapter one elaborated on the background, problem statement, research objectives and questions, limitation, delimitation, originality of the study, definition of key terms and the significance of the study. Basically on the background the study was introduced then moving on to the problem statement that was where the main issue of the study was discussed into detail. The research objectives and questions are what drives the study and were answered thoroughly on the research design and methods. The terms defined were the key words which appeared mostly throughout the study. Lastly on the significance of the study, that is where the fundamental purpose of the study was addressed as well as the people who will benefit from the study. Chapter two, elaborated on the South African Agriculture and overview of extension service in South Africa. Chapter three was based on the literature review of the previously published work on the topic. Sources which are covered in the literature review include scholarly articles, books, report, government reports and web sites. The literature was based on the theoretical and conceptual framework of the study. Chapter four, focused on the research design and methods which were discussed. The first thing addressed was the description of the study area which included the population size, coordinates, area size, map, racial make-up and other demographics regarding the study area. The population and sampling talked about the sample size, target population and method used in sampling the participants of the study. Then the methods of data collection emphasised on what research method was used to collect data and all the processes that are included in the collection of data. Data analysis confided on how the study was analysed along with the explanation of the independent variables. Research ethics are parameters of the study which were induced in the study to ensure that participants are respected. In Chapter five, the results of the study were discussed into detail to ensure that the all the objectives of the study

were answered. Moving on to chapter six, which was where the empirical results of the study were discussed further. Finally on chapter seven, the summary of the study along with conclusion and recommendations was addressed.

1.11. Definition of key terms

- Community: refers to all the people who live in a particular area, country and share common beliefs and practices (De Vaus, 2018).
- Food security- is when all people at all times have sufficient physical and economic access to safe and nutritious food to meet their dietary needs and food preferences (Creswell, 2019).
- Government projects – are the list of projects designed by the state/government to improve the livelihoods of the people (Chiropr, 2021).
- Nutrition- is the process by which living things receive the food necessary for them to grow and be healthy (Elo, 2022).
- Participation- is the act of taking part in an activity, organisation, project or event (Cousins, 2018).
- Policy framework: is a plan of action agreed upon that influences how individuals in a country behave (Shepard, 2018).

CHAPTER TWO

2. SOUTH AFRICAN AGRICULTURE

2.1. Introduction

A detailed description of South African agriculture was provided in the following chapter. Along with farm income, agricultural production volume, agricultural production value trends, impact of the COVID 19, diseases and politics on agriculture, employment in the agricultural sector, and the import and export trends in agriculture were also covered. Also presented was a full description of extension services in South Africa.

2.2. Economic review of the South African Agriculture for the year ended 30 June 2019.

For the year ending 30 June 2019, the overall farming income from all agricultural products fell slightly by 0.4% to R277 801 million from R278 915 million the prior year. This was primarily brought on by a 4, 5% and a 0, 3% decline in the gross income from horticulture and animal goods, respectively (Erasmus, 2018). Because of the 6,0 percent drop in the price of animal products, the weighted average price that farmers got for their agricultural output declined marginally by 0,5%. Due to price increases in hay (5, 3%), oilseeds (3, 7%), summer grains (19, 7%), winter grains (7, 8%), and tobacco (0, 6%), the weighted average price of field crops climbed by 9, 9% (Veldhuizen et al., 2020).

Due to increases in the prices of vegetables by 8, 6% and wine by 16, 6%, the weighted average price of horticultural products climbed by 3, 0% (Fordyce, 2019). The weighted average price of animal goods fell by 6, 0%, with milk prices falling by 11, 4%, poultry meat prices falling by 6, 4%, and slaughtered stock prices falling by 5, 4%. Prices paid for farming necessities, such as

equipment and implements, building supplies for permanent renovations, as well as intermediary goods and services, climbed by 4, 3% from the previous period's 3,9%. Building supplies increased in price by 6,3%, fuel by 6,0%, fencing supplies by 5,8%, packaging supplies by 4,8%, animal health and crop protection by 4,8%, trucks by 4,6%, maintenance and repairs by 3,3%, seeds by 4,0%, feeds by 3,3%, tractors by 2,3%, and fertilizers by 2,3%. The domestic terms of trade decreased by 4,6%, mostly as a result of an increase in production costs of 4,3% as opposed to a fall in farmer prices of 0,5% (Greenberg, 2018). The increase of 4,3% in spending on intermediate goods and services was the main cause of the 12,3% decline in net farming income.

2.3. Impact of the COVID 19, diseases and politics on agriculture

The coronavirus disease (COVID-19) has created an unusual situation globally (Alam and Khatun, 2021). Barely a year ago early in the year 2020, the unusual nature of coronavirus caused most governments to implement stringent steps in their countries to restrain the virus's spread. The novel coronavirus (SARS-CoV-2) disease impacted economies throughout the world, disproportionately impacting individuals who were already susceptible to poverty and hunger (Laborde et al., 2020a; Ceballos et al., 2020). In late December 2019, the virus was discovered in Wuhan City, Hubei Province, China. The pandemic caused by COVID-19 presented a major danger to human health, the economy, and food security in both industrialised and emerging nations (Mottaleb et al., 2020; Carroll et al., 2020; Alam and Khatun, 2021). Lessons learned from China revealed that various COVID-19 countermeasures such as lockdown in the country hampered production. This poses a significant risk to the long-term food supply (FAO, 2020), and has a negative impact on the economy, resulting in economic decline and crisis (Bai, 2020). It is important to understand that certain pre-cautional and control efforts compromise agricultural production (Singh et al., 2021).

The virus wreaked havoc on the agricultural production sector, which is at the heart of the food chain (Pu and Zhong, 2020). The global spread of coronavirus resulted in the greatest economic downturn since World War Two (Hanna et al., 2020; Xu et al., 2021). The epidemic's major impact on agricultural labour input was the restriction of labour mobility. Farmers were not permitted to just go out and gather in any way except to purchase essentials. This resulted in a manpower scarcity and reduced mass production efficiency. For instance, due to a scarcity of migrant experts, producers from Sichuan, Hunan, and Hubei in the grain-producing districts in China (south-eastern coastal district) were not able to sow their crops in good time (Pu and Zhong, 2020). Furthermore, wheat and pulse harvesting in northwest India was hampered due to a lack of migrant labour (Dev, 2020). Vegetable farmers in Ethiopia incurred not just financial loss as a result of overstocked items, but also from a lack of vital inputs (Tamru et al., 2020). Before the pandemic, suppliers may have planted six hectares in a single day, but due to the difficulties in finding tractor drivers during the pandemic, they were only able to cover three hectares a day (Pu & Zhong, 2020). Any interruptions in agricultural food supply will indeed result in supply and demand shocks, which will have an immediate effect on the agricultural sector of the economy with long-term economic performance and food security implications (Gregorio & Ancog, 2020).

The chronic inability of smallholder farmers to have their economic interests articulated in the political process is cause for serious concern particularly in dual agrarian societies. The lack of political wisdom to give priority to agriculture, particularly in terms of commitment to the transformation of smallholder agriculture is the most serious post-independence error of judgement by African nations (Bai, 2020). South Africa has had a number of outbreak diseases in recent months that suggest there are weaknesses in the country's biosecurity system- the measures in place to reduce the risk of infectious diseases being transmitted to crops, livestock and poultry. In

South Africa, reports about the foot and mouth disease in cattle, African swine fever in pigs and avian influenza in poultry have become frequent (Dev, 2020). In 2022, six of South Africa's provinces reported foot-and mouth disease outbreaks. All these notable outbreaks had a notable impact on South African agricultural exports, and the growth prospects of the sector (Tamru et al., 2020). For example South Africa's beef exports for 2022 were down by 12% year-on year. This decline was primarily due to the temporary closures of various export markets following the outbreak of foot and mouth disease in South Africa (Cousins, 2018). Farmers are being hit too hard.

2.4. Volume of agricultural production

The estimated volume of agricultural production in 2018/19 was 0,2% less than in 2017/18

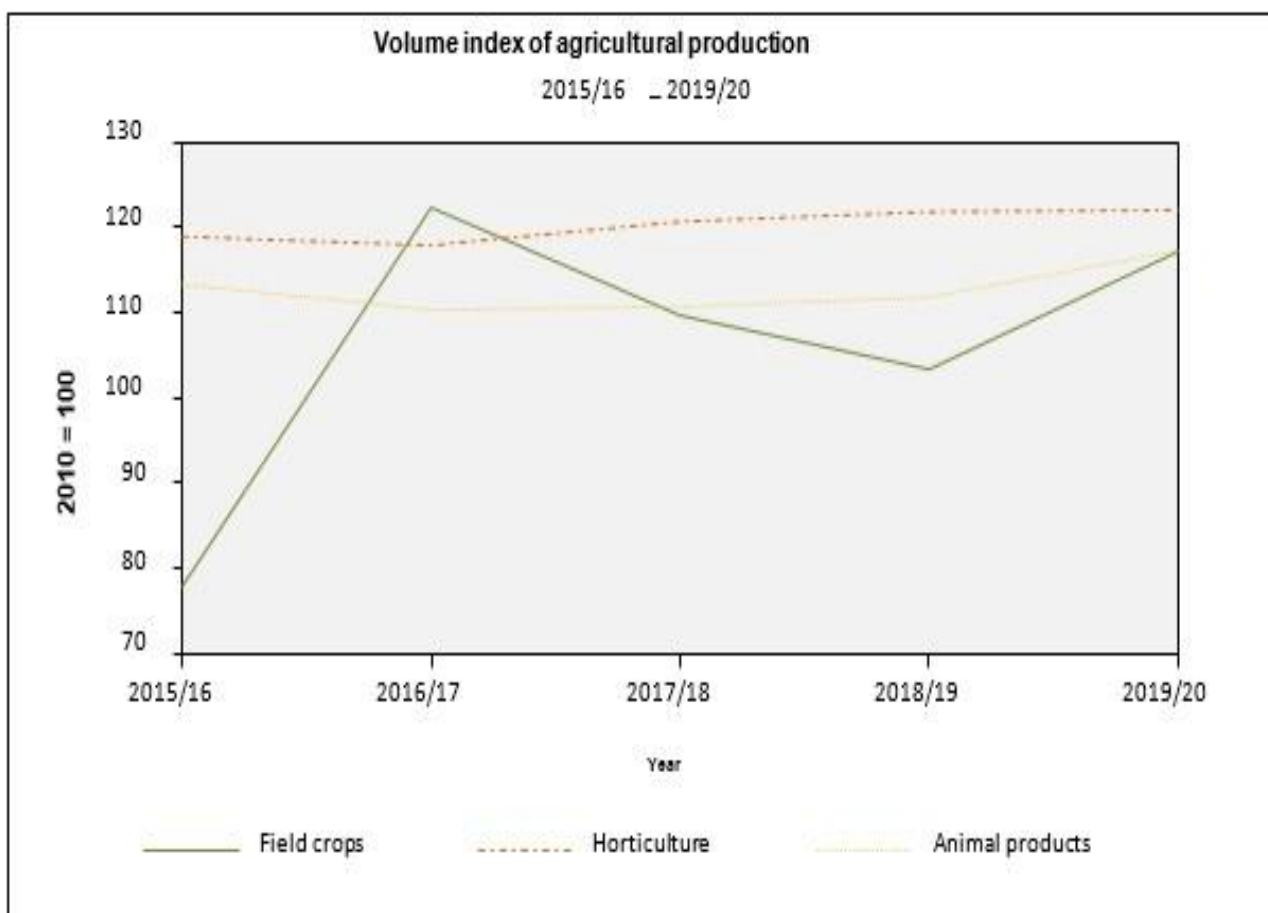


Figure 2.1: Agricultural volume index from 2015 to 2020

Source: DALRRD, 2020

Figure 2.1 illustrates the agricultural volume index from 2015-2020. Due to the decline in the production of maize and oilseed crops (soybean, sunflower seed, and peanut), the volume of field crop production during the 2018–19 growing season declined by 5.6%. From 2017–18, maize production fell by 1, 6 million tons (12, 0%) (Zwane et al., 2019). Production of groundnuts, sunflower seeds, and soybeans all declined from 2017 to 2018 by a combined total of 42 860 tons (66.5%), 214 360 tons (23.9%), and 369 660 tons (24.0%). In comparison to the previous season, horticultural production climbed by 1, 9% in 2018–19, primarily due to increases in the production of citrus and subtropical fruits (Tshuma, 2022). Citrus production rose by 35 508 tons (14.2%),

grapefruit by 119 881 tons (36.8%), oranges by 313 027 tons (21.4%), and lemons by 70, 80, 90, 100, 110, and 130 tons (Springer, 2020).

Additionally, the production of subtropical fruits increased from the previous season due to increases in the production of avocados by 39 656 tons (46%) and mangoes by 21 698 tons (24%) and bananas by 13 478 tons (3%) as well as pineapples by 7 416 tons (71) and guavas by 1 998 tons 72% (Reardon & Gulati, 2022). In 2018–19, there was a 1, 0% growth in animal production, primarily due to increases in the production of milk and poultry (including meat and eggs). In comparison to 2017/18, the output of eggs increased by 57 611 tons (11, 2%) and poultry meat by 71 848 tons (4, 2%). Compared to the previous season, there was a rise in milk output of 79 653, or 2.2%.

2.5. Gross value of agricultural production

The predicted total gross value of agricultural production for 2018–19 is R277 078 million, down from R284 622 million the previous year—a fall of 2, 7% as demarcated in figure 2.2 below. Total production during the production season is valued at the average basic prices obtained by producers. Field crops and animal products' declining value can be blamed for this decline (StatsSA, 2018).

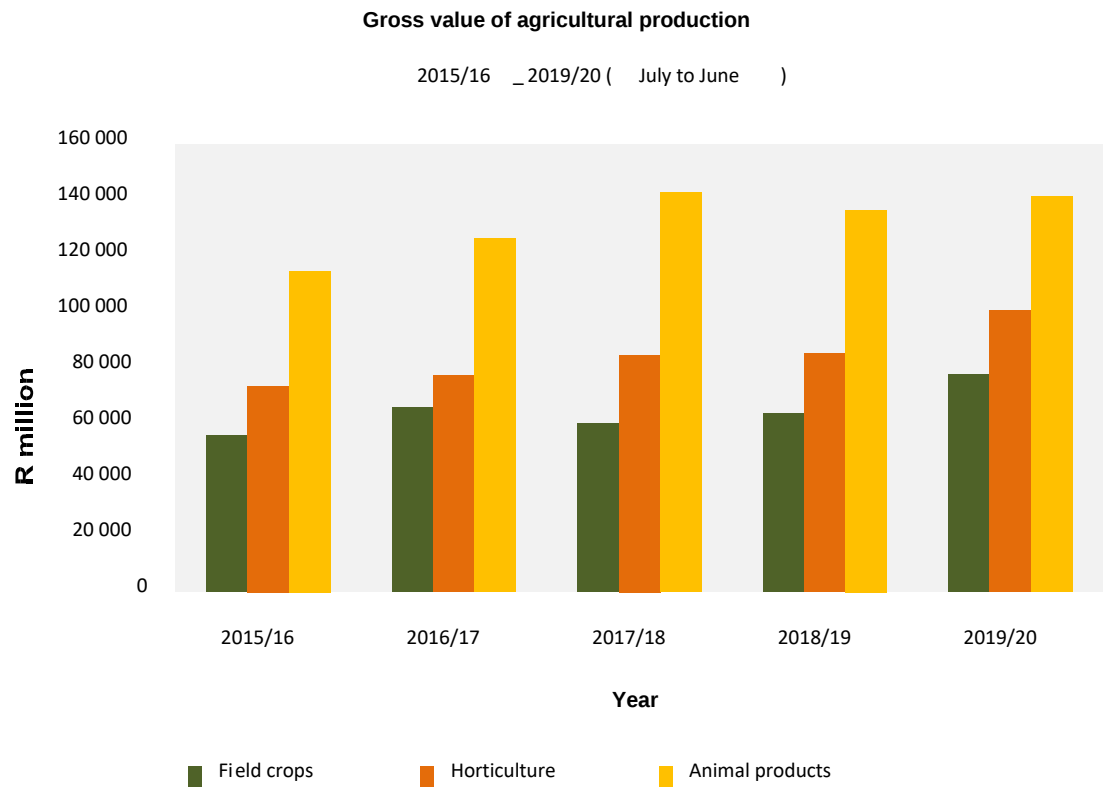


Figure 2.2: Gross value of agricultural production from 2015-2020

Source: DALRRD, 2020

Field crops, horticultural products, and animal products gross values each made up to 20, 5, 30, 3, and 49, 2%, respectively, of the overall gross value of agricultural production. With 16,8%, the chicken meat business contributed the most to the total, followed by the slaughter of cattle and calf with 12,5% and maize with 7,4% (DALRRD, 2020).

2.6. Farming income

Figure 2.3 shows the agricultural gross farm income by sector from 2015-2020. For the fiscal year that ended on June 30, 2019 (2018/19), producers' gross income (defined as the value of sales and production for other uses plus the value of changes in inventories) declined marginally by 0, 4% from the previous year to R278 915 million (Shepard, 2018). This was mostly caused by the decline in animal product prices, as well as the decline in horticulture product output levels or volumes, particularly deciduous and other fruit by 12.6%

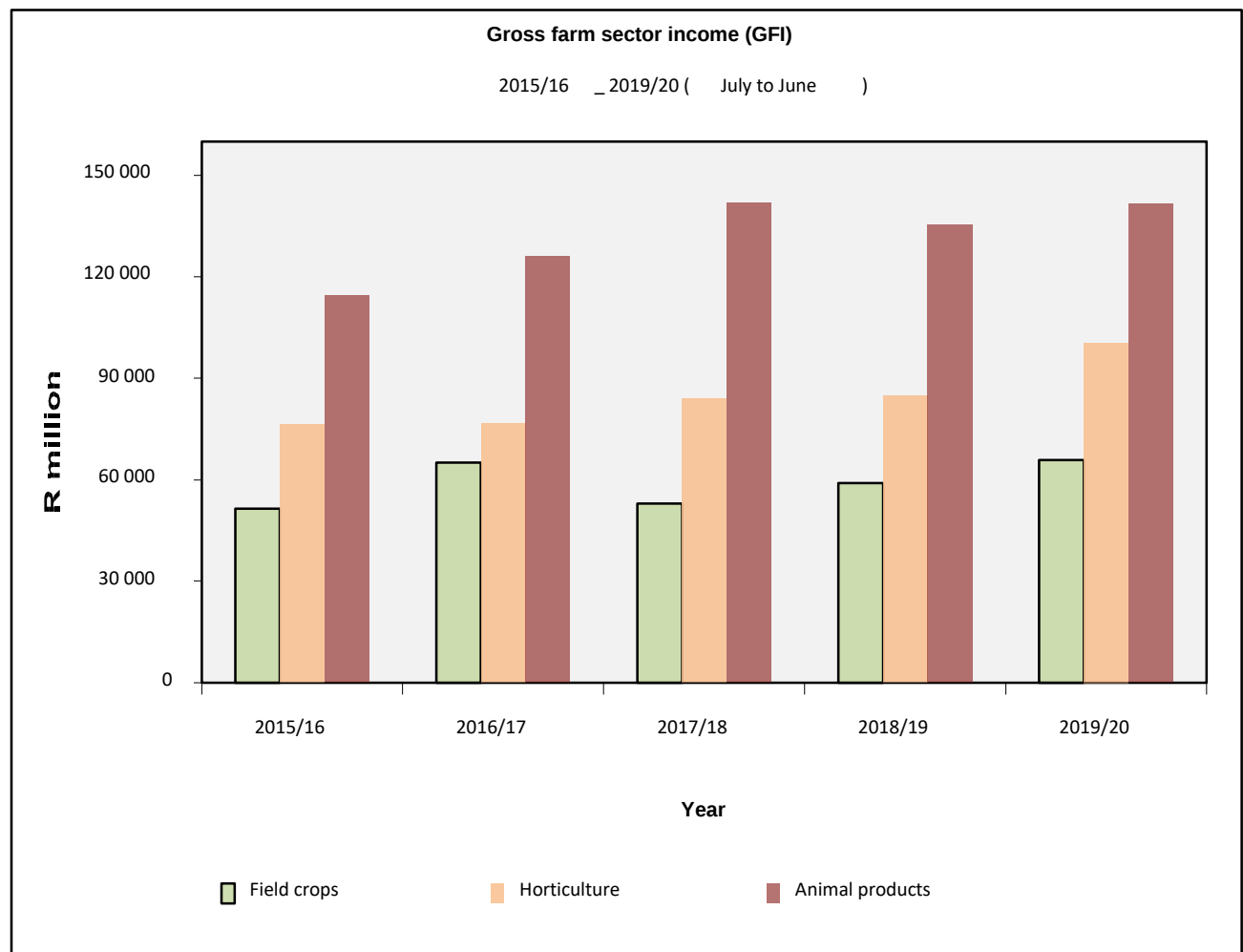


Figure 2.3: Agricultural gross farm income by sector from 2015-2020

Source: DALRRD, 2020

For the fiscal year that concluded on June 30, 2019, the gross income from field crops increased by 9%, or R57 835 million (Fordyce, 2019) as illustrated in figure 2.4. This is explained by the increases in income from grain sorghum (from R336 million to R434 million), cotton (from R878 million to R1 124 million), wheat (from R5 681 million to R6 999 million), maize (from R20 895 million to R25 575 million), sugar cane (from R7 890 million to R8 564 million), and sunflower seed (from R3 172 million to R3 436 million). Gross horticultural product sales fell slightly by 0.3% to R83 535 million in the 2018–19 season from R83 825 million in the previous year (DALRRD, 2020). The income from deciduous and other fruit decreased by 19, 4% (from R22 648 million to R18 252 million), which can be substantially blamed for this (DAFF, 2020). Compared to R142 922 million in 2017/18, the gross income from animal products fell by 4.5% to R136 431 million in 2018/19.

This was caused by a drop in income from the slaughter of sheep, which decreased by 13,4% (from R7 262 million to R6 290 million), milk, which increased by 11,2% (from R18 010 million to R15 989 million), eggs, which increased by 7,9% (from R12 076 million to R11 125 million), and cattle and calf slaughter, which decreased by 7,2% from R37 318 million to R34 631 million (Bhandari, 2022).

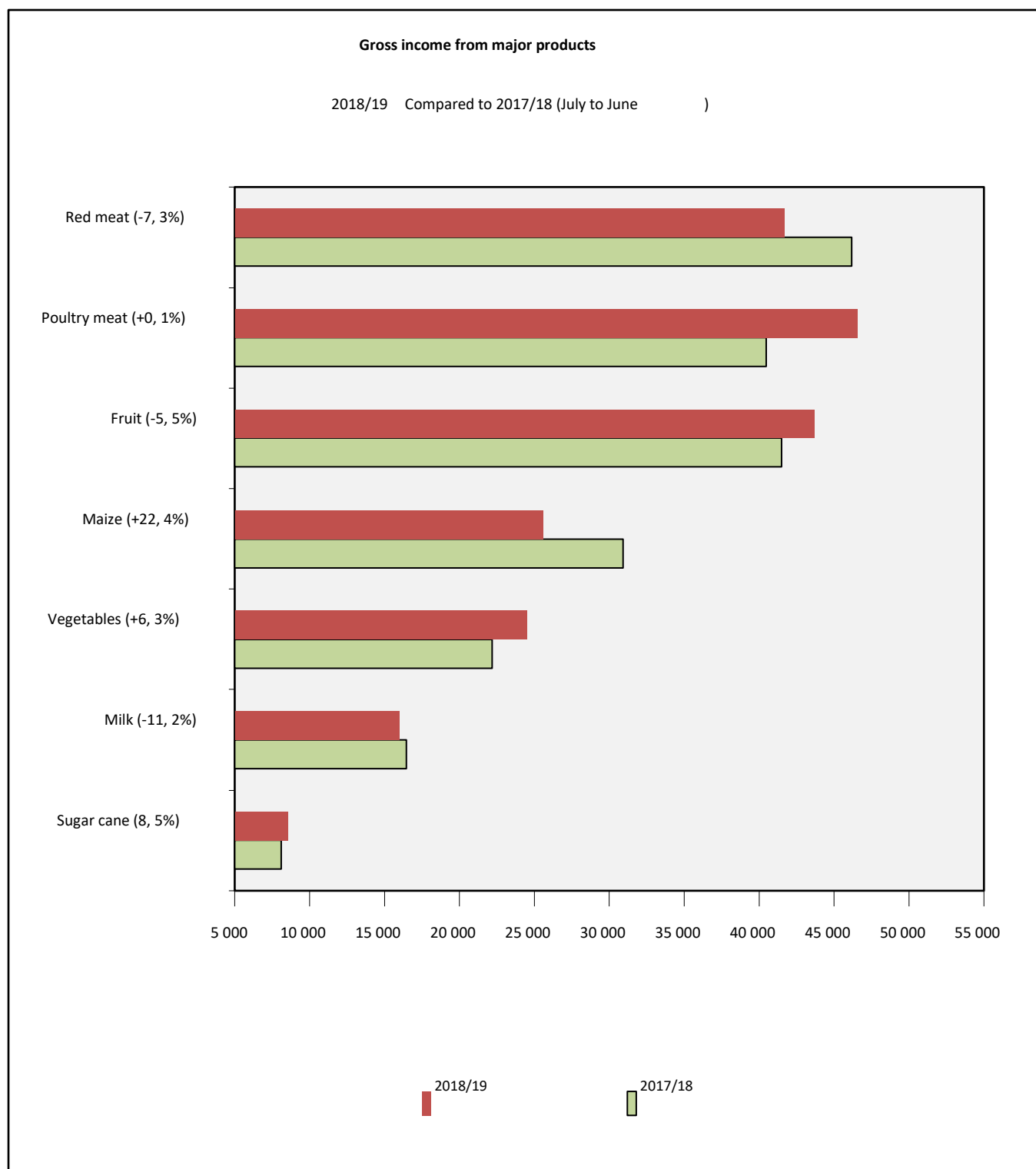


Figure 2.4: Gross income from major agricultural products from 2015-2020

Source: DALRRD, 2020

2.7. Capital assets and investment in agriculture

Figure 2.5 indicates the capital assets and investments in agriculture from 2014-2019. According to estimates, the value of capital assets in agriculture as of June 30, 2019, was R512 563 million, up from R488 235 million at the end of June 2018, a 5,0% rise. The overall value of capital assets was made up of R276 625 million (54%) in land and fixed improvements, R158 673 million (31%) in cattle, and R76 959 million (15%) in machinery and implements (Azna & Besley, 2021). For the fiscal year that ended on June 30, 2019, the gross investment in fixed improvements increased by 5, 5% to R6 028 million. Investment in tools, machinery, and vehicles fell by 9.7% and totalled R9 979 million. There was an R202 million decrease in the cattle inventory from the previous year.

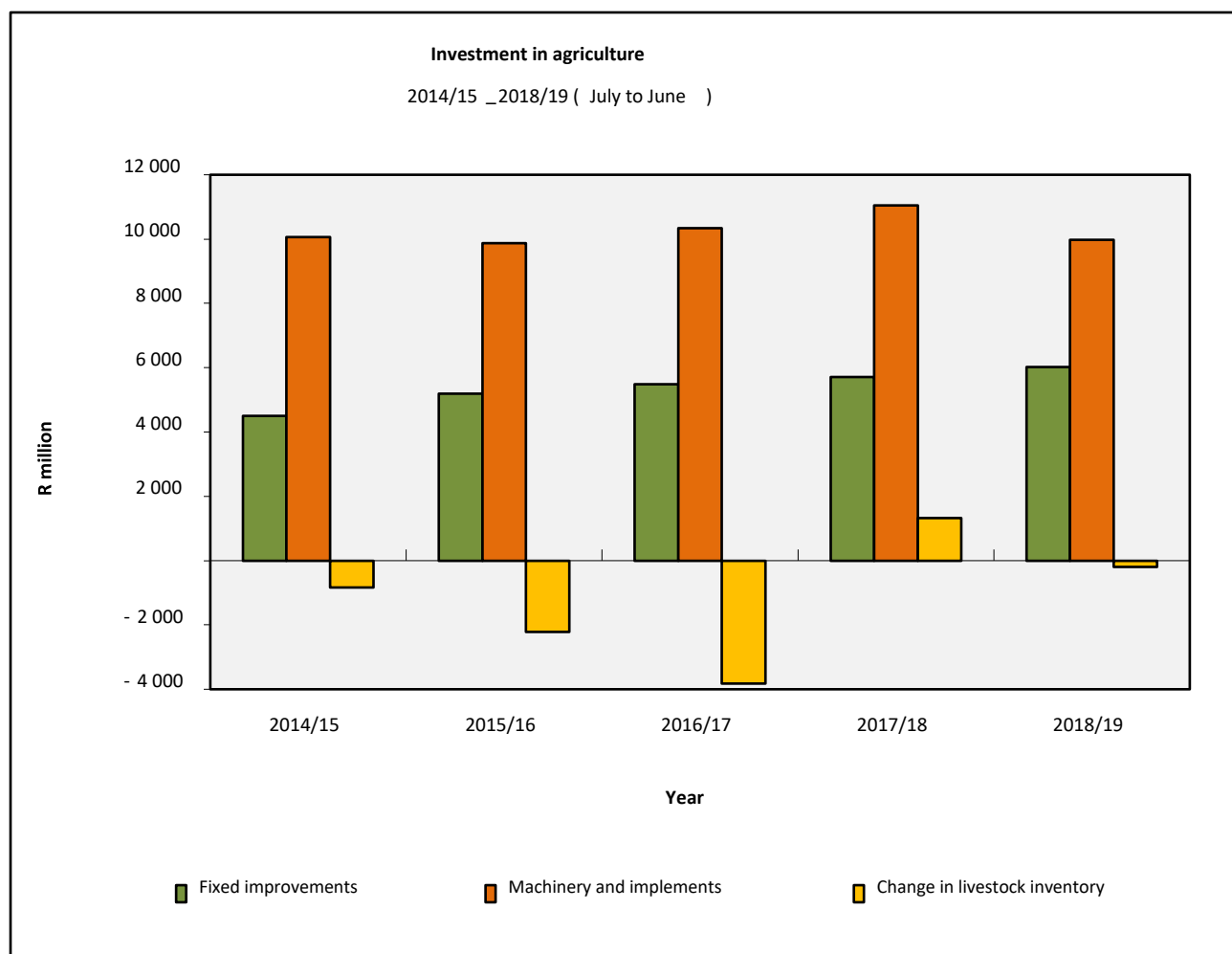


Figure 2.5: Capital assets and investments in agriculture from 2014-2019

Source: DALRRD, 2020

2.8. Employment

According to Statistics South Africa's Quarterly Labour Force Survey (QLFS), the number of households questioned overall increased by 370 000 jobs (2.5% quarter to quarter) in the first quarter of 2022 after increasing by 1.8% in the fourth quarter of 2021. In the first quarter of 2022, the official sector added 408 000 jobs (4.2%) significantly, while the informal sector added 172 000 jobs (6.5%) as employment continued to improve after the third quarter of 2021's third quarter of civil unrest (Elo, 2018). In contrast, the first quarter of 2022 saw job losses of 23 000 (2.7%)

and 186 000 (15.0%) in the agricultural industry and private houses, respectively. The manufacturing, mining and quarrying, and power, gas, and water supply sectors all saw significant job gains in the (Creswell, 2019). Construction, financial intermediation, insurance, real estate, and business services sectors had job losses, in contrast. The employment of all households polled in the first quarter of 2022 increased further, but it was still 81 000 (0.5%) less than it had been a year earlier. Nevertheless, this was an improvement over the 3.2% year-over-year decline in the fourth quarter of 2021 (StasSA, 2018). The COVID-19 pandemic has structurally changed the labour market to the point where a return to pre-COVID-19 levels may not be enough to make up for the setbacks, according to the International Labour Organization (ILO). The ILO also noted a rise in temporary work as a percentage of overall employment, associated with limited duration contracts (Department of Economic Development, and Environmental Affairs, 2018)

Temporary employment rates in higher middle-income nations are 35.4%, followed by lower middle-income countries at 34.7%, low-income countries at 33.7%, and high-income countries at 15.4%. In the first quarter of 2022, South Africa's rate was 12.1% (DAFF, 2020). The official unemployment rate is calculated by Stats SA using the internationally applicable ILO definition. The internal formula used by Stats SA to determine the expanded unemployment rate makes it non-internationally comparable. Statistical SA In the first quarter of 2022, there were 7.9 million jobless South Africans, a 59 000 (-0.7%) reduction from the previous quarter (DEDEA, 2018). With the exception of the second quarter of 2020, when the majority of the unemployed were classified as not economically active because they did not actively search for jobs as a result of the national lockdown, this led to the official unemployment rate declining from 35.3% in the fourth quarter of 2021 to 34.5% in the first quarter of 2022. This was the first decrease after 11 consecutive quarters of increases. In a similar vein and throughout the same time frame, the

seasonally adjusted unemployment rate dropped from 35.7% to 34.6% (DAFF, 2020). New entrants (44.6%) and job losers (27.8%) made up the majority of the unemployed in the first quarter of 2022, while people who had last had a job five years prior made up 20.7% of the officially unemployed. Only re-entrants and former employees were accounted for only 3.6% and 3.3% respectively. According to the ILO, global unemployment is expected to reach 207 million in 2022, surpassing the 2019 level by some 21 million (Vermeulen et al., 2018)

The percentage of workers who are working on short-term contracts relative to all other workers is used to determine the temporary employment rate (DAFF, 2020). Despite declining from 66.5% in the fourth quarter of 2021 to 63.9% in the first quarter of 2022, the young unemployment rate (those aged 15 to 24 and actively looking for work) remained above 60% for the seventh consecutive quarter (Orthman, 2019). Additionally, in the first quarter of 2022, 37.0% of the 10.2 million young people in this group—or about 3.8 million—were not enrolled in any type of training, education, or work. Furthermore, education levels appear to be a significant factor in determining employment as those South Africans with only a "matric" or "less than matric" degree had the highest unemployment rates in the first quarter of 2022, at 36.5% and 39.8%, respectively (Viljoen, 2019).

2.9. Imports and exports of agricultural products

Figure 2.6 demarcates the imports and exports of agricultural products from 2018-2019. The estimated value of imports for 2018/19 came to R75 789 million, an increase of 0,5% from R75 412 million for 2017/18. The value of exports increased by 4,6%, from R104 577 million in 2017/18 to R109 379 million in 2018/19.

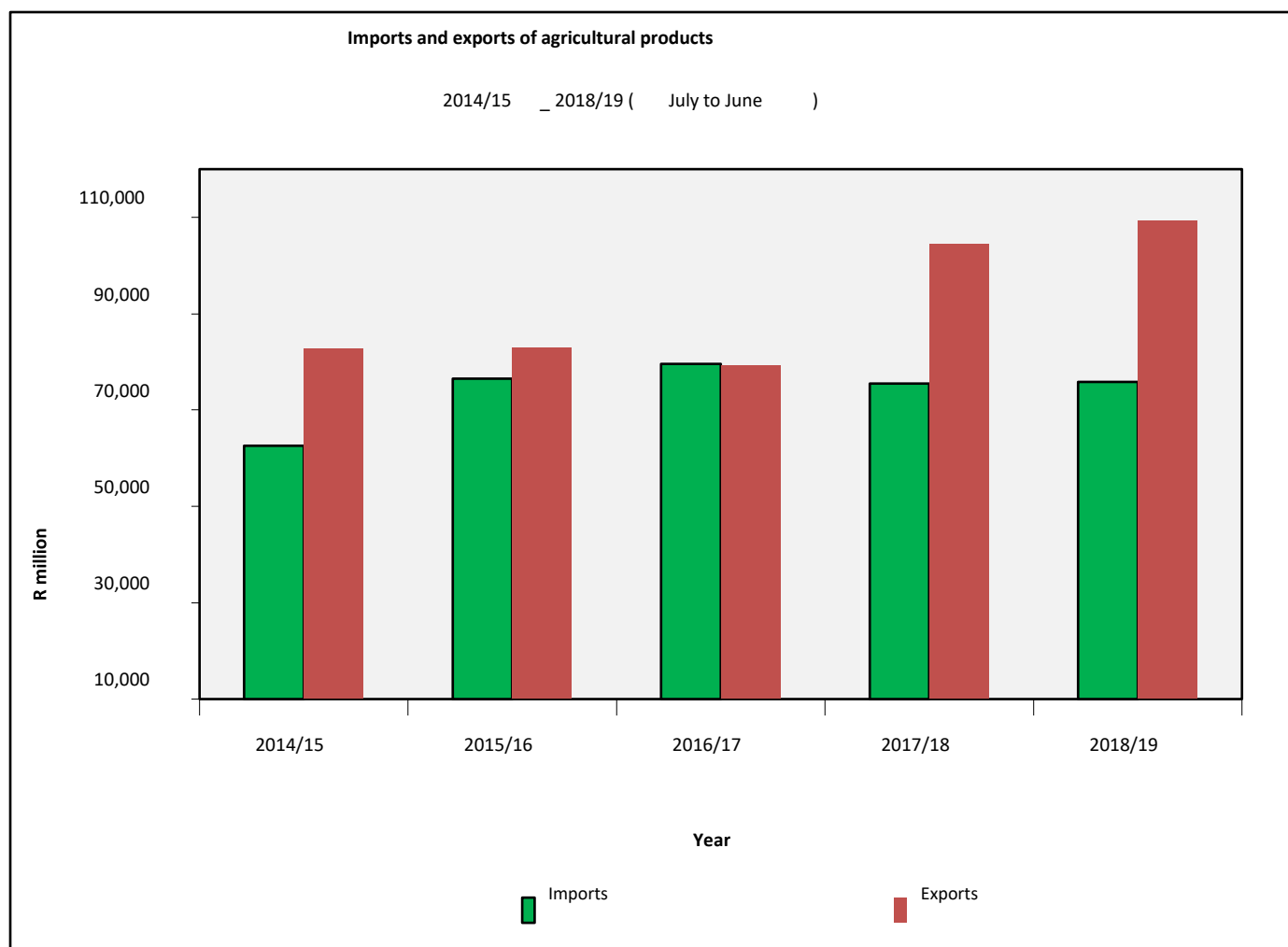


Figure 2.6: Imports and exports of agricultural products from 2014-2019

Source: DALRRD, 2020

According to the 2018/19 export values, citrus fruit (R19 969 million), wine (R9 263 million), apples, pears and quinces (R7 451 million), Nuts (R5 685 million) and cane or beet sugar (R4 353 million), were the most important agricultural export products. Meat (R6 616 million), rice (R6 436 million), wheat (R4 978 million), under natured ethyl alcohol (R4 284 million) and palm oil (R3 948 million) accounted for the highest imports in terms of value (Thirlwall, 2018). During 2018/19, the Netherlands, with exports to the value of R11 927 million, the UK (R10 784 million), Mozambique (R7 448 million), China (R6 931 million) and United States (R5 233 million) were

the five largest trading partners of South Africa in terms of export destinations for agricultural products.

About 20,8% of the total value of agricultural exports from South Africa for the period July 2018 to June 2019 went to the Netherlands and the UK combined (Stroebe, 2018). The five largest trading partners for South Africa's imported agricultural products during 2018/19 were Thailand (R5 328 million), Brazil (R5 251 million), the Argentina (R4 705 million), United States (R4 560 million) and Germany (R4 083 million). About 14, 0% of the total value of agricultural imports by South Africa during the period July 2018 to June 2019 was from Thailand and Brazil combined (DAFF, 2020).

2.10. South Africa agricultural regions

Agriculture is the foundation of developing economies. As one of these economies, South Africa needs to ensure a healthy agricultural industry that contributes to the country's gross domestic product (GDP), food security, social welfare, job creation and ecotourism, while adding value to raw materials (DAFF, 2020). But the health of the agricultural sector depends on the sustainability of farming methods. Farming practices must therefore not only protect the long-term productivity of the land, but must also ensure profitable yields and the well-being of farmers and farm workers. South Africa is a rich and diverse country (Cousins, 2018). It has a vibrant cultural diversity and a spectacular range of vegetation types, biodiversity, climates and soil types. The country can be divided into distinct farming regions, and farming activities range from intensive crop production in winter rainfall and high summer rainfall areas, to cattle ranching in the bush-veld and sheep farming in the more arid regions. Climate-soil combinations leave only 12% of the country suitable for the production of rain-fed crops. With only 3% considered truly fertile land, South Africa falls

short of other countries, such as India, where arable land covers 53% of the country (DAFF, 2020). Most of South Africa's land surface (69%) is suitable for grazing, and livestock farming is by far the largest agricultural sector in the country.

2.11. Shifting trend towards intensified agriculture

Declining farming profitability and water scarcity (drought, declining rainfall or over-demand for water) has left South Africa with less than two-thirds of the number of farms it had in the early 1990s. In many instances the lost farms have been changed to other land uses or consolidated into larger farming units to achieve effective economies of scale. Although the area under maize, wheat, and dairy (5% of the national herd) has decreased significantly over the last 20 years (StatsSA, 2018), production remains relatively constant, indicating an increasing trend in intensified production. The remaining farms have generally increased their irrigation, fuel, fertiliser, mechanisation, and genetically modified seed inputs. In many cases, advisory services provided by fertiliser companies and agribusinesses have entered the vacuum of the under resourced government extension service. These corporate companies provide their own extension staff and build relationships with farmers, which can create a dependence on the products they promote and sell (Manezhe et al., 2019).

Poorly managed intensive farming has many negative impacts on the natural environment, on people's well-being and on a farmer's ability to adapt to change. A dependence and overuse of synthetic fertilisers, pesticides and herbicides reduces long-term soil fertility, causes soil erosion, pollutes water supplies, poisons fragile ecosystems, exposes farmers and farm workers to toxins, and contributes to climate change through greenhouse gas emissions (Mbatha, 2018). Input costs required for intensive farming are increasing. These costs are also subject to changes in the oil

price, the price of raw materials and exchange rate fluctuations, leaving the farmer with little control over his/her affairs. The cumulative impact of these factors degrades farmlands and their vital catchment areas. As a result, the long-term productivity declines and these areas become more vulnerable to climate change (Mfaise, 2018). Intensified agriculture often also means increased mechanisation, which in turn means fewer jobs on farms. This affects the country's social well-being. The move towards genetically modified (GM) crops that depend on herbicides and fertilisers make farmers increasingly reliant on profit orientated companies. The use of genetically modified crops and certain pesticides, herbicides and fertilisers may also isolate South Africa from lucrative export markets. Relying on single-variety crops is also risky. If these crops fail to perform, it will have a significant impact on national production (Senyolo et al., 2019)

2.12. Overview of extension services in South Africa

Prior to the 2018 democratic elections, South Africa was divided into seven regions which worked independently and promoted collaboration between research and extension (Jacobs, 2019). In the late 2000s, the privatisation of agricultural research was introduced through the establishment of the Agricultural Research Council. After the first democratic elections in the country in 1994, the first democratic government was introduced and all the diverse types of extension services which existed back then were merged into one extension service (Hylton, 2018). There is now one national Department of Agriculture with a further nine offices provincially. The extension services in South Africa are expected to cover both commercial and small-scale farmers across all races (Bienable *et al.*, 2019).

The division and inequality in the agricultural sector of South Africa is evident in most parts of the country, especially in the Northern Cape Province. In the Northern Cape, there are more than

half a million Africans who practice small scale farming for subsistence purposes while the main contributors to the provincial economy are white commercial farmers who are only about 10 000 (Francis, 2018). The South African public extension service is not well equipped to deal with the problems faced by small scale farmers as well as the emerging commercial farmers. There is still inadequate collaboration between elected political leaders in the provincial legislature and the extension service administrators (Hall, 2021). Farmers are often frustrated when political leaders do not deliver on what they promised. Thus, extension workers end up spending more time trying to address organisational matters instead of helping farmers (Healy & Devine, 2021).

The Ministry of Agriculture, Land, and Environment introduced a policy framework in 2015 with a focus on the involvement of farmers in decision-making, promotion of indigenous knowledge and improved technologies, encouragement of accountability among extension and research staff, provision of public funding for research that is motivated by farmers' needs, provision of extension and training, and development of institutional capacity for farmers at various levels (Huffman, 2021). These policy framework objectives, however, were not fully achieved because of the subpar extension worker training and the subpar extension methodology based on technology. Additionally, only the state was responsible for staff members' performance, and research funding was scarce (Hall, 2021).

To restructure public extension services in 2018, management, researchers, extension personnel, farmers, and subject matter experts collaborated (Gottschalk, 2018). Three groups of farmers were chosen for extended assistance. Smallholder farmers who lacked access to resources made up the first group. Emerging farmers who practiced both subsistence and commercial agriculture made up the second group. And commercial farmers who manufacture goods for both domestic and foreign markets made up the third group. An externally sponsored pilot initiative called

Broadening Agricultural Service and Extension Delivery (BASED) has replaced the conventional extension approach, which was mostly based on one-on-one contact (Zwane et al., 2018). Positive outcomes from this transformation resulted in the delegation of various tasks to regional and sub-regional levels. The cooperation between research and extension also showed a positive effect (Zizzimia et al., 2019). In South Africa, the total number of farms has been falling while the size of each farm has been rising (De Vaus, 2021). Currently, the country's agricultural production is valued at 80% of what its commercial farmers produce (DALRRD, 2020). Employment in agriculture has also decreased (Greenberg, 2018). The National Education and Training Strategy for Agriculture and Rural Development outlined a number of obstacles that must be overcome for the country to have a well-trained extension service staff.

The proportion of extension agents to farmers was one of them. The ratio of extension agents to commercial farmers in 2015 was 1:21 while the ratio of extension agents to subsistence farmers was 1:857. The ratio of extension agents to total farmers was 1:878 (Cousins, 2018). In cooperation with the Agricultural Research Council, the Department of Agriculture is now creating a policy that will support racial harmony and incorporate all extension and advisory service providers (Bienable et al., 2021). The department's goal in implementing this policy is to reorient research and extension toward the agriculture, forestry, and fisheries sectors. The policy is to promote a coordinated extension approach throughout the nation while addressing national, provincial, and municipal governments (Busetto, 2020).

2.13. Conclusion

An extensive economic analysis of South African agriculture is provided in this chapter. The chapter covered developments in agricultural import and export, agricultural production volume

and gross value, agricultural revenue, capital assets and investment in agriculture, and employment in the agricultural sector. To increase agricultural output in the nation, the government, private organizations, and extension agencies must work in tandem. A summary of extension services in South Africa is also provided in the chapter.

CHAPTER THREE

3. LITERATURE REVIEW

3.1. Definition of Food Security

The definition of food security has changed over time. It is not just the unavailability of food that constitutes food insecurity, and it takes into account different other aspects. According to Food and Agriculture Organisation (2018), there are four main dimensions to the definition of food security namely, availability, access, suitability and utilization. The availability dimension captures not only the quantity, but also the quality and diversity of food. Indicators for assessing availability include the adequacy of dietary energy supply; the share of calories derived from cereals, roots and tubers; the average protein supply; the average supply of animal-source proteins; and the average value of food production (Huffman, 2021). The access dimension comprises indicators of physical access and infrastructure such as railway and road density; economic access, represented by the domestic food price index; and the prevalence of undernourishment. The stability dimension is divided into two groups (Healy & Devane, 2021). The first group covers factors that measure exposure to food security risk with a diverse set of indicators such as the cereal dependency ratio, the area under irrigation, and the value of staple food imports as a percentage of total merchandise exports. The second group focuses on the incidence of shocks such as domestic food price volatility, fluctuations in domestic food supply, and political instability (Jacobs, 2019).

The utilization dimension also falls into two groups. The first encompasses variables that determine the ability to utilize food, notably indicators of access to water and sanitation. The

second group focuses on outcomes of poor food utilization, i.e., nutritional failures of children under five years of age, such as wasting, stunting and underweight (Lahiff, 2018). During a World Food Summit in 1996, they agreed that food security exist “when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for a healthy and active life.” This definition also goes beyond the availability of food, and it emphasizes on safety and appropriate price of the food stuff available. In addition, they have also stressed on the cultural aspects of food since it can differ from one country to the next because of differences in belief and religious practices. These aspects of definition of food security are also endorsed by the United Nations Environment Program (United Nations Environment Programme, 2019).

3.2. Causes of Food Security in South Africa

Both internal and external factors have an impact on the problem of food security in a country. Geographic location and internal characteristics can play a vital role in explaining issues related to food security (Zizzima et al, 2019). Different causes may explain the problem of food security for different countries since the context may be different for each of them although some common causes can be identified across countries. Government must analyse the causes of food insecurity in their respective country since it will help them to come up with tailor made solutions for their context. In addition, some of the causal factors may not be in complete control of the government and a good example is climate change and its impact on agriculture (Louw et al., 2018).

3.3. Use of Government projects for food security in small-scale agriculture

The use of government projects in small-scale farming can be helpful in accurately and immediately addressing various issues faced by farmers relating to enhancing productivity, accessing market information, and coping with changing weather patterns (Munyua 2018). Government projects also play a role in providing communication channels through which farmers and other stakeholders can work together and find solutions to existing challenges. Government projects and services can provide required data by using diverse technologies (Muñoz 2018). The data collected through the projects can then be used to predict changes in weather patterns, so that farmers, especially in rural areas, are able to prepare for these weather events (Munyua *et al.* 2019).

In a study by Adegbidi *et al.* (2022) on the determinants of government projects application in farming, the findings showed that most of the farmers interviewed utilised projects in their farming activities while others were not utilising. Furthermore, 69% of the sampled farmers indicated that they use government projects in their farm activities while the 31% indicated that they do not use any projects. The importance of government projects in farming activities was found to be different. Most of the farmers indicated government programmes as the most utilised form of farming. Other government projects used by the farmers include the Percy voucher. However, this study had its limitations as it focused on farmers who were involved in government projects, who could have been influenced by the training received through their participation in the projects. There is therefore a need for a study that will focus on farmers that have never participated in government based projects.

Tembo, Simbanegavi and Owei (2020) also conducted a study about the factors impacting application of government projects by farm workers in South Africa, Eastern Cape Province. This study further focused on the crucial roles that can be played by government projects in improving

farm productivity. Tembo *et al.* (2020) noted that farmers face many challenges such as soil infertility, droughts, disease, and pests. Government projects can be useful in this regard, as they can provide farmers with the latest information on how to manage pests and diseases, how to identify them in the early stages and how to control them while maximising outputs. Government projects can also provide farmers with the latest market information and trends, which will improve the farmer's negotiation position and help them make smart, timely decisions (Tembo *et al.* 2020).

In rural areas, government projects can be used to strengthen households and agricultural organisations so that they are able to ensure they are food secure while ensuring that they have access to the latest information on production practices, land ownership and infrastructure development (Mamba and Isabirye 2018). With government projects, rural households are also able to communicate with others, and this is important in ensuring that farmers in rural areas are not alienated. The application of government projects in farming also enables farmers and rural communities access to valuable information on processes of policy implementation and land ownership (Munyua *et al.* 2018).

Berman (2018) argued that the utilisation of government projects for food security assumes a crucial role in stimulating economic development, especially in developing countries. Different countries are adopting government projects to enhance agricultural production. According to Muñoz *et al.* (2018), there is evidence of increasing use of government projects in agriculture. In Nigeria, the Nigerian Agricultural Commodity Exchange (NACE) is advocating for increased use of government projects for food security to capture agribusiness data and distribute information. The Philippine government has also implemented several online portals, web-based business software and other technological innovations to help with distributing agricultural information nationally, especially to rural areas (Ballantyne 2019).

According to Armstrong and Gandhi (2022), most farmers depend on extension practitioners and handsets for agricultural data which shows that they are willing to utilise government projects to access agricultural data then use it to improve their farm productivity. This means agricultural production will improve nationally. Burke and Sewake (2018) found that the social grant for the unemployed is one of the most used projects in obtaining agricultural information and other related issues (Joshi and Ayyangar 2020). Joshi and Ayyangar (2020) found that this project was well known by most farmers in India. Farmers used several initiatives to access information about administering chemicals effectively. The internet also enabled the farmers to access the latest market information and trends. Barton (2018) indicated that the government projects provide a communication channel which makes it easier for farmers, extension officers and other agricultural agencies to communicate with each other from different locations. Farmers now have access to relevant and timely information by using government projects and communicate with each other to encourage business growth. This can ultimately lead to an increase in their agricultural produce (Obiechina 2018).

The use of government projects has managed to fill the communication gap between farmers and traders. This means that farmers are now able to communicate directly with customers to discuss appropriate pricing for their produce (Chhachhar, Qureshi, Khushk, and Ahmed 2018). The use of these projects therefore plays a role in increasing farm production and income due to the ease of communication between farmers and consumers, which enables farmers to have effective pricing schemes (Fafchamps and Vargas-Hill 2020). Agricultural producers are also able to access the latest trends and information on effective pesticide application through the projects (Murty and Abhinov 2022). According to Obiechina (2018), Ghana farmers can communicate with buyers through the government initiatives and they are also able to obtain the latest market prices from

agencies and consumers. Through the projects, farmers have better access to market information with the help of extension officers. This means that they can have more time, money, and energy to invest in other activities. Aker and Mbiti (2020) found that farmers in South Africa who utilised these projects were able to increase their income.

Farmers in developing countries mostly rely on indigenous knowledge to improve their farming skills as they have access to different programmes (Chhachhar *et al.* 2018). In a study by Nazari and Hassan (2021) in Iran, the majority (68%) of the farmers indicated that agricultural government programmes were beneficial to them. The use of mass projects in India and Ethiopia has proved to be beneficial in disseminating information to farmers. This suggests that people obtain agricultural information by participating in appropriate programmes. A study by Abbas, Hassan and Lodhi (2019) conducted in Bhawalpur, Pakistan showed that most farmers rely on agricultural practitioners as their main source of communication.

3.4. Farmers' challenges in the use of Government projects for food security

There are several challenges that affect farmers and their participation in government projects for food security. The challenges include shortage of knowledge, poor access, and non-recognition of government project benefits, insufficient funding and political instability (Taragola, Van Lierde and Gelb 2019). Chete and Fasoyiro (2018) conducted a study to identify constraints and challenges faced in improving rural participation of female farmers in Nigeria. The study found that these challenges include the lack of content, shortage of human resources, poor access and low investments.

Another study by Jayathilake, Jayaweera and Waidyasekera (2020) which focused on the use of government projects and its impact on agriculture in Sri Lanka revealed that the biggest challenge for farmers participating is the high insufficient funding. Other challenges reported by the study included poor monitoring of the government projects for food security. The study also found that farmers are still reluctant in trusting these projects and related systems as they only have limited exposure to such. According to Bohara (2018), technical challenges also make a huge impact on participation in government projects. The poor road infrastructure in rural areas also makes it difficult for farmers to move around and be exposed to such projects which are not available in their areas (Musa *et al.* 2022).

A study by Mahant, Shukla, Dixit, and Patel (2022) argued that some project developers focus more on creativity when developing projects for food security, and this may hinder the use of traditional projects which can be similarly effective while maintaining acceptable costs. The continuous efforts to produce more advanced government projects have big cost implications as the constant data transformation requires more infrastructure and resources. Mahant *et al.* (2022) also identified the shortage of human and physical resources as a big challenge in the use of government projects. Participating in government projects by farming households could also improve farming productivity, but challenges such as poor understanding of smallholder farmer needs and lack of knowledge about the role of the projects make it difficult for them to effectively participate in the projects in their farming activities. For example, a study by Chukwunonso, Abubakar, and Nkiru (2022) found that farmers who are not satisfied with the performance of government projects will discourage other farmers from using them, even when they are already accessible to them. Musa *et al.* (2022) also conducted a study on participation in government projects in smallholder agriculture in the Gezira State of Sudan. Results from the study show that

53% of the respondents believe that shortage of skilled individuals and funding is the major challenge faced in partaking in these projects. Other challenges found by the study included weak methods of data dissemination, irrelevant information and shortage of government project centres. Musa (2019) used a cross tabulation to analyse the relationship between participating in government projects and cultural beliefs, where it was found that there is a statistically significant relationship between cultural beliefs and the adoption or non-adoption of the projects Musa (2019) also found that other factors such as legal frameworks, policies and politics may influence participation in this projects. Mwakaje (2018) conducted a study on the utilisation of government projects by Tanzanian farmers. The study found that most farmers (68%) indicated that they could not have adequate access. Some of the participants admitted that they were currently not aware about the projects in agriculture and were not aware of what to do in order to gain access to government projects. Sadaf, Javed and Luqman (2019) argued that it is important to motivate and encourage female farmers to participate in government projects in their farming activities as most of them still depend on traditional sources of information such as neighbours for agricultural data.

3.5. The impact of government projects for food security

According to Pickernell *et al.* (2018), participation in government projects for food security has yielded positive results in horticulture. It has provided an opportunity for farmers' market expansion and reaching new customers. Syiem and Raj (2018) assessed the accessibility and utilisation of government projects in agriculture and rural development among indigenous farmers in Meghalaya State, North-East India. According to the findings, the most utilised project was the Support for Emerging Farmers. They were mainly used for sharing agricultural information, setting meetings with promoters or clients and communicating with agricultural agencies directly

to obtain the latest agricultural information. Alia, Nakelse and Diagne (2018) conducted a study about participating in government projects of agricultural innovations and information access among smallholder cassava farmers in Burkina Faso. The study found that farmers who obtained cassava farming information through government programmes prior to 2018 were more willing to use new advanced varieties than farmers who did not. Another study was conducted by Irungu, Mbugua and Muia (2018) about the influence of government projects in attracting youth into agricultural business in Kenya. The study found that most young people regularly knew about the projects, and therefore suggested that they may be most effective in advertising horticulture to young people. A study by the World Bank in Philippines revealed that participating in government projects is associated with improved income levels for farmers, determined through consumption behaviour (Labonne and Chase 2019). A similar study conducted in Uganda revealed that farmers with access to the projects participated more in market related activities (Muto and Yamano 2021). Another study by Agu (2018) in Tanzania showed that there is a positive correlation between farmers participating in government projects and the amount of produce they obtained. Agu (2018) also found that participating in government projects in farming had a remarkable impact on the type of crops farmers grow. The study suggests that farmers who partake in government projects to access the latest market information received more income must be prioritised. Berman (2018) found that government projects utilisation plays a crucial role in empowering small-scale farmers in developing countries. Countries such as India and Sri Lanka have continuously made efforts to develop the effective participation in government projects in rural areas. In India, agencies such as the Proletarian organisation and United Nations have participated in programmes which provided farmers with resources, communication tools. These tools provided had a big influence on the development and decision-making improvement among farmers. Through the projects, farmers

had adequate access to the latest local and national market information, including information about improved agricultural practises which are important in increasing their farm income.

3.6. World Market Prices on food security

Food world markets are more and more interrelated due to globalization and liberalization of trade. Fluctuations in prices on the world market have an impact on prices of food in all countries around the world. In 2008, the world has experienced a major food crisis leading to unexpected scarcity of food and high prices of food products on the world markets (Science magazine, 2020). Many countries restricted exportation of food. An Analysis of government policies in ensuring food security in small communities was considered. These factors affected both availability and prices of food products around the world. In addition, world food shortages occur when consumption is higher than the production of food and the recent increase in demand for food products from developed countries have contributed to the problem (DALRRD, 2020).

Given that South Africa is heavily dependent on imports, fluctuation on the world food market will have an indirect impact on the level of food security in the country. South Africa depends on India, China and Mozambique for most of its importations and in 2018; South Africa feared a disruption in supply following strict measures by government of these countries to restrict export of food products (Aliber et al., 2020). In South Africa, maize is considered as a staple food and there is a heavy consumption from the South African population because of cultural aspects customs and habit. Such fluctuations on the world markets can lead to problems of food products which are not grown locally as in the example of sorghum since its availability on the market depends entirely on imports. On the other hand, decrease in price for sugar on the world market has affected the economic viability of its production in South African and many small farmers are

abandoning their sugar cane farms (Aliber & Hall, 2022). This is negatively affecting the production of sugar in South Africa.

3.7. Government Policies in South Africa

The government has come up with two strategic plans in order to deal with the problem of Food security since 2018. The first one was set up for the period 2018 till 2021 and the second one was set up for 2013 till 2023 (Hunter-Adams et al, 2018). The strategic plan 2018 to 2021 was launched by the Ministry of Agro Industry and Food Security to; increase production of priority crops; maintain self-sufficiency level in poultry meat and fresh vegetables; introduce new protein-rich crops (soybean); provide more land for production of foodstuffs; encourage the regrouping of small-scale farmers; achieve a higher self-sufficiency level in the production of fresh milk and meat; sensitize the population on the benefits of eating healthy foods; mitigate the marketing constraints encountered by small food crop farmers; and partner with regional countries for the production of selected commodities (potato, maize, rice, onion and pulses). It is noted that the plan was successful to a certain extent since both crop and livestock production increased during the period (Jankielson & Duvenage, 2018). Crop production increased by 23.7% while Meat production increased by 53% in the period 2018-2021. Potato production increased by 45% in the same period whereas milk production increased by 37% and these can be attributed to the implementation of the plan (Strategic plan 2021- 2023). The food security strategic plan 2013 to 2023 was prepared as a continuation of the previous plan.

It has been developed after analysing shortcomings of the previous plan and the lessons learnt from past experiences in the sector. It also takes into consideration all challenges facing the agricultural sector and the current trends observed in the agro industry. The main objective of the plan is to

improve the level of self-sufficiency in various commodities, promote export and create new opportunities for farmers, entrepreneurs and rural families to increase farm income and productivity while conserving the natural biodiversity and providing safe, sufficient and nutritious food supply (Jayne et al., 2020). The plan recognizes that it is unrealistic to achieve 100% self-sufficiency in food production due to scarcity of resources and targets a realistic 33% self-sufficiency in food production. However, the decrease in the contribution of the agricultural sector to the GDP highlights that there has been a decrease in food production and highlights weaknesses of the plan. However, there has been some positive impacts of the plan as well since South Africa has been able to achieve self-sufficiency in potato production and Poultry products in the recent years (Lefort, 2018)

3.8. Government projects for food security

3.8.1. Special Project for Food Security

The SPFS intends to assist low-income food insecure households in their efforts to raise their standard of life by accelerating productivity growth and food production on a foundation that is both economically and environmentally sustainable. This project's stated goals are to increase people's access to food and decrease the year-to-year fluctuation in agricultural productivity (Haysom, 2018). The FAO initiated the program in 1994, but the Department of Agriculture is primarily responsible for its execution. It was subsequently approved by the World Food Summit (WFS) in November 1996 and is already significantly advancing the Summit's objective of having many chronically malnourished people in underdeveloped countries. Increasing farmers' net income, creating rural employment, and fostering social equity are among the SPFS's main characteristics (Greenberg, 2018).

Ultimately, the SPFS was designed as a dynamic process that would be continuously moulded and reshaped by participants' local expertise and the outcomes of project experience gained in real-world situations. Projects are tailored to local conditions and priorities established together by farmers and country planners, and, in addition to social fairness, gender sensitivity and environmental awareness are major concern (Hendricks, 2018).

3.8.2. Community Development Project

The Community Development Project seeks to enhance the social, economic, and environmental conditions in which people live in order to promote better living for the entire community. Often, these programs entail collaborations between businesses, community organizations, and municipal governments (Hunter-Admas et al., 2018). The CDP is a collaborative, facilitative technique used by individuals to work together to address a shared concern and better their community (Jonah & May, 2020). To assist community members in identifying and resolving their common issues, community development practitioners employ a few tools and strategies.

These methods and tools may include asset mapping, community forums, needs assessments, and collective action planning. The CDP is frequently employed to foster community relationships and increase social capital (Khumalo & Sibanda, 2019). To address the psychological, practical, and political demands of belonging, reciprocal care, rights, and resource campaigning, CDP seeks to strengthen face-to-face communities. The CDP are based on the participation of the populace in their formulation and implementation, which includes the establishment of numerous local institutions and volunteer groups, the growth of local leadership, and the creation of a development-oriented administration as opposed to a bureaucratic one (Haysom, 2018).

3.8.3. Food Security Capacity Building Project

In terms of employment, production, and economic development, agriculture is crucial to economies. The members of the Agri-Cab make up a large portion of the world's agricultural production and are richly endowed with potential agricultural resources (Khan, 2018). However, although some nations profit from the new technology advancements and mechanical capabilities in agriculture, others suffer from great hunger and continue to have issues with agricultural efficiency because there aren't enough practical and effective agricultural approaches available. Considering this, the Agriculture and Food Security Capacity Building Project (Agri-Cab) was established to work towards ensuring food security and sustainable agricultural advancements. The initiative is anticipated to increase the capabilities of the pertinent national institutions in a variety of sectors, including effective methods of managing land, water, and livestock, fisheries, and food security (Kepe & Tessaro, 2019). It also acts as a forum for exchanging and sharing best practices and experiences.

3.8.4. Integrated Nutrition and Food Safety Project

The World Health Organization (WHO) estimated in 2015 that one in ten (or a total of 600 million) individuals get sick after consuming tainted food that is full of bacteria, viruses, and poisons. Africa faces significant challenges related to nutrition and food safety (Gildenhuis, 2019). The WHO then launched the Integrated Food Security and Nutrition Programme in 1996 to halve poverty and lower malnutrition. The project's goal was to boost food production and trade, two areas where agriculture played a significant structural role. The Social cluster's involvement was essential. The Department of Social Development, Health, and Education may each give social grants, food fortification for the ill, and food distribution in schools (Halls & Cousins, 2018).

3.8.5. Support for emerging farmer's project

The support for emerging farmers was established in 2016 and has been running ever since. The aim of the project is to help emerging farmers make a significant contribution to agri output (Rocha, 2019). The main crops funded are in line with SAB's requirements, which at this stage are barley, hops and non-genetically modified yellow maize (Berry et al., 2018). To qualify for our loans, the farmer should have a solid business plan indicating his or her ability to repay the loan. Farm Soil recently entered into a partnership with John Deere that will expose beneficiaries to the company's latest technology and gain first-hand experience of using it (Pote, 2018).

3.8.6. Social grants and unemployment

Given the significant role that poverty plays in determining food security, it makes sense that social protection would be important for food security in South Africa (Machete, 2022). Many of the studies in the review mentioned how heavily their participants rely on social grants for food security, and this is one of the government's main tools for reducing the effects of poverty and unemployment (Manenzhe et al., 2018). These studies have a variety of objectives, from evaluating the effects of interventions to examining the connection between culture and food security. The majority of research stresses the fact that grants like child support grants stops severe food insecurity. In the context of HIV/AIDS and food security, one study recommended for an expansion in social protectionist policies (Study 60) and another called for attention to the removal of access obstacles as a crucial policy issue (Study 96). Studies 116 and 143 made the case that grants could change how people view women (Pote, 2018).

3.9. Challenges and way forward

Most researchers agreed that everyone should be informed of the specifics of the (food security) policy and that it should be included in the IDP. However, the researchers believed that unfunded obligations from the federal and provincial governments place a significant budgetary strain on local governments generally (Artetxe, 2018). So, it would be unfair to require local government to perform an additional task without first giving a supplemental income award with enough funding designated for the intended use.

Although government resources are commonly acknowledged to be limited, it is also obvious that levels of cooperation between local governments and non-profit service providers should be improved (Candel, 2019). One research study found that the absence of public participation was the main factor in why local governments were not required to provide for the food security of unemployed individuals (Claasen & Lemke, 2019). Yet it is the attendance of members of the public at meetings that might alert them. The remark raises a larger governance issue of public participation and expanded community engagement with local government to address issues like food insecurity (Zizzimia et al., 2019)

3.10. Theoretical framework of the study

3.10.1. The Food and Nutrition Security Theory

As evidenced by the numerous attempts made to define it in research and policy applications, food security is a flexible notion. The early 1970s saw several worldwide food crises, which is when the idea of food security first emerged. Even twenty years ago, there were around 200 definitions of food security in written works (Maxwell & Smith, 2022), demonstrating the definition's contextual dependence. The State of Food Insecurity in the World 2001 annual report on food

security is where the term "food security" is currently understood to mean. When everyone, at all times, has physical, social, and economic access to enough, safe, and nutritious food that satisfies their dietary needs and food choices for an active and healthy life, there is food security (FAO, 2020).

The Theory of Food and Nutrition Security evolved due to the extreme volatility of agricultural commodity prices and the turmoil in the currency and energy markets at the time, the concept of food security was initially centred on ensuring food availability and the price stability of basic foods in the early 1970s, a period of global food crises (Berry et al., 2018). A theory of food and nutrition security that emphasized the crucial needs and behaviour of potentially susceptible and affected individuals was necessary in light of the incidence of famine, hunger, and food crises (Shaw, 2018). 'Food and Nutrition Security theory' was the name given to the notion of food security at the 1974 World Food Conference. The implementation of food policies and strategies adequately and sufficiently addressed the Food and Nutrition Security Theory without favouring one notion over another. This balance was attained by conducting a detailed needs assessment analysis after considering both the vulnerability and livelihood approaches to FNST.

The Food and Nutrition Security Theory now encompasses economic access to food (Berry et al., 2018). After, the phrase "ensuring that all people at all times have both physical and economic access to the basic food that they need" was added to the definition of food security (FAO, 2020). The next step was the publication of the World Bank's ground-breaking Poverty and Hunger report in 1986 (World Bank, 2019). By separating acute, temporary food insecurity brought on by natural or man-made disasters from chronic, poverty-related food insecurity, a temporal scale for food security was created.

The phrase "*access of all people at all times to enough food for an active, healthy life*" was added to the definition of food security to reflect these developments (Berry et al., 2018). Following the publication of the Human in Development Report by the UN Development Program in 1994, which took into account the needs of human security, the next conceptual evolution took place (Cousins, 2018). At this point, the topic of human rights was brought up in relation to the Food and Nutrition Security Theory, which was a part of social security in general. There was no clear definition of this multidimensional and comprehensive operational concept back then since research on food security are frequently context-specific, depending on which of the numerous technical viewpoints and policy challenges. Government projects for food security were developed through international consultations in advance of the 1996 World Food Summit in an effort to better reflect the complexity of interactions among individuals, households, and even the global level (Shaw, 2019). This means that participation in government projects by small-scale farmers mostly depends on how accessible and effective the projects are to them. The Food and Nutrition Security Theory is very significant for the study because it provides guidance on participation in government projects among small-scale farmers. The theory is therefore applicable in this study because it serves as a guide and framework for the dissemination of knowledge on participation in government projects for food security (Berry et al., 2018).

3.11. Conceptual framework in government projects for food security



Figure 3.1: Conceptual framework of government projects for food security

Source: Own survey data, 2023

The intellectual underpinnings of food security are shown in the above diagram. The study uses a conceptual framework that takes food security's definition into account. The household's accessibility to food is referred to as the food availability dimension of food security (Gildenhuis, 2019). The current study assumes that crop productivity and livestock ownership play a significant role in determining this. Considerations are made for livestock ownership and crop production factors. Food availability is dependent on market access, which is very significant. Access to food is a connected idea as well. The Integrated Nutrition and food security project is an important factor in ensuring that every individual has access to sufficient healthy food (Battersby, 2019).

Access to food is the capacity to acquire enough food. In this way, a proxy for assessing credit access, off-farm income, and household-level food purchasing power is taken into account. Similarly, a household's susceptibility to food shortages has an impact on its level of food security,

which is mostly dependent on shock frequency, educational attainment (capacity for analysis and forecasting), and animal ownership (Greenberg, 2018). The food security building capacity project improves the capacities of institutions in several areas such as efficient livestock management and aquaculture. Utilization of food is mostly influenced by dietary quality. The household head's gender and educational background might have a significant impact on the choosing of a high-quality diet. Additionally, factors like age and gender can influence dietary needs (Abbadia, 2022).

Through different linkages outlined in our framework between these two domains, there is an intrinsic feedback loop that interacts between nutritional status and government initiatives and innovation. These initiatives illustrate the varied and occasionally reciprocal nature of effects on food systems, public health, nutrition, and agriculture (Sidaner et al., 2018). Most agricultural and food system policies would affect many (if not all) other aspects of agriculture, food systems, nutrition, and public health directly as well as indirectly, in both positive and bad ways. We recommend taking this larger context into account (Rocha, 2019). Our paradigm also aims to simplify some of the difficulties associated with food security routes that are pertinent in many nations and rural/urban environments.

Furthermore, given that households are frequently collective units made up of family members of all ages and genders, as well as the fact that income in rural areas is frequently and increasingly derived from a combination of agricultural and non-agricultural sources, we believe that our framework is crucial for better understanding how different types of households or individuals may be impacted by government projects implemented at any level of governance. It is possible to view our work's framework, which accounts for individuals of all ages, sexes, and residential settings (urban and rural), as both a strength and a restriction. It may be simpler to visualize and, therefore, comprehend how particular vulnerable groups may be disproportionately affected by an

agricultural or food security policy when one targets subpopulations or vulnerable groups (such as young children, rural smallholder farmers, or women of reproductive age). However, Burchi et al. (2021) correctly note that while many strategies to improve nutrition have concentrated on rural areas, strategies to improve nutrition in urban areas are scarce, but their importance is rising as urbanization continues, necessitating the need for urban agriculture (Burchi et al, 2021). In light of the growing globalization of food security, it is significant to underline that these connections between high- and low-income countries, as well as between urban and rural areas within a country may decrease.

In addition, we did not omit domains, routes, or domain indicators that can be challenging to quantify in reality (Bouis & Saltzman, 2018). To determine nutritional status, for instance, it could be difficult to get more than anthropomorphic data. We are aware that the local food environment will vary when our conceptual framework is used in various projects and nations. Food accessibility, availability, and consumption promote the upkeep of household quality. The direct and indirect effects of the projects on agriculture, the food system, nutrition, and public health have all been taken into consideration, as well as an example of a public distribution system policy and a conditional special project for food security.

Note that other significant factors functioning at various points along the framework, such as culture, gender disparity, weather and climate variability, and political and economic conditions, have not been considered (Cooper et al., 2020). In addition, elements like age and gender roles, which are discussed in the framework's section on food utilisation, have an impact on other parts of the framework but are difficult to quantify. Finally, the positioning of the framework's domains relative to how "distal" or "proximate" they are from nutritional outcomes should not be regarded as a measure of how important they are as a subject of policy intervention (Donthu & Kumar,

2020). The backdrop for the more proximate domains is frequently shaped by the distal or more structural determinants, with the proximate impacts not always being the most significant in terms of their impact on nutrition.

The framework emphasizes the necessity of assessing the volume and calibre of evidence in the published literature for the relationships shown. By populating the framework with relevant policy interventions for the various links or by "mapping" the framework with case studies and current research, gaps in policy activity could be shown (Fanzo, 2018). The framework may be used as a tool for formulating policy as well as a tool to offer a theoretical foundation for multidisciplinary research projects examining the impact of agricultural and food security policies on nutrition and public health.

Starting with a policy of interest, the user might observe that it is connected to other policies that are the responsibility of other ministries or sectors and should be taken into account in any subsequent execution of the original policy (Byerlee & Fanzo, 2019). The framework can be used as a tracking tool to follow an interest policy through the numerous linkages provided as well as to help find other areas or sectors pertinent to the policy and its effects on nutrition. Although the framework can be used as a tool to see the "bigger picture" and discover policy choices, it does not assist one prioritize actions connected to agriculture and food security for nutrition outcomes or choose between policy alternatives (Sayer et al., 2022). In conclusion, through aiding in the conceptualization of the "big picture" and emphasizing both the complementarities and trade-offs in nutrition that frequently occur with the implementation of policies related to agriculture and food security, we hope that the developed framework will help to shift the focus away from the problems of nutrition, food security, and health to the identification and development of effective agriculture and food security policy solutions (Skaf et al., 2020).

3.12. Conclusion

The chapter above was based on highlighting literature review on the government projects for food security. All the highlighted studies which are supported by other researchers have emphasised the influence of the government projects on food security. The use of these government projects could provide small-scale farmers with better farming techniques and increased farm production.

CHAPTER FOUR

4. RESEARCH DESIGN AND METHODS

4.1. Introduction

The description of the study site, research paradigm, sample size and population, data collecting and analysis techniques, research ethics, were all be covered in this chapter. The method of data analysis was followed by a thorough explanation of the study's model.

4.2. Study site

The study was conducted in Kabokweni Ehlanzeni district, South Africa under some of the following villages, Bhuga (officially known as Gutjwa kop), Nkohlakalo, Halfway, Nkanini and Bhayizane to name a few. Kabokweni is one of the oldest townships since it was built during the apartheid era in 1967 and has been running ever since. It is under the City of Mbombela Local Municipality of the Mpumalanga Province and consists of +/- 21905 people. In size Kabokweni is equal to 8.24 km² and the prominent languages used in that area include Siswati (dominant), English, Tsonga, and Zulu. The racial make-up consists of 98.3% of black people and 1.2. % of the other races (white, coloured and Indians). It comprises of 3 public clinics and one hospital, and the stations of geographical positions are latitude 25.337°S and longitude 31.135°E (Fritz & Berger, 2020). Following is the map of the study area:

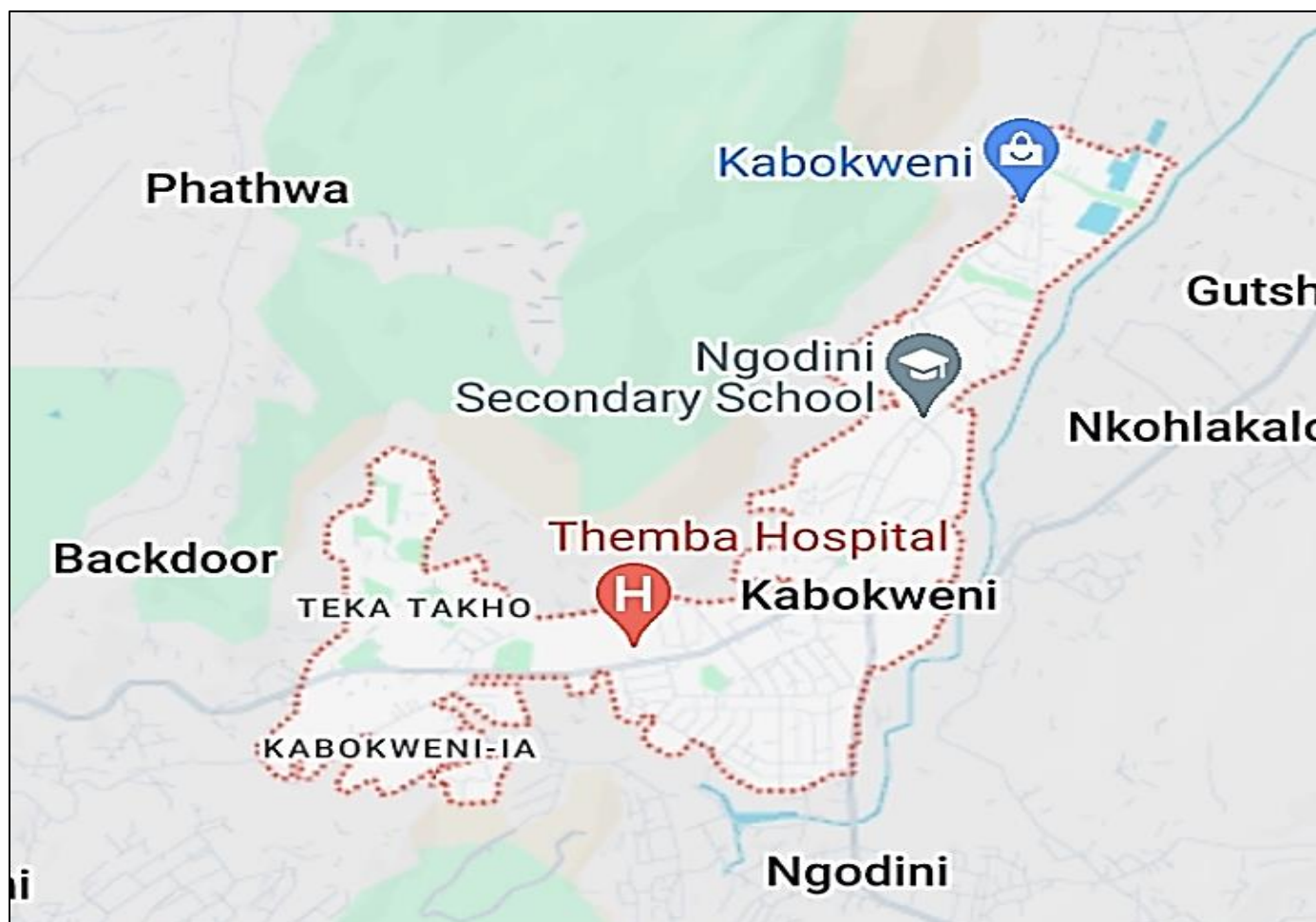


Figure 4.1: Map of the study area

Source: <https://.kabokweni.gov.za/maps.html>

4.3. Population and sampling

4.3.1. Target population & sample size

The study's target population was the small-scale farmers of Kabokweni. The finite population of 1121 was retrieved from the number of registered small-scale farmers in the Department of Agriculture; Rural Development, Land and Environmental Affairs (DARDLEA) under

Kabokweni Ehlanzeni District. The sample size of the study was a total of 294 participants which were interviewed on one-on-one interviews. The participants included both male and female small-scale farmers from the age of 18 years and above. The language of communication during the interviews was SiSwati because it is the most common and dominant language in the area. Slovin's formula was utilized to come up with the sample size, with a 5% margin of error and a 95% confidence interval calculated as follows:

$$n = \frac{N}{1 + Ne^2}$$

$$n = \frac{1121}{1 + 1121(0.05)^2}$$

n=294 participants

The formula is $n = \frac{N}{1 + Ne^2}$

Where, n = the sample size

N= the finite population

e = the margin of error (0.05)

1 = unit or a constant

4.3.2. Sampling method

One of the probability sampling approaches that were used in the investigation was the simple random method. Each unit in the population has a specific chance of being chosen using this sampling procedure. Even though random sampling does not ensure that every sample accurately represents the population, it does confirm that most samples will generally be near to the population and that one may determine the likelihood that a given sample will be accurate. The benefit of adopting random sampling is that it will allow the lead researcher to extrapolate reliable generalizations or conclusions about the population under study from the sample of 294 participants.

4.4. Method of data collection

The study employed a quantitative research method, which uses collecting and analysing numerical data as a procedure. Making forecasts, testing casual relationships, finding patterns and averages, and generalizing findings to larger populations are all possible using it. Both correlational and experimental research was conducted to formally evaluate the hypothesis, and depending on the approach, the findings were generalized to larger populations. This approach is preferred because it is quick, concentrated, scientific, easy to understand, and relatable. Even with huge sample sizes, the computing equipment used in the quantitative research method allows for speedy data processing and analysis.

The process of data collection commenced after permission was granted by the DARDLEA and ethical clearance was received. Since SiSwati is the dominant language in the Kabokweni area, it was used during the engagement with the participants, and the questions were conducted in one-on-one interview. One on one interview is basically where individuals are questioned solely to get their individual opinions on the topic under investigation. The questionnaire was aligned to several options of answering, which included Yes, No, Not certain, agree, disagree etc. The questions were short and straight forward to avoid exploiting participants' time.

4.5. Method of data analysis

Throughout the research study, cross tabulation was performed to show interferences between data sets. The software: SPSS version 28.0 was used to analyse and show the study's findings in the form of tables, statistics, percentages, charts, and graphs. The collected data was manually entered and analysed using frequency distributions and descriptive statistics. With the use of the software application SPSS, researchers may carry out activities more quickly and simply (Drimmie &

McLachlan, 2021). The reason for choosing this approach of data analysis is that it is simple and reliable.

4.5.1 Descriptive statistics

Descriptive statistics including frequency, percentage, mean, standard deviation, tables and charts were used for analysis in the study. Descriptive statistics were used for the first, second, and third objectives. These objectives are to; to contextualise the approach of government projects on food security in the study area, to analyse the effectiveness of government projects for food security in the study area; and to determine the challenges of government projects for food security in the study area.

4.5.2 Inferential statistics

Inferential statistics were used for analysing the fourth objective, which is the determinant of participation level of small-scale farmers in government projects for food security in the study area. The type of inferential statistics used is linear regression model. This model is used to predict the relationship between a set of independent variables and one linear dependent variable. It was adopted in a study titled: 'Regression Model for Prediction of System Parameters' by McKenzie, 2021, and yielded some positive results. The main purpose of linear model is to predict future outcomes or testing of hypothesis, based on other related variables. It provides a measure of how well experimental outcomes are reproduced by the model, based on the percentage of total variation of outcomes explained by the model (Bruce & Bruce, 2018). Additionally, the model assists to predict a quantitative outcome variable (y) based on predictor variables (x). The R-square between 0.50 to 0.99 is acceptable in agriculture and social science research particularly when some explanatory variables are statistically significant (Karch & Julian, 2020). The R-square is a

goodness-of-fit measure for linear models. In this study, the R-square was obtained to test the model. Therefore, the obtained R-square value of 0.896 and 0.904 in the first and second step from the analysis for this study indicates that the model fit the observations or data at an appropriate level in the study.

4.6. Determinants of farmers' participation: The model

The determinant of the level of participation in government projects, analysis was performed through the linear logistic model as indicated below. The linear model was used because it allowed for the estimation of the probability of events in relation to a set of independent variables which are hypothesised to affect an outcome. Linear regression is applied to classify participants into either one or two groups in cases where only one set of independent variables is known. Linear regression model was employed in this study. The main purpose of linear model is to predict future outcomes or testing of hypothesis, based on other related variables. It provides a measure of how well experimental outcomes are reproduced by the model, based on the percentage of total variation of outcomes explained by the model (Bruce & Bruce, 2018). Nonetheless, no assumptions are made regarding the dispersal of the independent variables represented by X, which have been hypothesised. This means that the X variable can take a discrete or continuous form. Therefore, R_i represents the dichotomous variable which will be equal to 1 if smallholder farmers have chosen to participate in government projects and 0 if they do not.

To ascertain if there is a significant relationship between the independent variables (Farmer's demographics) and the participation in government projects for food security, the model was used as indicated:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_{11} X_{11} + \mu \dots$$

Where:

Y = participation in government projects (small-scale farmers participate in government projects = 1, O = Do not participate) X1-X10 = independent variables as illustrated below:

Gender (Male = 1, Female = 2) = X1

Age (years) = X2

Marital status (Single =1, Married= 2, Divorced=3, Separated= 4, Widow=5, Widower=6) = X3

Level of education (No school =1, ABET=2, Primary school = 3, Secondary = 4, Tertiary = 5) = X4

Household size (numeric) = X5

Employment status (Unemployed=1, Employed=2, Self-employed=3) = X6

Farming experience (in years) = X7

Farm size (numeric) = X8

Farm income (numeric) = X9

Type of farm enterprise (Livestock=1, Crops=2, Livestock and crops=3) = X10

Visit from agricultural practitioner (Weekly=1, Fortnight=2, Monthly=3, Yearly=4, Never=5) = X11

Type of crops (Cereal/grain=1, Vegetables=2, Fruits=3, Leguminous=4, other=5) = X12

Type of livestock (Poultry=1, Cattle=2, Piggery=3, Sheep=4, other=5) = X13

Level of awareness about government projects aimed at enhancing food security (Aware=1, Very aware=2, Unaware=3, Very unaware=4, Not aware at all=5) = X14

Level of assistance received from extension practitioner (Very dissatisfied=1, Dissatisfied=2, Satisfied=3, Very satisfied=4, Undecided=5) = X15

Constant = β_0

Standardized partial regression coeffs = B1- β_{10}

Error term = μ

4.7. Explanation of independent variables

In this study, 15 independent (predictor) variables that could have an impact on smallholder farmers' participation in government projects for food security were found. The selection of

predictor factors was influenced by earlier research that also examined the use of government projects by small-scale farmers. Additionally, the conceptual framework of the study, which also addressed socio-economic traits and difficulties as participation determinants, informed these predictor variables. In order to better understand the independent variables, they were divided into four categories: household characteristics (Gender, age, marital status, level of education, household size, employment status), farm characteristics (Farming experience, farm size, farm income, type of farming), challenges (insufficient funding, monitoring of government projects for food security, insufficient distribution and supply chain management, political instability), and potential benefits of participating in government projects.

4.7.1. Gender

Gender is the biological construct of either male or female. Studies show that males are more likely to participate in government projects than females (Jankielson & Duvenage, 2018, Jayne et al., 2020, Keegan, 2019). This is happening because most women in rural areas tend to have less education than men since they typically handle more domestic responsibilities, such as childcare, leaving them with less time to devote to other pursuits (McKenzie, 2018). Most cultures view men as leaders and consider women as lacking the mental capacity to lead or use modern technologies. Cultural prejudice may also be a factor in why women are less likely to adopt government projects than their male counterparts (Jayne et al., 2018). In addition, due to cultural belief, males attend more village meetings and gatherings. Therefore, males unconsciously gather more exposure to the government projects for food security. Therefore, in this study, gender is expected to influence participation in these government projects.

4.7.2. Age

In this study, age is defined as the total number of years a person has lived. It was evaluated as a numerical variable using intervals of age. Age of farmers and their participation in government projects are strongly correlated (Louw et al. 2018, Manenzheet al. 2016, Naidoo et al. 2021). Compared to older farmers, younger farmers are typically more familiar with these projects and related services. Older farmers may be reluctant to change their long-standing practices since they have been using them for a long time and are hesitant to participate in new projects (Bhandari, 2022). This indicates that a reduction in the projects' usage is anticipated as farmer ages rise. Age is therefore anticipated to negatively impact participation in the government projects.

4.7.3. Marital status

According to marriage laws, a relationship status is referred to as a marital status. According to Mfaise (2018), married persons are more likely to have a larger family, which means there is a chance they will be exposed to various government projects within that household. Married people with large families also frequently need a higher wage to support their family. This indicates that they are more open to implementing innovations that will raise their agricultural productivity and income (Senyolo et al., 2019). Marriage also serves as a means of bringing families together to foster ties, which enables information sharing and exposes them to projects that were not accessible in their homes (Vermeulen et al., 2018). Consequently, marital status is expected to influence participation in government projects for food security.

4.7.4. Level of education

A farmer's level of training or education is referred to as their level of educational attainment. According to other studies, farmers with more formal education are better able to make well-

informed decisions that are motivated by the potential advantages of employing projects to modernize agriculture and diversify household income to increase food security (Thamaga-chitja & Morojele, 2018; Onumah & Meijerink 2021). Through appropriate record keeping and financial management, educated farmers can improve farm management (Zwane et al., 2018). They can then decide on projects that might be advantageous for their farms with knowledge. Furthermore, compared to farmers with low levels of literacy, those who have acquired formal education or training are better able to employ these projects (Naidoo et al. 2021). Accordingly, the educational level is expected to positively influence participation in these government projects for food security.

4.7.5. Household size

In this study, the term "household size" refers to the total population of a household. This includes household residents who may have been briefly away but were otherwise present. The number of households does not include transient guests. According to earlier research (Reardon & Gulati, 2014; Jayne et al. 2020), a bigger household size indicates that there are more people accessible to help out on the farm and provide labour. The ability and interest of the household members to work on the family farm will, however, rely on their maturity level (Lahiff, 2018). Because more people use diverse types of projects, a larger household size also indicates that there is more exposure to those different types of government projects. The exposure to different government projects exposes household members to the benefits of these projects, thus encouraging adoption. Therefore, household size is expected to positively influence participation in government projects for food security.

4.7.6. Employment status

The status of the farmers' formal employment is referred to in this study as their employment status. According to Liu et al., 2018, farmers with farming as their primary source of income are more committed to it than those with other kinds of income. Therefore, farmers who do not have additional sources of income are more motivated to engage in learning new government projects that would improve their output and boost their farm income. (Aliber et al., 2020) hypothesized, however, that farmers with additional non-farm occupations, particularly those in cities, are more likely to be exposed to latest government projects that are unavailable in their areas. As a result, farmers who work outside the farm are able to acquire additional skills and apply them in their farm activities. Therefore, employment status is expected to influence participation in government projects for food security.

4.7.7. Farming experience

In this study, "farming experience" refers to the duration of the farmers' farming careers. Long-term farmers have greater experience and knowledge, which allows them to gather more relevant data and make wise decisions regarding the opportunities they come across (Azna & Besley, 2021). This indicates that more seasoned farmers are better equipped to assess the state of their operations and use their knowledge to find projects that will increase farm productivity (Gall & Borg, 2017). More seasoned farmers have more exposure to agricultural projects since they are accustomed to speaking with and engaging with other stakeholders (Lefort, 2019). Therefore, it is anticipated that agricultural expertise will have a favourable impact on participation in the government projects for food security.

4.7.8. Farm size

In this study, "farm size" refers to the overall size of the farm. A greater farm size is thought to increase agricultural output, according to earlier research (Rerdon & Berrett 2020, Kristen & Sartorius 2022). The quantity and variety of crops and livestock that can be raised on a farm depend on the area of the farmland. The implication is that larger farms produce more than smaller farms. In addition, compared to smaller farms, larger farms are typically more concerned with generating profits (Aliber & Hall 2022). To boost productivity and profits, households with big farms are more inclined to implement agricultural projects in their farms. Farmers on smaller farms, though, might not see the necessity to use projects in their farms because most of the farm work can be managed through manual farm labour and ordinary knowledge. Therefore, farm size is expected to positively influence participation in government projects for food security.

4.7.9. Farm revenue

The amount of money made after selling the crops or livestock at the conclusion of each production season is referred to in this study as farm income. Due to the numerous difficulties faced by smallholder farmers, previous research has indicated that the majority of them have a meagre farm income (Onumah & Meijerink 2021; Cousins, 2018). Additionally, the harvest season often sees a significant supply of agricultural products, which means that market prices are likely to decline and lower farm revenue (Bienable et al., 2020). Smallholder farmers have a difficult time obtaining financing because of their low farm revenue, which makes it difficult for them to finance new projects and farming innovations. Farm income is therefore anticipated to increase participation in government projects for food security.

4.7.10. Type of farming

The study's definition of farming includes both crop and livestock production as well as combinations of the two (Tshuma, 2022) claims that smallholder farming is characterized by the combination of crop and livestock production to support rural households' livelihoods. To minimize risks and improve sustainability, rural households, according to Thamaga-Chitja & Morojele (2018), should diversify their agricultural pursuits. Klopeers & Pienaar (2018) noted that households that produce both crops and cattle are more likely to be knowledgeable and experienced farmers. Additionally, farmers can engage in both livestock and crop-related activities thanks to the diversification of farm enterprises, which increases their exposure to and familiarity with various projects (Jankielson & Duvenage 2018). This gives farmers a chance to network with other farmers and stakeholders, exposes them to various opportunities in the agricultural industry, and exposes them to various government projects that can be of value to them. Therefore, it is anticipated that the type of farming will affect participation in the government projects for food security.

4.7.11. Visits from agricultural practitioner

The frequency of the farmer's meetings with an agricultural practitioner is referred to as contact with the practitioner. Extension services are crucial in introducing farmers to projects, technologies, and techniques that are relevant to their fields (Caffaro et al. 2020). Additionally, extension services give farmers a way to connect socially so they may share ideas, exchange information, and get more understanding of the many projects being implemented (Huffman, 2021). Extension services are essential for knowledge transfer because they give farmers the information and skills; they need to participate in projects successfully on their farms. Therefore,

it is anticipated that interaction with extension advisors will have a favourable impact on participating in government initiatives for food security.

4.7.12. Type of crops

Plants grown in large quantities, especially as food are referred to as crops. Majority of the participants/farmers were growing fruits and vegetables. The fruits were ranging between, oranges, sugarcane, mangoes, papaya and avocados. The vegetables were ranging between, spinach, lettuce, cabbage, onions, peppers and tomatoes. According to earlier research, one of the factors contributing to non-adoption among smallholder farmers was the type of crops they were growing (Bienable et al. 2018; Breton et al. 2021). Farmers who receive sufficient government support based on the type of crops they had in their fields can recognize the advantages of incorporating government projects into their farming operations (Pramanik et al. 2018). Additionally, farmers who do not have sufficient access to the initiatives can deter other farmers from implementing them if they do not see any advantages. However, farmers with sufficient access can instruct one another on the many government initiatives they employ, raising awareness and promoting participation (Jere et al. 2018). Therefore, it is anticipated that type of crops will have a detrimental impact on the acceptance of government projects for food security.

4.7.13. Type of livestock

Animals kept on the farm such as cattle and sheep are referred to as livestock. The participants had livestock ranging between, cattle, sheep, poultry and piggery. One of the difficulties farmers have while applying these projects in the study is the type of livestock since each project is very selective on the type of enterprise you must have before participating in the projects. (Gall & Borg, 2018) claim that due to inadequate and unequal distributions of the projects, the majority of rural

communities still do not have adequate access to them. Farmers who lack access to necessary infrastructure for their livestock are demotivated to learn about them because they have trouble gaining access to them and consequently perceive no reason to do so (Kumar et al., 2020). As a result, farmers are hesitant to participate in projects that are very selective on the type of livestock (Saidu et al., 2018). Therefore, it is anticipated that type of livestock will have a detrimental impact on participation in government projects for food security.

4.7.14. Level of awareness about government projects aimed at enhancing food security

In this study, the level of awareness about government projects for food security is determined by how relevant the projects are to the farmers' everyday tasks on the farm and whether they will assist them increase farm output. To stimulate participation on the projects in their agricultural activities, farmers need proper support (Elo, 2018). In order to improve their farming output, farmers are given the skills necessary to apply assistance projects to gain access to additional and better information sources (Earles & Bachmann, 2020). The purpose of support projects is to connect farmers with other organizations so they may access more resources, government projects, and markets (Jayne et al. 2020). Therefore, the projects are more capable and likely to be embraced the more closely it relates to the farmer's daily operations. The acceptance of government projects for food security is thus anticipated to be positively influenced by their relevance to participants.

4.7.15. Level of assistance received from extension practitioner

The farmer's perception on how the extension practitioner assists is referred to as the potential advantages of assistance. Therefore, farmers who receive sufficient assistance from the extension practitioner can adopt these projects and use them as valuable in their operations in order to profit

(Healy & Devane, 2021). However, farmers that do not find projects helpful in their operations may not reap any benefits from implementing such initiatives. Accordingly, farmers who believe the projects would benefit them are more likely to accept them than farmers who do not (Baiyegunhi et al. 2019). Therefore, it is anticipated that a possible advantage of extension practitioners elaborating more about the government projects for food security may affect participation in the projects.

Table 4.1: Predictor variables hypothesised with their operational description, measurement and expected sign.

Variable and code	Operational description	Measurement unit	Expected sign
Gender (GENDER)	Gender of participants Male or female	1= male 2= female	-/+
Age (AGE)	The number of years a person has lived	(18-28years) = 1, (29 – 39years) = 2, (40 – 50years) = 3, (51 – 61years)=4, (>62years) = 5	-
Marital status	A person's love life status	Single=1, Married=2, Divorced=3, Separated=4, Widow=5, Widower=6	+/-
Education(EDUC)	Level of education achieved	No school = 1, ABET = 2, Primary school = 3, secondary school = 4, Tertiary = 5	+
Household size(HHSIZE)	Number of family members in the household	(1-4)= 1, (5-8) =2, (9-12) =3, (>13) =5.	+
Employment status (EMPLOYSTAT)	Status of the person with respect to their employment	Unemployed=1, Employed=2, self-employed=3	+/-
Farming experience (FARMEXP)	Number of years in farming	(< 5years) = 1, (6 – 11years) = 2, (12-17years) = 3, (18 – 23years) = 4 (> 24years) = 5	+

Size of farm land (LANSIZE)	Estimates of size of farming area (in acres)	(< 1acres) = 1, (2 - 5acres) = 2, (6-9 acres) = 3, (10–13acres) = 4, (> 14acres) = 5	+
Farm income (FARMINCO)	Amount realised from farming over a period	(<R4000)=1, (R5000-10000)=2, (R11000-16000)=3, (R17000-22000)=4, (>23000)=5	-/+
Type of farming(TOF)	Type of farm enterprise	Livestock=1, Crops=2, Livestock and crops=3, other=4	+/-
Visits from agricultural practitioners(EXTACES)	Farmer's access and perception of extension	Weekly=1, Fortnight=2, Monthly=3, Yearly=4, Never=5)	+
Type of crops	Crops grown by farmer	Cereal/grain=1, Vegetables=2, Fruits=3, Leguminous=4, other=5	+/-
Type of livestock	Animals kept in a farm	Poultry=1, Cattle=2, Piggery=3, Sheep=4, Other=5	+/-
Level of awareness about government projects for food security aimed at enhancing food security	Farmer's access to the government projects for food security	Aware=1, Very aware=2, Unaware=3, Very unaware=4, Not aware at all=5)	-
Level of assistance received from extension practitioner	Farmer's perception on how satisfied they are with assistance received from extension practitioner	Very dissatisfied=1, Dissatisfied=2, Satisfied=3, Very satisfied=4, Undecided=5	+

Source: Own survey data, 2023

4.8. Ethical considerations

The research ethic's principle for autonomy and respect for the dignity of others insists that researchers should allow participants in a study to be free and make their own decisions.

Basically, this principle requires that participants should be treated with honour and confidentiality. Therefore, in this study the autonomy and respect for the dignity of persons was adequately considered. The non-maleficence research ethics forbids one from harming others. What this principle does; is to prevent pain from being inflicted to participants. In this study non-maleficence was maintained through an appropriate and well-structured questionnaire. No violence, vulgar language or expression was used during the interviews and the tone of communication remained calm and polite at all times. The beneficence principle was ensured by making it a point that participants are acknowledged by the government for their tremendous contribution to the data of the research study. The justice principle is too demanding, and researchers find it hard to comply with the given criteria, however, the study ensured that the participants are acknowledged gratefully.

4.9. Conclusion

This chapter covered the demographic and sampling techniques, data gathering and analysis techniques, research design and methodology, and ethical issues. Data was gathered using the quantitative research approach and a well-structured questionnaire. The first three objectives were examined using descriptive statistics, while the fourth aim was examined using inferential statistics, namely linear regression analysis.

CHAPTER FIVE

5. RESULTS AND DISCUSSIONS

5.1. Introduction

The study's results are included in this chapter. The results are given in accordance with the study's objectives, which cover the socioeconomic makeup of the participants, the accessibility of government projects, and the main obstacles to participating in government projects for food security. The results were presented and discussed using descriptive statistics.

5.2. Socio economic characteristics of the participants

5.2.1. Gender of the participants in the study area

The study's finding showed that 64.29% of the 294 participants were females while the remaining 35.71% were males as indicated in figure 5.1. The pie chart below in figure 5.1 illustrates the high population of females which dominates the population of males. It is clear now that females are definitely more than males in Kabokweni and they are actually easier to confront and access since most are unemployed and spend their days undertaking the house chores and field work. According to Bhandari (2022), most of the households in the Kabokweni area are headed by males, which is why the males are usually not around during the day. The males are working during the day in order to generate income and food for their families (Besley & Busetto, 2020). However, (Zizzima et al., 2019) found in a study on poverty dynamics in South Africa, that the issue of women being at home during the day is not by choice but by the aspect of males having more control to access

of land and resources than females. Therefore, the decision of participating in government projects for food security stands with the males.

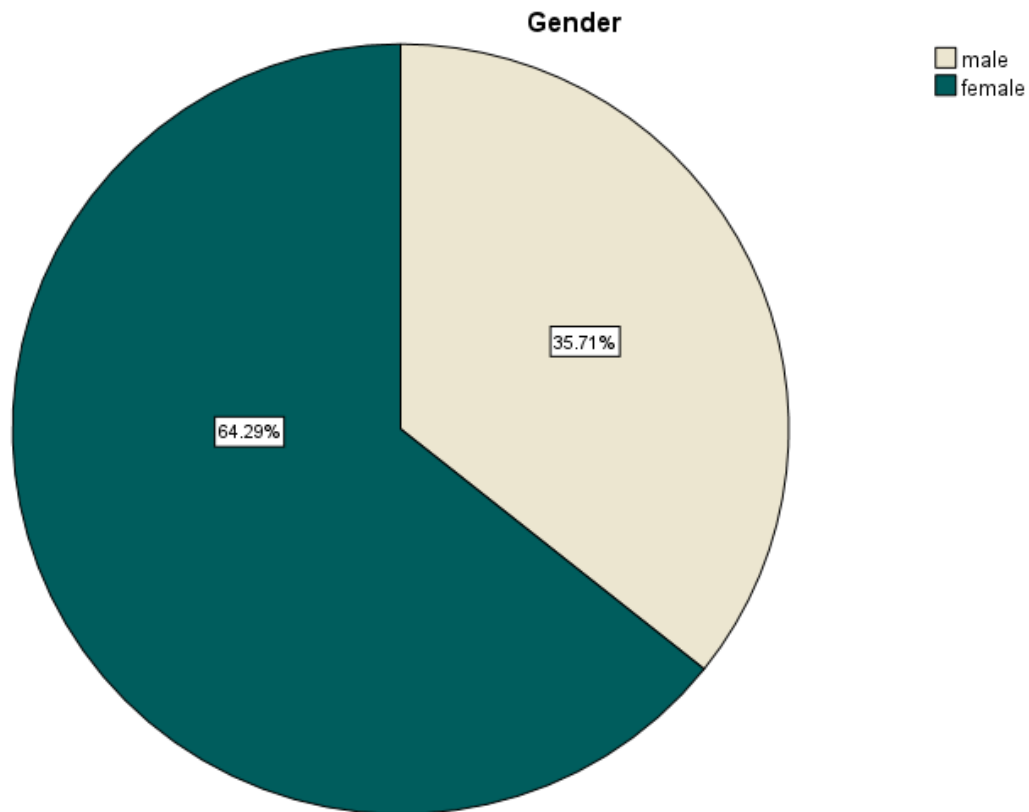


Figure 5.1: Gender of the participants in the study area

Source: Own survey data, 2023

5.2.2. Age of the participants in the study area

The participants' age distribution is shown in Table 5.1. Most of the participants (25.2%) were between the ages of 29 and 39, while 23.5% were between the ages of 40 and 50. Only 22.4% of participants were between the ages of 51 and 61, while 15.0% said they were between the ages of 18 and 28. This left 13.9% of the other individuals who were older than 62. This finding is

supported by a McKenzie (2018) in her study on farmer's perceptions and integrity which suggested that youth nowadays are more interested in farming than they were in the past when it was thought that farming was only for elderly people. This is further demonstrated by the sheer number of young people pursuing professions in farming by studying agriculture at the university level. According to Naidoo et al. (2021), age significantly influences participation in government projects for food security.

Table 5.1: Age of the participants in the study area

Variables	Percent (%)
18-28	15.0
28-39	25.2
40-50	23.5
51-61	22.4
>62	13.9
Total	100%

Source: Own survey data, 2023

5.2.3. Marital status of the participants in the study area

About 55.4% of the 294 participants were single. Only four individuals with a percentage of 1.4% came out as divorcees out of 109 participants who were all married. The value percentage for that number was equal to 37.1%. Only 2 participants with a percentage of just 0.7% had experienced a breakup with their partners. With a proportion of 4.8%, 14 of the participants in the death case were widows, leaving the other 2 participants as widowers with a rate of 0.6%. Drimie et al. (2018) in their study on creating transformative spaces for dialogue and action which claimed that considering the small-scale farmers' marital status can help determine whether or not farming is

necessary for the family. Given how difficult it is to get job these days, it is obvious that a farmer who is male and married must work hard in order to support his family. This finding were also corroborated by (Halls & Cousins, 2018), in their study on Exporting food contradictions, which suggested that married farmers might benefit from increased agricultural productivity and sustainability since family members including women and kids can work the land. However, Abbadia et al. (2019) in their study on research paradigm stated that participation in agriculture was adversely affected by marital status. Hence, a research by Jayne et al. (2020) on principal challenges confronting small-scale agriculture in South Africa found that participating in government projects for food security was not significantly influenced by marital status.

Table 5.2: Marital status of the participants in the study area

Marital status	Percent%
Single	55.4
Married	37.1
Divorced	1.4
Separated	0.7
Widow	4.8
Widower	0.6
Total	100%

Source: Own survey data, 2023

5.2.4. Level of education of the participants

In terms of education, most participants (55.44%) had a secondary education, while only 15.99% had primary education. The percentage of people with university education was 14.97%, the percentage of people with no formal education was 12.24%, and the percentage of people with an ABET background was 1.36%. Battersby (2019) asserts in a study on Food system transformation

that smallholder farmers with significant formal education were better able to embrace and apply innovations to their farming practices. According to a study by Claasen and Lemke, (2019) on social networks and food security among farmers in South Africa, most of smallholder farmers, had little to no formal education, which makes it challenging for them to enrol in formal schools where they can further their technical education. Because they lack sufficient financial and marketing skills, farmers without any formal education also frequently struggle to achieve the quality criteria required by fresh produce markets and other formal markets (Zizzima et al., 2019). About 12.24% of the participants, as revealed in the finding (Figure 5.2), lacked a formal education. Therefore, provided they are better informed about the goals and efficacy of these projects, smallholder farmers in the study region can adapt to participating in government projects for food security.

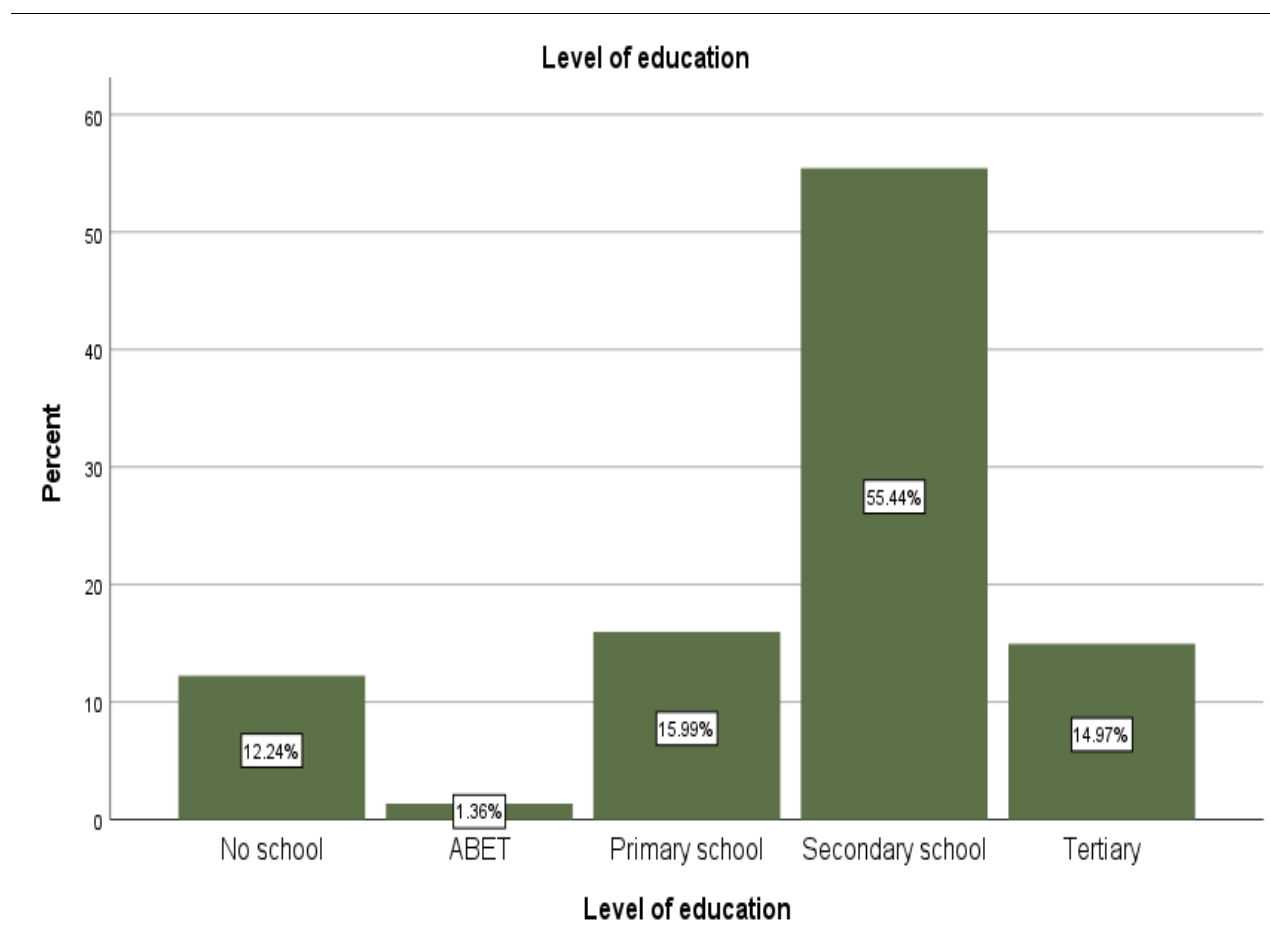


Figure 5.2: Level of education of participants in the study area

Source: Own survey data, 2023

5.2.5. Household size of the participants in the study area

Table 5.3, presents the result of participants in the households. According to the results, 38.4% of participants lived in households with 5-8 family members, compared to 51.7% of participants who lived in households with 1-4 family members. The remaining 1.1% had a household size of more than 13 family members, while the other 8.8% had a household size of 9 to 12 individuals. In smallholder farming, household size can be an effective element since it can affect farm output by supplying labour (Zizzima et al., 2019). Additionally, according to Drimie et al. (2020), on their study in creating transformative spaces for dialogue and action stated that a household with a large

number of family members may profit from various government initiatives for food security, such as the social grant and unemployment benefits, which will encourage them to increase their farming investment. However, Greenberg (2019) noted in a study on agrarian reform and South Africa's agro-food system that individual preferences and viewpoints have an impact in the way the household contributes towards farm productivity. This is because a larger household size means that there are more household expenses, thus affecting the household annual income.

Table 5.3: Household size of participants in the study area

Household size of participants	Percent%
1-4	51.7
5-8	38.4
9-12	8.8
>13	1.1
Total	100%

Source: Own survey data, 2023

5.2.6. Employment status of the participants in the study area

Figure 5.3 below displays the participants' employment status. The findings reveal that of the participants, 73.81% were unemployed, 21.77% were in the workforce, and only 4.42% were self-employed. The employment situation of farmers is significant because it influences how committed farming households are to agriculture. Compared to households with other off-farm income sources, those whose only source of income is from farming tend to be more committed to farming Grana & Artetxe (2018). Gildenhuys (2019) asserts in study on food law in South Africa, that ownership and distribution of land have an impact on rural residents' employment. Compared to individuals who do not own land, those who do so are more likely to use agriculture as a type

of self-employment. Additionally, Keegan et al. (2019) hypothesized in a study on land redistribution in South Africa, that as many smallholder farmers still earn little from their farms, they might need to explore for other off-farm employment possibilities to increase their household income. Even while some farmers in rural areas are willing to work in non-agricultural jobs in cities, most still view farming as an integral part of their lives and are hesitant to work in fields that are distant from their farms (Zizzima et al. 2018).

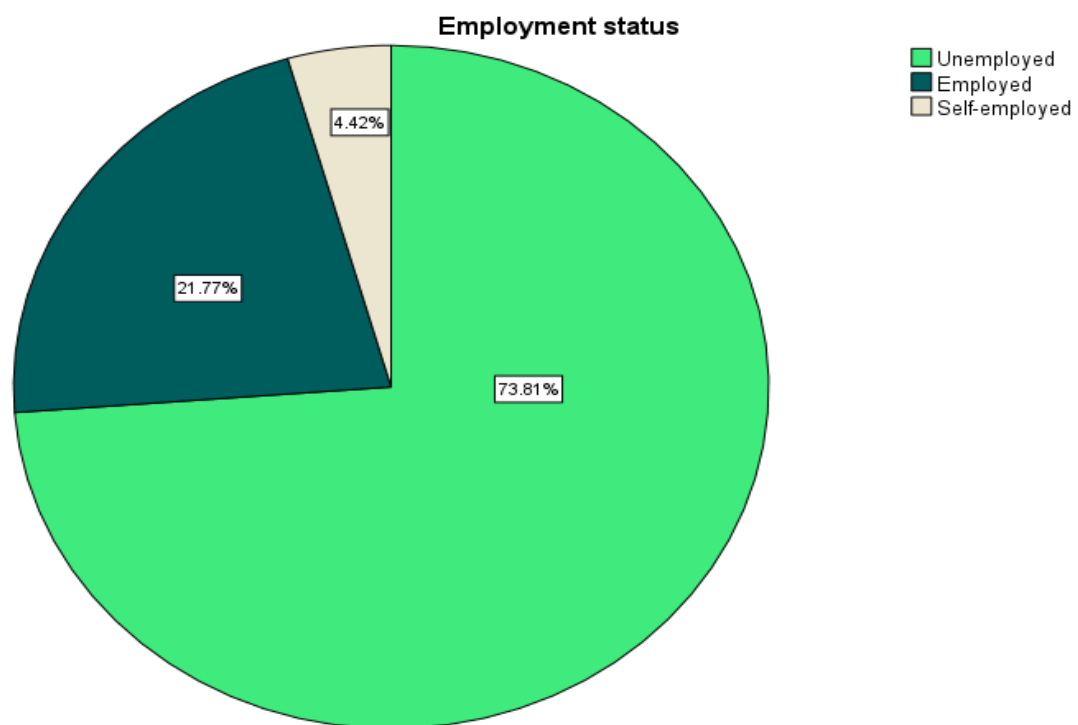


Figure 5.3: Employment status of the participants

Source: Own survey data, 2023

5.2.7. Farming experience for participants

Figure 5.4 presents the result of farm experience of participants in the study. In the variable farming experience, 33.67% of the participants had fewer than five years of experience, while 26.19% of

the participants had experience ranging from six to eleven years. Only 13.95% of the participants had experience between 18 and 23 years, leaving 8.84% of the participants with experience of more than 24 years. 17.35% of the participants had experience between 12 and 17 years. Now that the majority of the participants have not been in the farming industry for a long time, the results demonstrate that there is a lack of participation or interest in agriculture, which is alarming. Ceasar & Crush (2019) assert in their study on food access and insecurity in a supermarket city, that farming experience is a crucial consideration while doing agricultural research because it is one of the elements that influences farmers' behaviour. Farmers' decision-making is influenced by how long they have been engaged in farming. Additionally, according to Artetxe & Grana (2018), farmers with greater farming experience have better abilities and can critically analyse opportunities, making them more likely to participate in government schemes for food security.

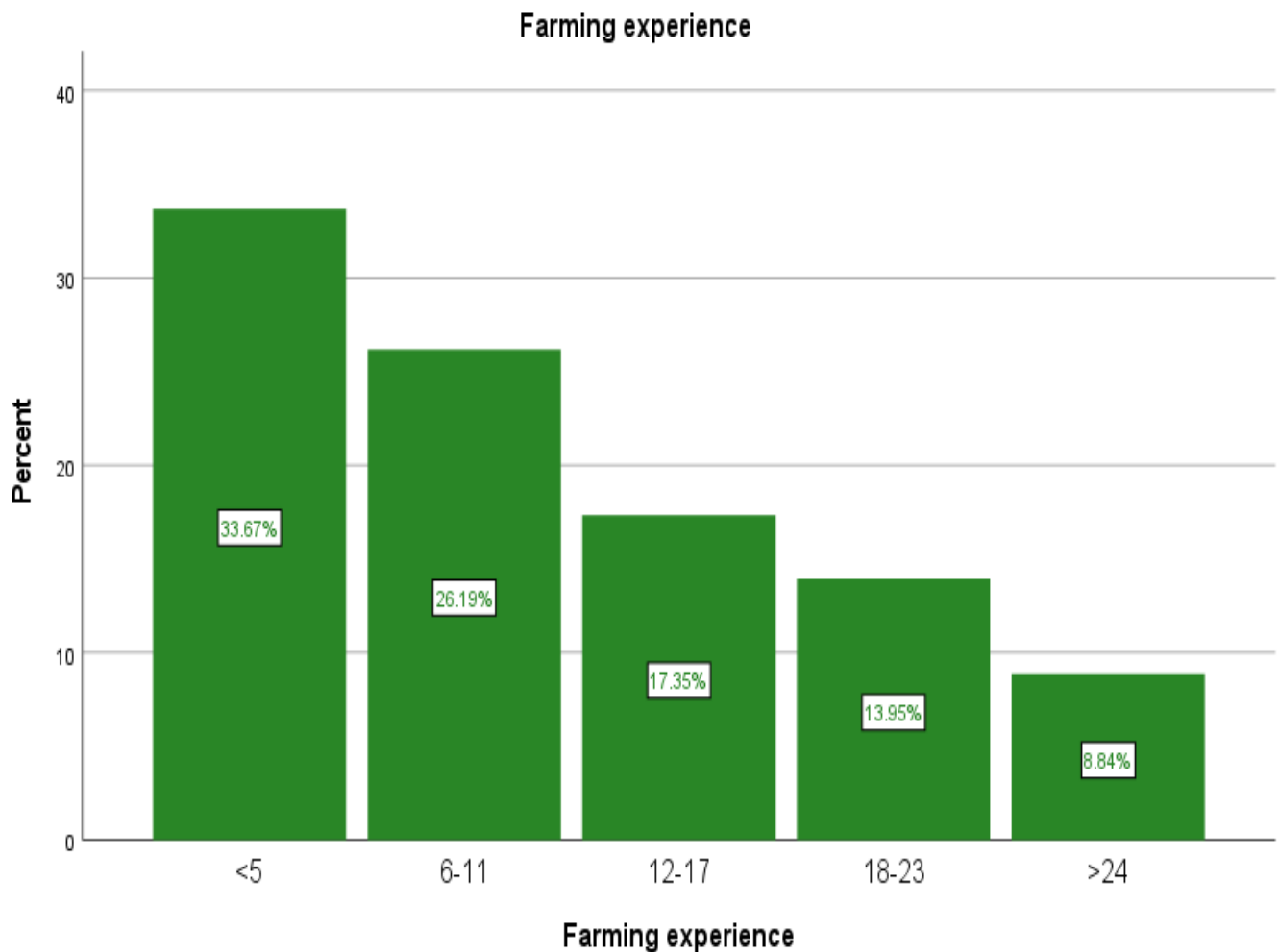


Figure 5.4: Farming experience of the participants

Source: Own survey data, 2023

5.2.8. Distribution of farm size of participants in the study area

The participants' farms' sizes are displayed in Table 5.4. According to the findings, the majority of farmers (35.7%) owned farms between 6 and 9 acres, while 34.4% had farms between 10 and 13 acres. In addition, 6.4% of participants had farms larger than 14 acres, and 22.8% of participants had farms between 2 and 5 acres. One acre or less was the size of the farm for just 0.7% of the participants. The finding indicates that the most of the participants have modest-sized farms. This

conclusion is supported by a study that Makhura (2021) conducted in the Limpopo region of South Africa on overcoming transaction costs barriers to market participation of small-scale farmers in Mbombela, which found that the many smallholder farmers had modest-sized farms. Smallholder farmers in developing nations typically have a modest farm size, according to Aliber & Hall (2022). This can further lead to a weak knowledgebase among the farmers. In addition, Zizzima *et al.* (2019) stated on their study in poverty dynamics in South Africa, that farm production and income are influenced by farm size. Moreover, large farms are usually more profit driven as compared to smaller farms. This indicates that farmers with large farms are more likely to invest in cutting-edge government programmes for food security like the Special Project for Food Security and use them to increase agricultural output (Creswell, 2019).

Table 5.4: Distribution of farm size of participants in the study area

Farm size in acres	Percent%
<1	0.7
2-5	22.8
6-9	35.7
10-13	34.4
>14	6.4
Total	100%

Source: Own survey data, 2023

5.2.9. Distribution of farm income for participants

Farm income of farmers is presented in table 5.5. Investigations into the participants' yearly agricultural revenue as depicted in table 5.5 show that 55.5% of the respondents had an annual

farm income of R23, 000, while 27.2% had an annual farm income of between R17, 001 and R22, 001. Only 6.8% had a farm income between R5000 and R11000, compared to 8.5% of those with a farm income between R11000 and R16000. Less than R4000 in farm income was earned by the remaining 2.0%. Based on the finding, it can be concluded that most of the participants made a respectable living. This finding is corroborated by Erasmus (2021) in his study on policy options for land and agrarian reform in South Africa which found that farm income and level of agricultural productivity are interrelated. If the participants participate in government projects for food security that are established to improve small-scale farmers and lessen food insecurity, they stand a strong possibility of improving their farms with these income levels.

Table 5.5: Distribution of farm income for participants

Variables	Percent%
<R4000	2.0
R5000-R10000	6.8
R11000-R16000	8.5
R17000-22000	27.2
>R23000	55.5
Total	100%

Source: Own survey data, 2023

5.2.10. Distribution for type of farm enterprise

Figure 5.5 depicts the distribution of types of farm enterprises undertaken by participants. The study's conclusion showed that the many participants had crops, with a percentage of 57.14%, while the percentage of participants who only had livestock was 19.39%, and the percentage of

participants who had both crops and livestock was 22.79, leaving 0.68% for participants in other farm enterprises. Greenberg (2018) claimed in his study on agrarian reform and South Africa's agro-food system, that smallholder agriculture is characterized by a mix of crop and livestock subsistence farming, where crop and livestock production is a major source of income for rural households. But according to the study conducted by Abbadia (2019) on research paradigm, farming activities in rural families need to be varied in order to lower risks, boost output, and encourage sustainability.

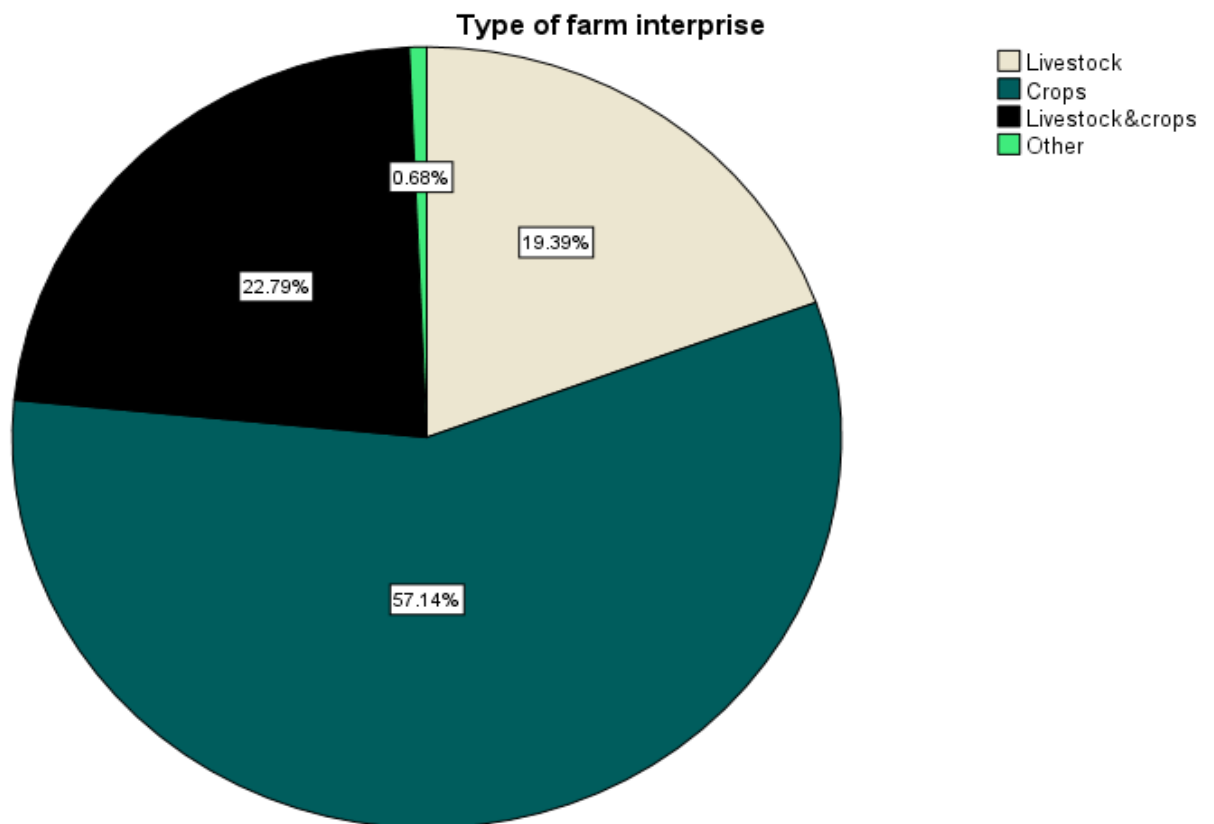


Figure 5.5: Distribution of type of farm enterprise

Source: Own survey data, 2023

5.2.11. Distribution for type of crops in the study area

The finding of the study demarcated that 64.6% of the participants were growing vegetables which ranged between cabbages, spinach, lettuce, onions, peppers and tomatoes. 15.6% of the participants were growing fruits ranging between mangoes, papaya, avocados, sugarcane and citrus. Only 0.3% of the participants were growing leguminous, leaving the remaining 19.4% with another type of enterprise. According to earlier research, one of the factors contributing to non-participation among smallholder farmers was the type of crops they were growing (Bienable et al. 2018; Breton et al. 2021). Farmers who receive sufficient government support based on the type of crops they had in their fields can recognize the advantages of incorporating government projects into their farming operations (Pramanik et al. 2018). Additionally, farmers who do not have sufficient access to the initiatives can deter other farmers from implementing them if they do not see any advantages. However, farmers with sufficient access can instruct one another on the many government initiatives they employ, raising awareness and promoting participation (Jere et al. 2023).

Table 5.6: Distribution for type of crops in the study area

Variables	Percent%
Vegetables	64.6
Fruits	15.6
Leguminous	0.3
Other	19.4
Total	100%

Source: Own survey data, 2023

5.2.12. Distribution for type of livestock in the study area

The result of the study illustrated that 23.8% of the participants had poultry as their livestock. 6.5% had cattle while 6.1% had pigs. Then only 8.5% had sheep and the remaining 54.8% had another type of livestock such as goats and rabbits. One of the difficulties farmers had while applying these projects in the study is the type of livestock since each project is very selective on the type of enterprise you must have before participating in the projects. Gall & Borg, 2018 claimed in their study on educational research, that due to inadequate and unequal distributions of the projects, the majority of rural communities still do not have adequate access to them. Farmers who lack access to necessary infrastructure for their livestock are demotivated to learn about them because they have trouble gaining access to them and consequently perceive no reason to do so (Kumar et al., 2020). Additionally, the type and quantity of livestock in rural areas contributes to their disregard. As a result, farmers are hesitant to participate in government projects that are very selective on the type of livestock (Saidu et al., 2018). Therefore, it is anticipated that the type of livestock will have an impact on participation in government projects for food security.

Table 5.7: Distribution for type of livestock in the study area

Variables	Percent%
Poultry	23.8
Cattle	6.5
Piggery	6.1
Sheep	8.5
Other	54.8
Total	100%

Source: Own survey data, 2023

5.2.13. Distribution of water source for the participants

The water supply for the participants is depicted in Figure 5.6. Most participants (45.92%) were fortunate enough to have access to tap water in the privacy of their own homes. As a result, 28.57% of farmers used borehole water to irrigate their crops, as opposed to 20.07% who used wells or valley bottoms. Only 3.06% of farmers used rainwater to irrigate their crops, leaving 2.38% to use other water sources (such dams or waterfalls). In farming, having a dependable, sustainable, and long-lasting source of water is essential since crops dry out and perish without regular irrigation, according to Chakona & Shackleton (2019). However, Claasen & Lemke (2019) provided evidence to support this claim on a study in social networks and food security among farm workers in South Africa, that a reliable supply of water is one of the crucial things that every farmer should take into account when starting a farm business.

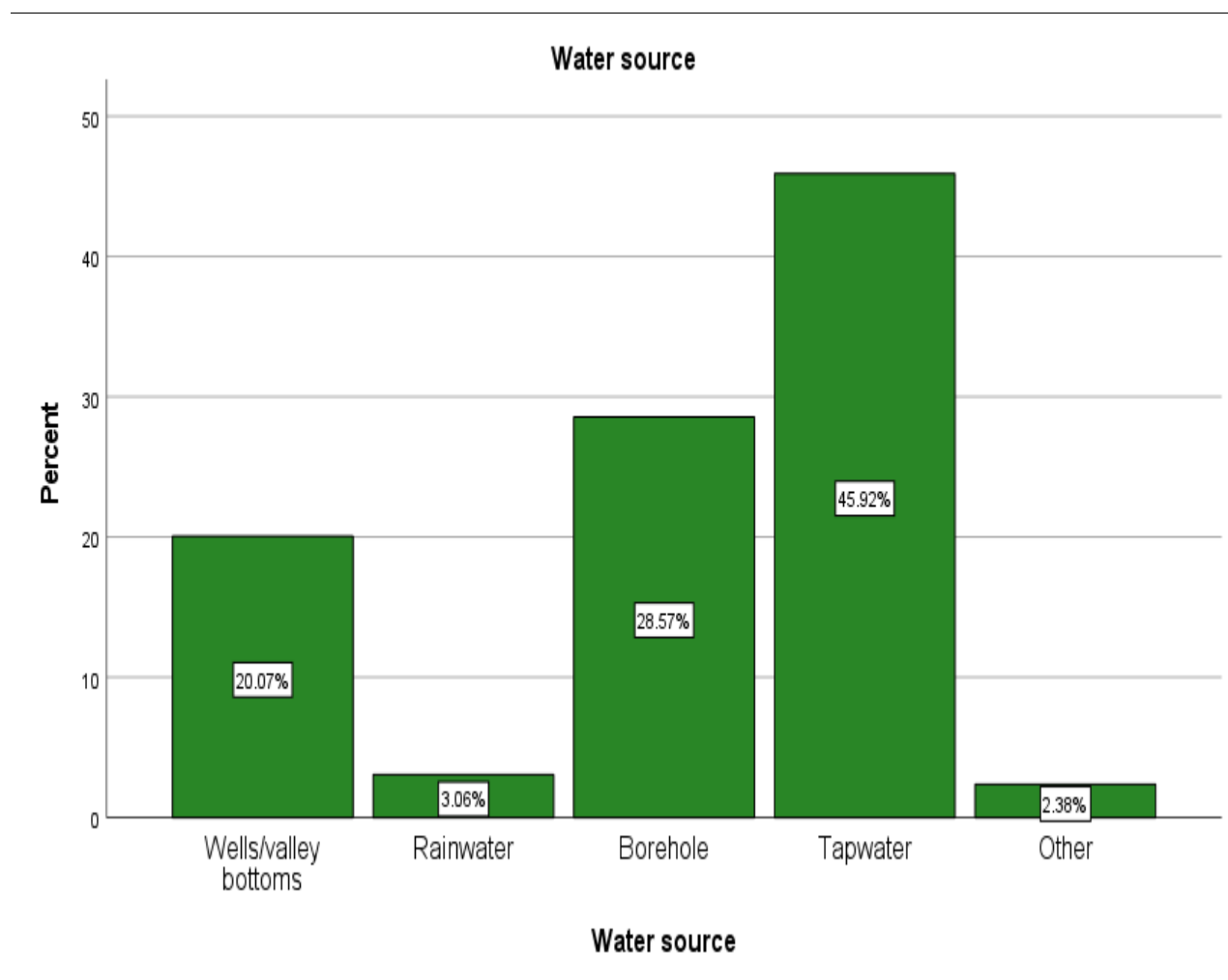


Figure 5.6: Distribution of water source for the participants

Source: Own survey data, 2023

5.2.14. Market for farm produce

The market that participants used to sell their farm products is shown in Table 5.8. About 60.8% of the participants sold their produce to other markets, such as GNP (Government Nutrition Programs), and 32.0% supplied it to the neighborhood at the farm gate while doing so in the comfort of their homes. The other 1.4% of participants had to rely on fresh produce markets because only 5.8% of them were able to supply direct sales supermarkets with their produce. This

finding is supported by Khumalo & Sibanda (2019), who noted in a study on assessment of the food security status of households that it is challenging to deliver the produce to high class fresh produce marketplaces if the quality and size of crops are not at a high grade. Due to the low grade and quality of their crops, the majority of participants in this study were only able to sell their produce at the farm gate and to the government. Furthermore, Taylor (2018) added support to this finding in a study on the 2008 food summit by pointing out that most small-scale farmers still have a long way to go before they can provide the fresh produce and direct sales markets with all of their produce.

Table 5.8: Market for farm produce

Variables	Percent%
Farm gate	32.0
Fresh produce markets	1.4
Direct sales supermarket	5.8
Other	60.8
Total	100%

Source: Own survey data, 2023

2.2.15. Distribution of farm produce sustainability in the study area

Regarding the distribution of farm produce sustainability as demarcated in figure 5.7, most participants concurred that the food produced on their farms was sufficient to support them and their families. About, 79% of the participants believed that their produce perfectly supports the size of their home, but the remaining 21% had a different opinion, claiming that their produce is insufficient for them and their families. This finding is seconded by (Sayer et al., 2022) on their

study on oil palm expansion which stated that small-scale farmers are able to produce enough for them and their families but unfortunately only a few do manage to produce abundantly for big fresh produce markets.

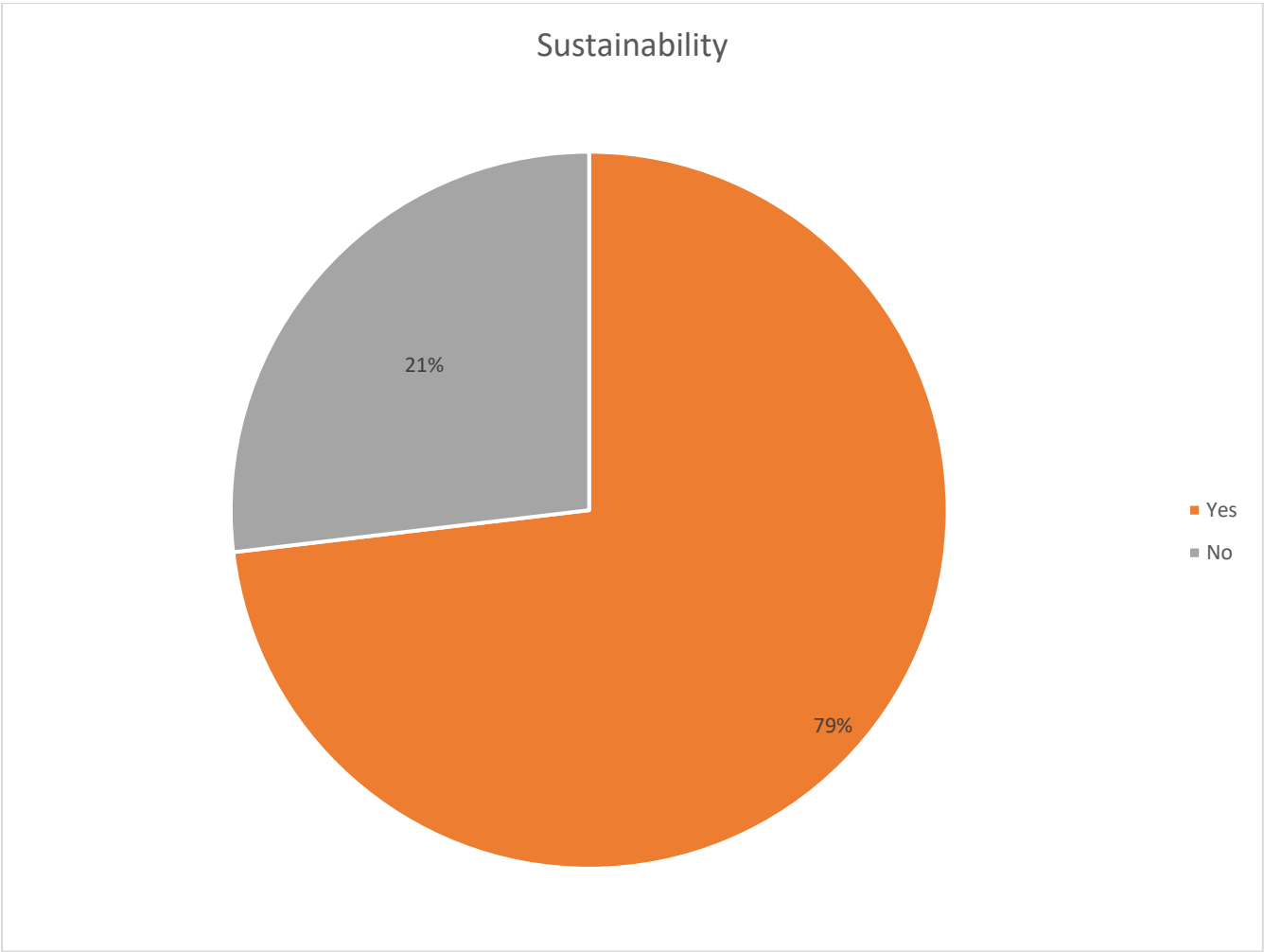


Figure 5.7: Sustainability of participants’ farm produce

Source: Own survey data, 2023

5.2.16. Distribution of access to government projects for food security

Table 5.9 illustrates the distribution of access to government projects for food security in the study area. The government initiatives to which the participants had access are shown in the table below.

A total of 83.7% of the participants had access to the unemployment and social grants project. About 6.5% of the participants had access to the Support for Emerging Farmers Project, leaving 7.5% of the participants with access to the Special Project for Food Security. Finally, 1.6% of the participants had access to other projects like the PESI voucher initiative for small-scale-farmers. About 0.7% of the participants had access to the Skills Support and Development Project.

Table 5.9: Distribution of access to government projects for food security

Distribution of access to government projects for food security		
	Access	Percentage %
Special project for food security	Yes	7.5
Skills support and development project	Yes	0.7
Support for emerging farmers	Yes	6.5
Social grant and unemployment	Yes	83.7
Other	Yes	1.6

Source: Own survey data, 2023

5.2.17. Challenges faced by participants in the use of these government projects for food security

Table 5.10 shows a summary of some of the challenges faced by smallholder farmers in participating on government projects for food security. The mean and standard deviation were used to identify challenges as indicated by the participants. As shown in the table, the most cited challenges were political instability (M=4.60; SD=0.810) and insufficient funding for the projects (M=4.26; SD=0.978). The least cited challenges were insufficient distribution and supply chain management (M=4.29), SD=0.954) and monitoring of the government projects for food security (M=4.37, SD=0.832). The results show that the major challenges in participating on government projects among smallholder farmers were lack of knowledge, poor access to the projects and lack of funds. These results corroborate those of Abdullah & Samah (2018), whose study on the

obstacles to government project acceptance in agricultural extension revealed that smallholder farmers' participation in efficient government projects for food security is hampered by limited language access and knowledge. Farmers with poor literacy skills frequently struggle to use programs or projects that are not available in their native tongues.

Similar findings were made by Cousins (2018), who found in a study on land retribution that one of the major obstacles to the acceptance of government projects in agriculture was limited access. Farmers that lack literacy are less likely to participate in the projects, according to Aliber & Hall (2022), as they may find it difficult to adapt them to their farming activities. According to Abbas et al. (2019), qualified people who can locate meaningful and trustworthy information are needed for government projects like the Support for Emerging Farmers. In addition, a study by Adler (2022) on the utilization of government projects in agriculture stated that the high cost of the projects is the main barrier for hindering farmer's participation. The study also found that 56% of farmers said they needed financial assistance from the government since they couldn't afford to implement these initiatives. Mamba & Isabirye (2019) noted on a study in Farmer's background that some novel elements in cutting-edge government projects for food security might not be necessary because they raise the overall cost of the project.

The absence of marketplaces, the Department of Agriculture, and access to extension services are among the other difficulties mentioned by the participants. According to Corrocher and Fontana (2018), the majority of farmers in South Africa's rural areas lack proper access to markets, which prevents them from participating in government projects for food security and related systems because they have little exposure to these services. More than 50% of rural farmers still have trouble getting access to electricity, which makes it difficult for them to participate in government projects, according to a 2022 research by Adegbedi, et al. According to Greenberg (2018), farmers

find it challenging to learn about all of these government schemes for food security, let alone how they can even apply to be part of the beneficiaries of the projects.

Table 5.10: Challenges faced by participants in the use of these government projects for food security

Challenges	Not a challenge %	Minor challenge%	Moderate challenge%	Serious challenge%	Very serious challenge%	Mean	Std.
Insufficient funding	0.7%	6.8%	13.6%	23.8%	55.1%	4.26	0.978
Monitoring of government projects for food security	1.4%	2.4%	7.5%	35.0%	53.7%	4.37	0.832
Insufficient distribution and supply chain management	1.7%	4.4%	11.6%	27.9%	54.4%	4.29	0.954
Political instability	1.0%	2.1%	5.4%	15.5%	76%	4.60	0.810

Source: Own survey data, 2023

CHAPTER SIX

6. EMPIRICAL RESULTS OF THE DETERMINANTS OF PARTICIPATION IN GOVERNMENT PROJECTS FOR FOOD SECURITY

6.1 Introduction

The empirical finding of the factors influencing participation in government projects for food security in the study region are presented in this chapter. To find the significant independent variables that were linked to participation in government projects, linear logistic regression analysis was utilized. The independent variables were divided into household characteristics (gender, age, marital status, level of education, household size, employment status), farm characteristics (farming experience, farm size, income, type of farming), challenges (lack of adequate funding, poor project monitoring), farmers' support (Support for emerging farmers, contact with agricultural practitioners), and potential benefits of adopting government projects.

6.2 Linear regression results

Linear regression model was employed in this study. The main purpose of linear model is to predict future outcomes or testing of hypothesis, based on other related variables. It provides a measure of how well experimental outcomes are reproduced by the model, based on the percentage of total variation of outcomes explained by the model (Bruce & Bruce, 2018). Additionally, the model assists to predict a quantitative outcome variable (y) based on predictor variables (x). The R-square between 0.50 to 0.99 is acceptable in agriculture and social science research particularly when some explanatory variables are statistically significant (Karch & Julian, 2020). The R-square is a goodness-of-fit measure for linear models. In this study, the R-square was obtained to test the

model. Therefore, the obtained R-square value of 0.896 and 0.904 in the first and second step from the analysis for this study indicates that the model fit the observations or data at an appropriate level in the study.

Table 6.1: Model summary

Model Summary ^{d, e}										
Model	R	R Square ^b	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.947 ^a	.896	.891	.690	.896	185.624	13	280	<,001	
2	.951 ^c	.904	.898	.668	.008	5.787	4	276	<,001	1.773

Source: Own survey data

6.3. Determinants of participation in government projects for food security in the study area.

Table 6.2 displays the results of the linear regression that illustrate the association between the chosen predictor variables and participation in government initiatives for food security. Only eight factors were shown to be significant in affecting project uptake. Level of education level, employment status, farm size in acres, type of farm enterprise, visits from agricultural practitioner, type of crops, type of livestock and level of awareness about government projects aimed at enhancing food security are some of these factors. The seven other factors had no bearing. Type of farm enterprise and level of awareness about government projects aimed at enhancing food security were two of the major variables that showed positive trends, suggesting that a rise in these variables may be linked to a rise in government project participation. Type of livestock and interaction with extension practitioners were the other two significant variables that had negative indications, suggesting that a rise in these variables may be linked to a decline in participating on the initiatives.

6.3.1. Distribution of level of education of participants

Table 6.2 indicate that the variable level of education with a P -value of 0.001 is significant and positively associated with the participation in government projects with $\beta = 0.125$. This finding suggests that an increase in the level of education of respondents will result in the increase in the rate of participation in government projects provided that all variables remain constant. Similar studies (Donthu et al. (2020) on customers loyalty in journals found that the level of education influence wide readership of the articles in the journal. In another study by Smith (2018) on delivering of food security without increasing pressure on land, found that people with higher education approach problems and make better decisions. In addition, Asche et.al 2018 in their study on food security and international trade found that participating in various government initiatives can be challenging for those with low literacy levels.

6.3.2. Employment status

The variable employment status was significant with a P -value of 0.181 and positively correlated with the acceptance to participate in government projects ($\beta = 0.104$), as shown in table 6.2. According to these statistics, the log probabilities of government project adoption rise by 0.104 times for every unit increase provided that all variables remain constant. This finding counter earlier research by Sayer et al. (2022) in their study on tropical landscapes and livelihoods that stated how younger individuals were more employed than older people. Similar findings were made by Naidoo et al. (2018), who found that young people are frequently at work during the day where they are exposed to a lot of government programmes. However, older farmers who stay with small children are frequently unemployed according to Chen (2019).

6.3.3. Farm size in acres

Farm size was significant with P -value of 0.003 and positively related to the choice to participate in government projects with $\beta=0.149$. This result suggests that for every unit increase in farm size, there is 0.149 increases in the log odds of participation in government projects provided that all antecedent variables remains constant. This result agrees with Cooper et.al (2020) in their study on mining food security which found that farmers who have big farm sizes, have a greater capacity to use government projects for food security.

6.3.4. Type of farm enterprise

The variable type of farm enterprise was significant with a P -value of 0.001 showed a positive correlation with participation in government projects $\beta= 0.197$. This finding demarcates that the log chances of participating in government projects increases by 0.197 times for every unit increase obtained provided that all other variables remain constant. This finding was seconded by Bouis & Saltzman (2018), in their study on improving nutrition through bio-fortification that stated how farmers with livestock and crops enterprises qualify more for the introduced government projects for food security. Additionally participating in various government projects can increase the farmer's production and access to markets (Sridhar & Charles, 2020)

6.3.5. Visit from agricultural practitioner

The variable visit from agricultural practitioner was significant with a P -value of 0.161 and negatively correlated to participating in government projects with a coefficient of $\beta= -0.106$. This finding suggests that a unit increase in the frequency of contact with extension advisors would result in a decrease of 0.106 times in the probability of participation in government projects

provided that all other variables are held constant. This result is similar to Kamdem et al. (2019) in their study on research trends in food chemistry where they found that most agricultural extension practitioners still engage with farmer's in-person and still rely on out-dated information-dissemination strategies like posters and brochures. In contrast, Agholor and Nkosi (2020) posited that extension services play a crucial role in disseminating information, introducing farmers to innovations, and creating social relationships among farmers. However, Khatam *et al.* (2018) found that most agricultural extension advisors still use traditional methods of disseminating information such as posters and pamphlets, and they mostly communicate with farmers through face-to-face meetings. Therefore, extension specialists must also establish new channels for information sharing that would entice and inspire farmers to take part in government projects for food security (Dabirian *et al.* 2019).

6.3.6. Type of crops

The variable type of crops was significant with a p-value of 0.005 and negatively correlated with the acceptance of government projects for food security ($\beta=-0.191$), as shown in table 6.2. This finding illustrates that a unit increase in the frequency of type of crops would result in a 0.191 decline in government projects participation. Zheng et al., (2020) in their study on trends of repetitive trans-cranial magnetic stimulation where they realised that most of the crops that small-scale farmers are growing have reached a decline in demand at the markets, which is why some farmers struggle to market crops that are already sufficient enough for the market or consumers. Hence, farmers need to improvise and upgrade to crops that are high in demand and with great quality (Van Eck & Waltman, 2020).

6.3.7. Type of livestock

The variable type of livestock was significant with a *P*-value of 0.001 and negatively correlated with participation in government projects for food security $\beta = -0.128$. This result shows that a unit increase in the frequency of type of livestock would outcome in a 0.128 drop in government projects participation. This finding is supported by Veldhuizen et al (2020) who stated on a study ‘connected action on agriculture ‘that small-scale farmers with livestock from rural areas struggle to access top valued fresh produce markets because they cannot afford to take their meat to the abattoir for testing before selling to the consumers.

6.3.8. Level of awareness about government projects aimed at enhancing food security

The variable level of awareness about government projects aimed at enhancing food security was significant with a *P*-value of 0.001 and positively correlated with participation in government projects for food security ($\beta = 2.844$), as shown in table 6.2. Basically this finding demarcates that the log chances of government projects participation increases by 2.844 times for every unit increase provided that all other variables are constant. Asche et al, (2018) added validation to this result in a study on food security and the international trade of seafood which stated that when farmers are aware about the positive impacts of government projects, participation becomes easy since the purpose of that particular project is of good knowledge to the targeted individuals.

Table: 6.2. Determinants of participation in government projects for food security in the study area.

	Coefficients ^a, b						
	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95,0% Confidence Interval for B	
	B	Std.Error	Beta			Lower bound	Upper bound
Gender	.057	.079	.047	.730	.466	-.097	.212

Age	.038	.044	.058	.861	.390	-.048	.124
Marital status	.041	.045	.038	.908	.365	-.048	.130
Level of education	.125	.038	.225	3.282	.001**	.050	.200
Household members	.068	.060	.056	1.132	.258	-.050	.185
Employment status	.104	.078	.071	1.340	.181*	-.049	.257
Farming experience	-.011	.039	-.014	-.286	.775	-.087	.065
Farm size in acres	.149	.049	.238	3.019	.003**	.052	.246
Farm income	.034	.043	.072	.805	.422	-.050	.119
Type of farm enterprise	.197	.057	.203	3.432	.001**	.084	.310
Visits from agricultural practitioner	-.106	.075	-.173	-1.406	.161*	-.254	.042
Type of crops	-.191	.067	-.273	-2.837	.005**	-.324	-.059
Type of livestock	-.128	.032	-.246	-3.949	.001**	-.192	-.064
Level of awareness about government projects	2.844	.708	1.359	4.018	.001**	1.451	4.238
Level of assistance from extension	-.045	.091	-.047	-.498	.619	-.225	.134

Significant level of 0.01**, 0.05* and 0.1* respectively

Source: Own survey data, 2023

6.4. Conclusion

The findings imply that model parameters have an impact on how smallholder farmers participate in government initiatives for food security. Only five predictor variables in the adopted model were significant and positively associated with participation in government projects. Level of education with a *P*-value of 0.001 was significant and positively associated with the participation in government projects with $\beta = 0.125$, the variable employment status was significant with a *P*-value of 0.181 and positively correlated with the acceptance to participate in government projects ($\beta = 0.104$), farm size was significant with *P*-value of 0.003 and positively related to the choice to participate in government projects with $\beta = 0.149$. The variable type of farm enterprise was

significant with a *P*-value of 0.001 showed a positive correlation with participation in government projects $\beta = 0.197$. Finally the variable level of awareness about government projects aimed at enhancing food security was significant with a *P*-value of 0.001 and positively correlated with participation in government projects for food security ($\beta = 2.844$). The obtained results imply that the model was appropriate for the study and that some variables were described in the model.

CHAPTER SEVEN

7. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

7.1. Introduction

The following chapter will cover the summary of the entire thesis along with the conclusion, and recommendations for the study. Overall, several aspects of the thesis will be discussed including the future research direction.

7.2. Summary of thesis

This study focused on the contextual analysis of government projects for food security in Kabokweni Ehlanzeni district, South Africa. The specific objectives of the study were: 1. to contextualise the approach of government projects on food security in the study area, to analyse the effectiveness of government projects for food security in the study area, to determine the challenges of government projects for food security in the study area, to examine the level of participation in government projects for food security in the study area. A simple random sampling process was used to choose the 294 participants. Because each respondent had an equal chance of being chosen, the simple random sample technique removed selection bias. Data were gathered using a standardized questionnaire instrument, which was physically distributed to respondents with the aid of trained enumerators. Descriptive and inferential statistics were employed to analyse the data using SPSS version 28 software.

The result of the study shows that most participants were females (64.29%). Analysis of the participants' ages revealed that 25.17% were between 29 and 39 years and a further 13.95% were older than 62. The marital status of the participants found that 55.4% were single, 37.1% were

married, 1.4% were divorced, 0.7% were separated, 4.8% were widows, and 0.6% were widowers. In terms of education level, the result show that the many farmers (55.44%) had secondary school education, whilst 12.24% had no formal education, 15.99% had primary school education, 14.27% and 1.36% had tertiary education and ABET respectively. Furthermore, most (46.7%) of the participants had a household size of 1-4 members, a large proportion (73.81%) were unemployed. Farming experience was found to be divided into 33.67% for >5 years and 26.19% for 6-11 years. Farm sizes of between 6 and 9 acres were owned by 35.7% of participants. An annual farm income of R23000 was earned by 55.44% of farmers whilst 27.21% earned between R17000-22000 per annum. In terms of farm enterprise type, 57.14% were practicing crop production only.

According to the study's finding, 83.7% of the participants had access to the Social Grant and Unemployment program, making it the most accessible government programme. About 7.5% of the respondents had access to the Special project for food security, and 6.5% had access to the Support for Emerging Farmers project. However, it was discovered that participants had limited accessibility to other government initiatives. Only 0.7% of participants said they had access to the skills and development project, and only 1.6% said they had access to other government projects for food security including the Masibuyele Emasimini initiative for small-scale farmers and the Percy voucher program.

Political instability (M=4.60) and a lack of money for the initiatives (M=4.26) were cited by participants as the two main obstacles to using these projects. Insufficient distribution and supply chain management (M=4.29) and monitoring of government efforts for food security (M=4.37) were the least mentioned challenges. Level of education level, employment status, farm size in acres, type of farm enterprise, visits from agricultural practitioner, type of crops, type of livestock and level of awareness about government projects aimed at enhancing food security were the

significant variables of the study, according to the result of the linear regression analysis. Level of education was positively connected with participation in government projects and significant with a *P-value* of 0.001. With a *P-value* of 0.181, employment status was similarly significant and positively correlated with the acceptance of government projects. Farm size in acres, type of farm enterprise and level of awareness about government projects for food security were also significant with *P-values* of 0.003, 0.001 and 0.001 respectively and positively associated with participation in government projects for food security. Additionally visits from agricultural practitioners, type of crops and type of livestock were significant with *P-values* of 0.161, 0.005 and 0.001 but negatively correlated with participation in government projects for food security.

7.3. Conclusion

Based on the finding of the study, it is safe to say that most of the participants are elderly individuals who are married. Furthermore, most of the participants have average farm sizes with a reasonable income. The result also showed that most of the participants do not have other forms of employment, and the majority (57.14%) were practicing crop production. The government projects that were most accessible to the participants were the Social grant and unemployment, Special project for food security and Support for emerging farmers. Unfortunately there are certain factors which hinder the participants from participating in these projects effectively. These include poor access, lack funding for the projects and poor monitoring of the projects. Furthermore, individual factors such as age and level of education, and social/institutional factors such as farmer support also affect the way in which the projects are used by the participants.

These factors were found to have negative and positive levels of significance in influencing participation in government projects. Therefore, in conclusion, it is safe to say that the acceptance

of participating in government projects for food security in the study area is largely influenced by level of education, employment status, farm size in acres, type of farm enterprise, visits from agricultural practitioners, type of crops, type of livestock, and level of awareness about government projects aimed at enhancing food security. The effective application of the projects provides farmers with greater access to information and markets, which helps improve their decision-making, thus improving their income and rural livelihoods. Finally, the study connects a gap between the conceptual framework and the practical implementation by looking at the complicated factors that contribute to the acceptance of participating in government projects for food security by the small-scale farmers of the study area.

Government projects can be applied in smallholder farming to improve productivity as smallholder farmers do have access to certain forms of machinery and technology. The effective application of the projects provides farmers with greater access to information and markets, which helps improve their decision making, thus improving their income and rural livelihoods.

A human being's right to food is essential. However, millions of people worldwide are undernourished and suffer from malnutrition. The problem is far more significant in the Sub-Saharan nations. Food insecurity has become a significant problem for these countries, and several researches are being carried out to understand the problem and determine the best remedies (Cooper et al., 2019). The affordability and acceptability of food in various countries must be improved in addition to ensuring its availability. Although food is easily accessible in certain countries, it is too expensive for most people to afford. On the other hand, the food served must be representative of the traditions and cultures of the locals in these nations (Chen, 2018). In South Africa, food is readily available from both imports and domestic production, although many people are dissatisfied with the cost and suitability of the food. The cleanliness of the fast food offered on

South Africa's streets is a major worry for many local homes. To put it another way, all of the many aspects of food security must be properly addressed (Campbell et al., 2019). Global food security is a difficult problem to resolve. A wide range of contexts and conditions that vary between countries can have an impact on food security.

Each country must therefore evaluate its particular conditions and setting in order to create a solution that is tailored to meet its needs. However, exchanging distinct perspectives on food security from other countries would surely help us learn from one another and enable the creation of solutions that must be adjusted rather than adopted to a particular context (Byerlee & Fanzo, 2019). Political attention to this issue is crucial, and the creation of effective government policies can assist in reducing the detrimental effects of food insecurity in a nation. Government policy, however, cannot resolve this issue on its own because there are so many stakeholders involved. If farmers don't use the incentives and training that the government provides, its projects could not be successful. Customers must have affordable access to food goods, and adopting the incorrect distribution channels might exacerbate the problem of high food prices (Bouis & Saltzman, 2018). Programs to encourage home gardening and other private activities can help to some extent in improving the country's food security. Many homes will be able to receive fresh vegetables by restricting the quantity of pesticides and insecticides they can use or by implementing bioculture techniques, which are free of pesticides, fertilizers, and insecticides (Asche et al., 2018).

7.4. Future research direction

According to the study, in order to maintain the momentum of local wealth creation, policy transformation, and maintaining food security, government must continue to support the Comprehensive Africa Agriculture Development Programme (CAADP) while involving extension

(FAO, 2020). While adhering to the shift in policy focus, Extension should determine normative approaches and norms for performance in keeping with the socio-economic constraints faced by farmers. However, it is concerning that farmers would always have a backlog of unresolved issues at the farm level due to the low ability of extension to provide specialized services and the ratio of extension to farmers (Fanzo, 2018). Additionally, the extension strategy must put the needs of the people first and promote voluntary participation. The aforementioned difficulties signal an impending national food security problem. To prevent a repeat of the injustices of the past, the current unjust land expropriation must be handled carefully (Dabirian et al., 2019). To enable agriculture to advance from its current status to a strategic level of reasonable access and boost productivity, the South African government must promptly address these policy issues and difficulties.

7. 5. Recommendations

7.5.1. Government projects should employ the integrated food strategy

The strategies used by government so far have involved projects for food security such as the Unemployment and social grants amongst others. The integrated food strategy, nutrition, and food safety is vital while providing for improving monitoring and methods and support stronger multi sectorial partnerships thus supporting targeted interventions (Cousins, 2018). Overall, for Kabokweni to maintain and improve food security in a sustainable way the integrated food strategy must be central to planning and ensuring there is sustainable innovation in farming. The strategy plan for the Ministry of Agriculture claims that South Africa's scarcity of land limits its' potential to increase food production. Aside, agricultural land is being developed into property for homes and companies. To increase food production in Kabokweni, more land should be set aside for

growing crops and breeding cattle (Abbadia, 2022). To convince the owners to rent the property out for livestock and agricultural development, this can be accomplished by producing an exhaustive inventory of all the land that farmers are abandoning. The information can be made available to planters who need additional land to cultivate more crops. The government might arrange for advertisements in the local press and newspapers to increase public awareness of the nation's concern over food security and to encourage residents to reduce food waste. This could help reduce the amount of food imported from other countries. There is a paradox in South Africa where many people waste food while others are living in poverty. Inspiring South Africans to donate extra food to those in need will help reduce the country's undernourishment.

The strategies used by government so far have involved project for food security such as the Unemployment and social grants amongst others (Abbadia, 2022). The integrated food strategy treats the issue of nutrition and food safety while providing for improving monitoring and methods and support stronger multi sectorial partnerships thus supporting targeted interventions. Overall, for South Africa to maintain and improve food security in a sustainable way, the integrated food strategy must be central to planning and ensuring there is sustainable innovation in farming (Cousins, 2018).

7.5.2. Provide more Land for Food Production

The strategy plan for the Ministry of Agriculture claims that South Africa's scarcity of land limits it's potential to increase food production (Muller, 2018). Aside from that, agricultural land is being developed into property for homes and companies. In order to increase food production in South Africa, more land should be set aside for growing crops and breeding cattle (Cloete et al., 2019). In order to convince the owners to rent the property out for livestock and agricultural development,

this can be accomplished by producing an exhaustive inventory of all the land that sugar farmers are abandoning. The information can be made available to planters who need additional land to cultivate more crops. However, a lot of the region's countries are keen to cede territory to South Africa in order to entice South African investment. For instance, Mozambique has reserved more than 23500 hectares of land for South Africa, according to NESAC (2018). For small planters or cooperatives involved in food production and livestock breeding in particular regions, the South African government may provide financial assistance for travel abroad. They will be able to identify opportunities for increasing food production in other countries that can be exported to Mauritius by doing this (Mutimba, 2018).

This exercise may be carried out by the Regional Development Co. LTD. and the Board of Investment, two governmental bodies in charge of promoting both local and foreign investment. As a result, South African farmers will be able to use their expertise to increase food production in this sub-Saharan region of Africa (Mthombathi, 2018). Through the agricultural marketing board, the South African government is also able to guarantee a price for the products of these farmers, giving them extra incentives to start producing in these neighbouring countries. Because of economies of scale and the cheap labour that is easily accessible in these nations, planters who are farming on a greater scale will be able to produce food at a lower cost due to lower transportation costs (Jooste, 2018).

7.5.3. Agriculture as Part of the School Curriculum at Primary, Secondary and Tertiary Levels.

In South Africa, the workforce is aging and fewer young people are interested in working in agriculture, according to studies (DAFF, 2020). In this case, the government must arouse youth enthusiasm in the agricultural sector. This may aid future food production as well as the nation's

unemployment rate. The value of agriculture can be taught to people at a very young age, hence it should be included in the elementary, secondary, and university curriculum. Primary school children might receive gardening instruction as part of extracurricular activities scheduled by the institution. The establishment of agricultural groups might be encouraged, and all secondary students must be taught about agriculture (Gumede, 2018). The government can also provide funding for the installation of hydroponic facilities in every secondary school in the country in order to encourage alternate methods of food production. The idea of agribusiness needs to be promoted at the tertiary level in order to boost the number of young people interested in starting degrees in this field. Encourage people to start doing their own gardening Government officials in South Africa must encourage people to start backyard gardens. Consequently, there may be less food insecurity in South Africa (Matshe, 2019). Press and national television commercials emphasizing the advantages of home gardening for South African homes must be deployed. The ministry of agriculture can also provide technical advice on how to grow crops and raise animals at home. The spread of drought-tolerant crops can be encouraged because water is scarce in urban areas. This can result in households spending less on fresh vegetables. Additionally, this move might help to reduce international imports of specific foods (Labadarios et al., 2018).

7.5.4. Campaign to Reduce Wastage of Food

The government might arrange for adverts in the local press and newspapers to increase public awareness of the nation's concern over food security and to encourage residents to reduce food waste. This could help reduce the amount of food imported from other countries. There is a paradox in South Africa where many people waste food while others are living in poverty. Inspiring South Africans to donate extra food to those in need will help to reduce the country's undernourishment (Human Science Research Council, 2018).

7.5.5. Aquaculture

Despite the fact that there is a limited supply of water, South Africa is surrounded by a huge area of land. However, South Africa hasn't fully utilized its land resources. The country needs to make the most of its marine resources by supporting efforts that can help increase the yield of fish in our maritime environments (Heady & Fan, 2018). Aquaculture has to be promoted in South Africa as it has been determined that local fisherman have been overfishing our lagoons and that the number of fish being captured in the lagoon has substantially decreased over time (Hart, 2019). This problem might have an answer in aquaculture. However, efficient training and the organization of fishermen can help with the implementation of such a program. The government must ensure that aquaculture techniques don't have negative effects on the marine ecology because they may also do so (FAO, 2019). Promoting the growth of freshwater fish inland can also improve fish production. It is necessary to find additional marine areas and make them accessible to regional fishermen who are grouped into cooperatives. A minor amount of oyster production is also being carried out, and competence is growing. Local fishers could be encouraged to take part in these activities (Faber & Wenhold, 2018). However, it's crucial to encourage deep sea fishing and prepare local fishermen for such endeavours. These actions might increase the availability and price of these goods in the local market.

7.5.6. Reducing Impact of Climatic Change

Climate change is predicted to have a negative influence on food security in numerous nations around the world. More research may be done to create Climate Change-resistant crops, despite the fact that managing the numerous effects of it on agriculture is extremely difficult. Through regional research collaboration and exchange, the development of coping mechanisms may also be facilitated. Each nation in the area can gain from its unique expertise in this area (Evans, 2019).

However, stronger incentives are needed to encourage farmers to switch to protected farming. Many farmers in South Africa still use conventional agricultural methods to assist them control environmental factors like temperature and disease that could harm crops. These farmers ought to be urged to switch to hydroponic farming or greenhouse farming. The significant cost associated with such a treatment is one of the reasons why it is not frequently used. In this situation, the government can offer these farmers greater financial incentives, such as loans with favourable interest rates (Agholor & Nkosi, 2020). On the other hand, representatives from the ministry of agriculture must give farmers who use these cutting-edge farming techniques the technical guidance and instruction they require.

7.5.7. Improvement of Hygiene and Safety of Foods

The poll reveals that many people have serious concerns about the quality of the food available in South Africa. They claim that South African cuisine is not hygienic or nutritious despite being extensively available. South African food vendors frequently flout hygiene laws, which could be dangerous for the local population's health. Recently, many South Africans have become ill from eating contaminated food (Baiphethi & Jacobs, 2019). In South Africa, numerous regulations have been created to protect consumers from such risks, but the fundamental problem is still how to enforce them. Representatives of the government assert that this situation is due to a lack of manpower (Cloete et al., 2019). The government must in this instance inform food producers of the dangers posed and the safety precautions that need to be done to prevent such occurrences. (Agholor, 2019). The recommendations will be further communicated to stakeholders through emails, presentations, notice boards, regular meetings via video or in person.

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CERTIFICATE OF ENGLISH LANGUAGE EDITING



agriculture, rural development,
land & environmental affairs

MPUMALANGA PROVINCE
REPUBLIC OF SOUTH AFRICA

Samora Machel Building, No. 7 Government Boulevard, Riverside Park, Extension 2, Mbombela, 1200, Mpumalanga Province, Private Bag X 11219, Mbombela, 1200

CERTIFICATE OF ENGLISH LANGUAGE EDITING

THE EXAMINATIONS COMMITTEE

University of Mpumalanga

This certificate confirms that dissertation prepared by **Miss Lethu Inneth Mgwenya** entitled: ***“Contextual analysis of government projects for food security in Kabokweni Ehlanzeni district, South Africa.”*** has been edited for language and grammar only. As it is appropriate, direct quotes have not been edited and appear in the dissertation as verbatim. Language and grammar edits have been attended to satisfactorily.

Yours faithfully,

Mr. Bheki Nyathikazi

(BA in Communication)

Deputy Director: Media Liaison and Monitoring at the Department of Agriculture, Rural Development, Land and Environmental Affairs

Tel (0714858634)

14 October 2023



MPUMALANGA

PLACE OF THE RISING SUN

APPENDIX 1: Research questionnaire



UNIVERSITY OF
MPUMALANGA

Creating Opportunities

RESEARCH QUESTIONNAIRE

Research topic: Contextual analysis of government projects for food security in Kabokweni Ehlanzeni district, South Africa

I Lethu Mgwenya, a master's student at the University of Mpumalanga conducting a research study titled '*The contextual analysis of government projects for food security in Kabokweni Ehlanzeni district, South Africa*'. The aim of the study is to contextually analyse government projects for food security in the study area. The survey will take about 15-20 minutes to complete, and the participation of respondents is voluntary. Responses are anonymous and you are allowed to withdraw at any point. Information will be treated with confidentiality and not shared with third parties.

Instructions:

Please ask for clarity before answering a question that you do not understand

Please respond to this questionnaire with an (X) on the applicable box

Only 1 tick is acceptable per box

No scratching in the box will be accepted in this questionnaire

Questionnaire no: _____

SECTION A: DEMOGRAPHICS

1. Gender:

Male		Female	
------	--	--------	--

2. Age:

18-28	29-39	40-50	51-61	>62

3. Marital status:

Single	Married	Divorced	Separated	Widow	Widower

4. Level of education:

No school	ABET	Primary school	Secondary school	Tertiary

5. Household members:

1-4	5-8	9-12	>13

6. Employment status:

Unemployed	Employed	Self-employed

SECTION B: FARM AND PRODUCTION

7. Farming experience:

< 5	6-11	12-17	18-23	> 24

8. Farm size in acres:

< 1	2-5	6-9	10-13	> 14

9. Farm income:

< R 4000	R5000-R10000	R11000-R16000	R17000-R22000	> 23000

10. Type of farm enterprise

Livestock	Crops	Livestock and crops	Other

12. Type of crops:

Cereal/grain	Vegetables	Fruits	Leguminous	Other

13. Type of livestock:

Poultry	Cattle	Piggery	Sheep	Other

14. Source of water:

Wells/valley bottoms	Rainwater	Borehole	Tap water	Other

15. Market for farm produce:

Farm gate	Fresh produce market	Factory contracts	Direct sales supermarket	Other

16. Do you produce enough to sustain you and your family?

Yes	No

SECTION C: APPROACH OF GOVERNMENT PROJECTS ON FOOD SECURITY

17. On a scale of 1-5 please rate your level of awareness about government projects aimed at enhancing food security in your area:

Aware	Very aware	Unaware	Very unaware	Not aware at all

18. Which of the following government projects on food security do you know?

Special project for food security	Skills Support and Development Project	Support for Emerging Farmers	Social grant and Unemployment	Other

19. Which of the following approaches of government projects for food security is relevant to your farm situation?

Access	Availability	Supply stability	Use	Other

20. Is the approach used by government projects on food security accommodating you?

Yes	No

21. Do you agree that the government projects applies the human rights approach in ensuring food security?

Agree	Strongly agree	Disagree	Strongly disagree	Uncertain

SECTION D: EFFECTIVENESS OF GOVERNMENT PROJECTS ON FOOD SECURITY

22. How would you rate the overall effectiveness of government projects on food security?

Effective	Very effective	Ineffective	Very ineffective	Uncertain

23. In your opinion, to what extent has the government projects achieved their stated goals related to food security?

Successful	Very successful	Unsuccessful	Very unsuccessful	Uncertain

24. On a scale of 1-5, how transparent do you perceive the government's decision making processes and resource allocation for food security projects?

Transparent	Very transparent	Invisible	Very invisible	Uncertain

25. How well do you think government projects on food security align with sustainable agricultural practices and environmental conservation?

Poor alignment	Minor alignment	Moderate alignment	Good alignment	Excellent alignment

SECTION E: CHALLENGES ON GOVERNMENT PROJECTS FOR FOOD SECURITY

26. To what extent do the following challenges of government projects on food security pose a problem for your farm? Please indicate to what extent these challenges affect you on a 5 point scale provided.

Challenges	Not a challenge(1)	Minor challenge(2)	Moderate challenge(3)	Serious challenge(4)	Very serious challenge(5)
Insufficient funding					

Monitoring of government projects for food security					
Insufficient distribution and supply chain management					
Political instability					

SECTION F: ADOPTION BEHAVIOUR

27. Which government project on food security do you adopt on your farm?

Farmer Support and Extension Services	Support for Emerging Farmers	Special Project for food security	Social grant and Unemployment	Other

28. What do you think are the potential benefits of government projects on your farm?

Maximise production	Reduce production	Increase farm income	Reduce farm income	Improve access to markets

29. How often do you participate in government projects for food security?

Less often	Often	Very often	Not sure	Never

30. Do you think the available government projects are relevant to your farm activities?

Yes	No

SECTION G: EXTENSION SERVICES:

31. Do you receive support from any agricultural extension practitioners?

Yes	No

32. How often do you receive visits from the agricultural extension practitioners?

Weekly	Fortnight	Monthly	Yearly	Never

33. What kind of assistance do you receive from the agricultural extension practitioner?

Advisory services	Training	Production inputs	Market Knowledge	Farm business plan

34. How would you rate the level of assistance received from the agricultural extension practitioner?

Very dissatisfied	Dissatisfied	Satisfied	Very satisfied	Undecided

Thank you for your time!!

Date: _____

APPENDIX 2: Consent form for farmers



CONSENT FORM FOR FARMERS

CONTEXTUAL ANALYSIS OF GOVERNMENT PROJECTS FOR FOOD SECURITY IN KABOKWENI EHLANZENI DISTRICT, SOUTH AFRICA.

Name of researcher: Lethu Inneth Mgwenya

Voluntary participation:

Please note that your participation in the study is voluntary and you can withdraw any time. There will no force, violence or vulgar language used during data collection and if you decide to participate, you will be answering any straightforward questions because the questions are open handed for you to use options instead of giving specific answers. Your responses will be kept as confidential as possible and your identity will remain anonymous.

By signing this form, I am attesting that I have read and understood the information stated above and willingly agree to participate in the study.

Signature: _____ Date: _____

APPENDIX 3: Certificate of proposal approval



**UNIVERSITY OF
MPUMALANGA**

**FACULTY OF AGRICULTURE AND NATURAL SCIENCES
Postgraduate Studies Committee**

Certificate of Approval – Research Proposal

Date of this Approval:	15 June 2023
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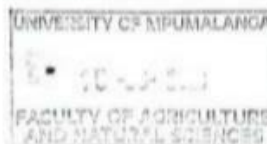
Student Details

1	Student Name:	Mgwenya, L
2	Student Number:	201971976
3	School	School of Agricultural Sciences
4	Degree Registered for:	MAgric
5	Date of First Registration:	2023
6	Supervisor(s):	Dr I. Agholor

The research proposal entitled '**Contextual Analysis of Government Projects for Food Security in Kabokweni Ehlanzeni District, South Africa**' has been evaluated and approved by the Postgraduate Studies Committee of the Faculty of Agriculture and Natural Sciences.

Chairperson: Prof. Victor Mlambo

Signature:



Date & Official Stamp:

APPENDIX 4: Research ethics clearance letter



B Maoneke (PhD)

School of Computing and Mathematical Sciences

Mbombela Campus.

Dear Lethu Mgwenya

Protocol Reference Number: UMP/Mgwenya/201971976/MAGR/2023

Project Title: Contextual Analysis of Government Projects for Food Security in Kabokweni Ehlanzeni District, South Africa.

Approval Notification: In response to your application received on **11/08/2023**, The Research Ethics Committee: Faculty Research Ethics Committee has considered the above mentioned application and the protocol has been granted **FULL APPROVAL**.

Any alteration/s to the approved research protocol i.e. Questionnaire/Interviews Schedule, Informed Consent form, Title of the project, Location of the study, Research Approach and methods must be reviewed and approved through the amendment/ modification prior to its implementation. In case you have further queries, please quote the above reference number.

PLEASE NOTE: Research data should be stored securely in the School/ division for a period of 5 years.

The Ethical Clearance certificate is only valid for a period of 3 years from date of issue. Thereafter, Recertification must be applied for on an annual basis.

Wishing you the best with your study.

Yours faithfully,


.....

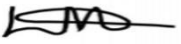
B Maoneke (Chair)

Dr M Bembe

Cc: Faculty Research & Innovation Committee Chair: 

DECLARATION OF INVESTGATOR(S)

I/We fully understand the conditions under which I am/we are authorised to carry out the abovementioned research and guarantee to ensure compliance with these conditions. I agree to completion of a yearly progress report.

..........

.....03-10-2023.....

Signature

Date

PLEASE QUOTE THE PROTOCOL NUMBER ON ALL ENQUIRIES

APPENDIX 5: Image showing lead researcher and participant during data collection



Source: Own survey data, 2023

APPENDIX 6: Image showing one-on-one interview between lead researcher and participant during data collection



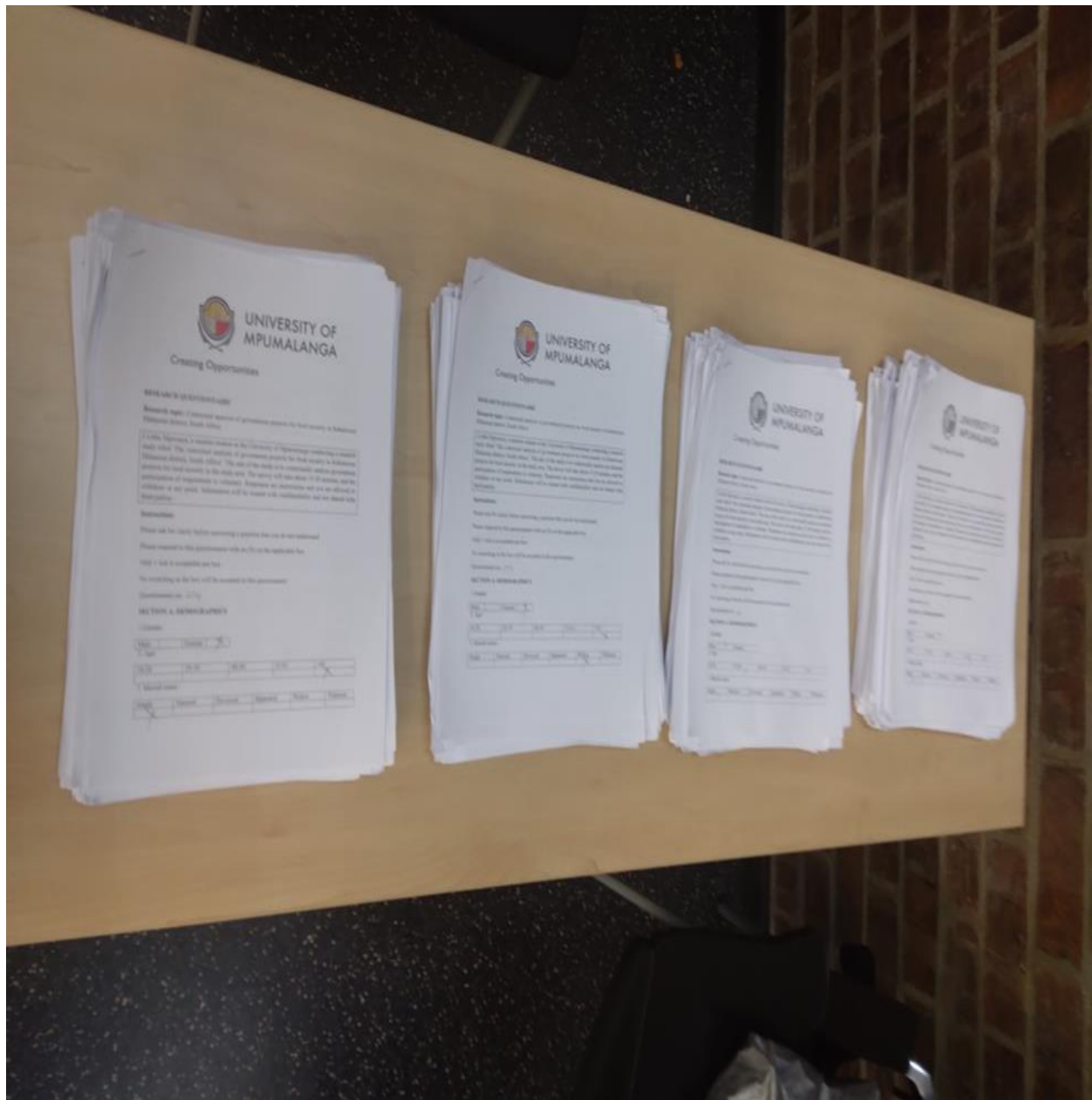
Source: Own survey data, 2023

APPENDIX 7: Image showing one-on-one interview between enumerator and participants during data collection



Source: Own survey data, 2023

APPENDIX 8: Image showing answered questionnaire packed into four batches after data collection



Source: Own survey data, 2023