NATIONAL UNIVERSITY OF LESOTHO

ADOPTION OF HORTICULTURE PROJECTS AND THEIR EFFECTS ON SOCIO-ECONOMIC DEVELOPMENT OF LOCAL COMMUNITY IN MAHOBONG COMMUNITY, LESOTHO

DISSERTATION SUBMITTED

BY

KHAMOKHA MATSOSO

201702988

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SUPERVISOR: DR M.T MACHEKA

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DECLARATION

I, Khamokha Matsoso declare that this dissertation: *Adoption of horticultural projects and their effects on socio-economic development of the local community in Mahobong community* is my original work and original findings. The sources that were used in this study are acknowledged. This document has not been submitted at any institution for academic awards and grading.

Student's name: Khamokha Matsoso: Signature… Matsoso. K.J….. Date: 14 August 2024

Supervisor's name: **Dr M.T. Macheka** Signature:  **Date** 15 August 2024

DEDICATION

I would like to dedicate this dissertation to my father Paul Matsoso, my stepmother ‘Matanki Matsoso, my brother Teboho Matsoso, my sister Sebolelo Matsoso and all my close friends for their unwavering support throughout my studies.

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ABSTRACT

Horticulture sector has emerged as a critical tool for reducing poverty and attaining economic growth globally. It is against this backdrop, that this study assesses the effects of horticulture to the socio-economic development of smallholder farmers in Leribe. The study used mixed research methods incorporating both quantitative and qualitative data, using a case study of farmers and the local community in Mahobong, Leribe. Face to face interviews and questionnaires were used to collect data from a total of 35 purposively sampled participants. The findings of the study revealed the positive contribution of horticulture farming, to economic development of the farmers and the local community through income generation and job creation. The results of the study further indicated that horticulture farming contributed to social development, by enabling farmers to afford social benefits like healthcare access, education, shelter, food and water bills because of horticulture farming. The findings of the study also highlighted the various challenges like bad weather conditions, expensive agricultural inputs, lack of markets, theft and snakes that the farmers came across as they were farming their fruits. The study concludes that adoption of horticulture farming serves as a catalyst to both social and economic development of the farmers and other local people. Therefore, the study recommends that in order to increase fruits production, the Government of Lesotho should subsidise agricultural inputs for horticulture farmers.

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CHAPTER ONE: INTRODUCTION

1.1 Introduction

Horticulture is a promising and investment-friendly area of agriculture and it assists in improving socio-economic development of smallholder farmers (Velibekova *et al.,* 2021). Socio-economic development is the improvement of social and economic well-being of the people (Whiteman *et al*., 2021). These authors further explained that failure to improve these development aspects, the well-being of the people will be in great risk because that will lead to negative consequences like poverty, lack of social cohesion and unemployment. Many farmers adopted horticulture because it plays an essential role in ensuring socio-economic development of smallholder farmers. Some of the farmers in Lesotho also adopted this agricultural sector because it has become one of the cornerstones in Lesotho's economy (Yuni *et al.,* 2023). Horticulture in Lesotho was adopted to meet the growing need of food and economic growth. However, in some communities where smallholder farmers are engaged in horticulture projects, there is still evidence of poverty. In light of this background, this study aims to evaluate the contribution of horticulture on socio-economic development of the local community in Mahobong Leribe, with specific focus on Likhothola fruits farm and Maoa-mafubelu fruits farm.

1.2 Background of the study

Maintaining the people's livelihoods through agricultural projects is an action being taken worldwide that is both in developing and developed countries. For instance, India is best known for its rich diversity of horticultural crops and it is the world's second biggest producer of fruits and vegetables and it contributes about 9.3 per cent share in the entire global output (Tiwari *et al.,* 2022). These scholars further revealed that in the year 2020 to 2021, the production of

horticultural crops has recorded 326.6 million tonnes which is more than total food grain production. The notable growth in production over the years made India the world's second largest producer of all three vegetables being tomato, onion, and potato (Tiwari *et al.,* 2022). India produces a large variety of fruits, vegetables, mushrooms, flowers and spices, these horticultural crops are known for their high yield per unit of land, they have significantly larger profits, more potential to create jobs and exports. Horticulture crops play a significant role in offering opportunities for livelihood options in India (Banyal *et al.,* 2019). The adoption of horticultural projects has not only impacted the economies of the countries outside Africa, but it has also impacted some African countries in a positive way as well. Kenya proved that horticulture is important to the growth of an economy through their production of various horticultural outputs like tomatoes, cabbage, garlic etc. (Ademola & Olatokun 2018). The horticultural sector contributes largely to the Kenyan economy through wealth creation, poverty alleviation, and gender equity in rural areas, the sector contributes positively to the livelihoods of the smallholder farmers by allowing the farmers to have a diverse choice in production (Sang, 2020). Moreover, the author explains that the horticultural products are market friendly in the sense that they have much more returns than other agricultural products. The horticultural sector is second to tourism with regards to foreign exchange earnings, approximately 2.5 million people are employed by the sector in both official and informal settings. (Sang & Cheruiyot 2020).

In Southern Africa, South Africa is amongst the leading countries where horticulture plays a pivotal role in improving the small holder farmers' livelihoods. South Africa just like other countries also has a variety of horticultural products they produce, but amongst these products there are those that makes the horticultural sector significant (Masiza *et al.,* 2021). The pomegranate fruit is grown in South Africa, and in the last ten years, both the gross value of

production and the area planted have increased significantly. Additionally, this industry has grown into a thriving well established export sector, which has resulted in the creation of numerous jobs on farms, in pack houses, and in other agricultural processing facilities (Pienaar & Jones2021). Pomegranate fruit has a lot of potential for economic growth and can provide fruit growers with an option if they are having trouble with climate change. (Pienaar &Jones 2021).

Horticulture is also frequently mentioned as one of the possible cornerstones of Lesotho's economy. In order to meet the growing need for food, the sector has emerged as a critical tool for reducing poverty and attaining economic growth (Yuni *et al.,* 2023). These scholars further showed that Lesotho appears to have a lot of promise for horticulture because of its elevation, soil type, and climate, which are ideal for a variety of horticultural crops. However, the productivity and market accessibility of small farms play a major role in this. Lesotho has identified fruit and vegetable processing as a viable production area in an effort to diversify its export base (Rafoneke *et al.*, 2020). The author further explained that fruit cultivation has been an effective means of supporting the livelihoods of smallholder farmers and the communities in Lesotho. The fruits produced have a strong potential for growth and include peaches, apples, cherries, grapes, pears, and others (Rafoneke *et al*., 2020).

However, the literature that has already been written has concentrated more on the contribution of horticulture on the economic side of development like creation of employment, income, trade and economic growth. Most of the authors shared the same view about this contribution of horticulture. Pienaar and Jones, (2021) showed that, in South Africa horticulture has developed into expanding a well-organized export industry that creates many jobs. Banyal *et al.* (2019) also showed that, in India horticultural crops have much higher returns with a high potential of job creation. These authors did not mention the contribution of horticulture to social development,

like gender equality, social cohesion and human rights. The purpose of this study is to close this gap by showing the contribution of horticulture on both social and economic development of farmers.

1.3 Statement of the problem

Despite the existence of horticultural projects in Lesotho that were meant to maintain and ensure socio-economic development of farmers, farmers in Leribe are facing challenges in socio-economic development. Thus, the purpose of this study is to investigate the effects of horticulture on socio-economic development of smallholder farmers. Most authors have addressed the issue of the impact of horticulture to the development of the farmers, but these authors focused more on the contribution of horticulture to economic development leaving out the social development of the farmers and the community. Although, Ngatigwa *et al*. (2020)'s study in Tanzania revealed that horticulture is the backbone for rural farmers' development as they mainly depend on it to ensure their socio-economic development, no studies on socio-economic contribution of horticulture was carried out in Lesotho. Therefore, this study intends to fill this geographical gap by specifically focusing on small-holder farmers in Lesotho.

1.4 Purpose of the study

The purpose of this study is to assess the effects of horticulture to the socio-economic development of local community in Mahobong community.

1.5 Significance of the study

This study is significant because of its contribution to the academia; most researches focused on the contribution of horticulture to economic development of rural communities. In addition, this study will be able to disseminate information to the relevant stakeholders like the Ministry of Agriculture and Food security, agricultural extension and Non-Governmental Organisations.

Lastly, the study's significance lies in the information provided by the study to policymakers about the impact of horticulture on socio-economic development, who can use it to assess existing policies or develop new ones based on the data the study presents.

1.6 Objectives of the study

- To assess the impact of horticulture on local community's economic development in Mahobong community.
- To investigate the contribution of horticulture to social development of local community in Mahobong community.
- To assess the challenges encountered by the local community in Mahobong community.

1.7 Research questions

- What is the impact of horticulture on economic development of the local community in Mahobong community?
- What is the contribution of horticulture to social development of the local community in Mahobong community?
- What are the challenges encountered by the local community in Mahobong community?

1.8 Theoretical framework

This study is going to adopt the sustainable livelihood framework as its theoretical foundation. Sustainable livelihood framework was developed in the middle of the 1980s by Gordon Conway and Robert Chambers in an effort to evaluate the many settings of vulnerability and improve the effectiveness of development cooperation (Kollmair & Gamper, 2002). A livelihood consists of the skills, resources, and activities necessary for a means of living (Chambers & Conway, 1992). Furthermore, Knutsson and Ostwald (2006) briefly defined this theory as a mix of assets, resources, or kinds of capital that lead to an integration of livelihood strategies to accomplish the

targeted livelihood results. DFID (2001) explains that in order to minimize poverty, guarantee food security, and preserve people's livelihoods, this framework highlights the key factors that affect people's lives and how they contribute to livelihood sustainability in already existing activities or the creation of new development initiatives.

Sustainable livelihood framework shows that people can maintain their livelihoods through many activities that are developmental, the components of this framework shows that there are various forms of capital that individuals or communities possess, such as financial, human, social, natural, and physical capital (Knutsson & Ostwald, 2006). These various forms of capital help the people to have a variety of livelihood strategies and these strategies often represent the ways in which people use the different resources they have to attain their livelihood outcomes. In the context of the study, horticulture is also a livelihood strategy which is considered as the cornerstone of development to many countries. Horticulture contributes to socio-economic development aspects like creation of jobs, economic growth, social cohesion and social equality. Moreover, this framework is explained to highlight factors that affect people's quality of life. In horticultural projects the aspects involve types of capital like access to land, water, seeds etc. These aspects make it easy for livelihoods to be sustainable to ensure socio-economic development. The Sustainable Livelihood Framework guides this study since it shows how livelihood assets of horticulture farmers can be used to carry livelihood strategies in order to achieve socio-economic development.

1.9 Definition of key terms

Horticulture is a diverse field that includes various practices and techniques in production, like plant breeding and soil management since horticultural projects can be practiced on a small scale like home gardens (Ademola & Olatokun 2018). According to Tiwari *et al*. (2022) horticulture is

one area of agriculture that contributes significantly to the economy, it is the production of fruits and vegetables. Horticulture is a branch of agriculture that specializes with producing fruits, vegetables and herbs. In this study, horticulture refers to the production of different fruits through two distinguished fruit farms.

Socio-economic development refers to the advancement and improvement of social and economic well-being of the people (Whiteman *et al.*, 2021). Bhattacharya (2020) describes socioeconomic development as the social and economic advancement of a community, encompassing the improvement of individual's quality of life through elements like job, income, education, and skills. Socio-economic development refers to the positive change that ensures the people's quality of life. In this study, socio-economic development is the positive change to the lives of the people brought by horticulture farming.

1.10 Research structure

Chapter one is the introduction which introduces the research problem and provides an overview of the background to the study.

Chapter two is literature review that focuses on providing an overview of the previous debates from different scholars on the related subject.

Chapter three which is the research methodology chapter, outlines the research methods that will be used in the research. The chapter will provide transparency about how the research will be conducted to ensure the validity and reliability of the findings.

Chapter four consists of data presentation, analysis and discussions.

Chapter five is based on the conclusions and recommendations

1.11 Chapter summary

This chapter highlighted the research problem and the focus of the study. It also covered the background of the study, which gives an idea of what other scholars say about the research problem from other case studies. Problem statement and the significance of the study were presented. This chapter also presented the objectives of the study, research questions and the theoretical framework that help in guiding the study. Limitations are a part of this chapter as well as the research structure and lastly there is definition of key terms. The next chapter will be discussing literature review

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter focuses on reviewing the available literature on horticulture and development. It further reviews the different arguments made by different scholars on how horticulture contributes to farmers and the whole nation. The literature was reviewed from global to local, that is from international, regional, national and local which is Lesotho.

2.2 Agriculture and rural livelihoods: An overview

Globally, agriculture has a significant role in rural livelihoods. In the history of China, agriculture has played a key role in enhancing growth of one of the largest populations in the world. In China, small-scale subsistence farming has traditionally been the main source of income for farm households. (Xiaoxing *et al.,* 2021). Furthermore, although farming was the primary source of income for rural China for many centuries, new livelihood techniques including off-farm work have steadily supplanted or even mixed with it since the open and reform period. Zhan *et al.* (2024) also assert that crop production was helpful to rural livelihoods in Quzhou County on the North China plain where they specialize in wheat, maize, cotton, vegetables and oil crops. In addition, in Latin America they produce palm oil and this region is considered to be the fastest palm oil producing region in the world (Purnomo *et al.,* 2020). The scholars further state that this crop provides higher income for smallholder farmers, it even creates employment for rural families that do not have land to produce for themselves. The sustainable production of palm oil has high economic returns that contributes to reduction of rural poverty.

Even in Africa, agriculture has its commendable impact in shaping the African countries' economies. In Sub-Saharan Africa, agriculture persists on being the main job creator in the rural areas and assisting with their methods of living strategies, approximately 70% of youth residing in rural areas dominate the agricultural labour force in Nigeria (Rufai *et al.,* 2021). Agriculture plays a number of important roles in growth and livelihood strategies for the rural people, the transformation of the agricultural sector improves agricultural production that will help in improving food security and reducing hunger and malnutrition (Kassem *et al.,* 2019). For instance, Nigeria enhanced and increased agricultural food production in order to fulfil the country's expanding population's growing need for food (Olowo *et al.,* 2022). They further explained that in order to guarantee food supply and the needs of the rural population, native plants were cultivated for better living conditions, economic growth and agricultural expansion. Indigenous plant cultivation and agricultural fields give rural families a source of income, food, and animal feed (Olowo *et al.,* 2022).

Southern Africa's economy is mostly driven by agriculture, much like those of Nigeria and many other African nations. The economy of Botswana is dominated by smallholder farmers who raise both crops and cattle, 70% of rural households in the country depend on agriculture for their living. (Ngwako *et al.,* 2021). The authors also note that the International Trade Administration reports that livestock accounts for over 80% of agriculture sector revenue, with crop output contributing slightly less than 20% as a result of ongoing droughts and the dessert. In comparison to other types of livestock production, goat rearing provides unique management advantages over other livestock production because it requires less initial investment, lower inputs, less labor, and is characterized by early sexual maturity of animals. Goat rearing is the primary livelihood activity for the majority of rural farmers (Botswana Statistics, 2019).

Many people in Lesotho also regard agriculture as their major source of livelihood, especially those who live in the rural areas and the major agricultural activities include the production of crops and animal husbandry (Rantšo & Makhobotloane, 2020). The authors further mentioned that a large number of farmers primarily raise animals for subsistence purposes and their primary motivations for doing so are social and commercial. Farmers sometimes raise cattle for status, while others produce milk for domestic use, plough and pay bride costs. In several regions of Lesotho, traditional cattle breeds are primarily raised for local consumption, while some of the farmers raise cattle for production of milk, even though the majority of them do it for subsistence (Rantšo & Makhobotloane, 2020). In Lesotho over 60% of the population lives in rural areas, 85% of them practice smallholder farming, agriculture plays a significant role in the lives of many Basotho people. (Mamello, 2021).

Raising both crops and cattle is known as mixed agriculture, and it is practiced by many smallholder farmers in Lesotho. The main livestock they have consists of goats, sheep, pigs, and cattle. Some of these animals are raised for home use, while others are raised for commercial gain. The locals also grow beans, maize, and sorghum (World Bank, 2022). Crop farming is a major source of employment and income in Lesotho, where over 70% of the population depends on agriculture for both food and income. This sector of agriculture increases food security, reduces rural poverty, and provide opportunities both on and off the farm (World Bank, 2022). Since livestock production has been shown to be one of the best ways to reduce poverty, fight food insecurity, boost resilience to food shocks, and act as an alternative against crop failure, among other advantages that support the maintenance of multiple livelihood strategies, the production of livestock is becoming more and more popular as means of diversifying sources of income (Hatab *et al*., 2019).

In rural Lesotho, the primary source of income is agriculture, much like in many other least developed nations. In the least developed countries, the majority of people rely on farming as their primary source of income (Muroyiwa & Linakane, 2021). The scholars also mentioned that, in these nations, non-tertiary industries like agriculture predominate in terms of economic activities, it is approximately 60% Basotho who live in the rural areas, making the country mostly a rural nation. The majority of the rural residents make farming their main source of revenue, with 90% of them being subsistence farmers (Muroyiwa & Linakane, 2021). In Lesotho, pig farming has become an essential part of rural livelihoods and it is crucial to most of Basotho who reside in the rural areas to engage in subsistence pig farming. This long-standing custom has strong cultural ties to the Basotho people and has developed into a reliable source of income, especially in rural areas with limited access to other sources (Kompi *et al.,* 2023).

Most of these authors focused a lot on the general livelihoods strategies that are being created by agriculture in the rural areas. The rural areas are disadvantaged when it comes to infrastructure, capital and skilled labours but mostly what the authors reviewed shows the positive impact despite the challenges that face these areas. The authors did not put more emphasis on economic growth of the remote areas. Thus, there is need for a study on the role that agriculture can play in economic lives of smallholder farmers.

2.3 Horticulture and smallholder farmers

In most countries, horticulture contributes positively to the growth of their economies, it is a significant industry particularly in nations with low per capita income. According to TURKSTAT (2021), Turkey's agricultural sector covered approximately 6.42% of the Gross Domestic Product and18.15% of the total employment in 2019. The country produced about 20 million tons of fruits in 2019. Pome fruits constituted 21.5% of the fruits that were produced and

3.6 million tons of apple which was the second most produced fruit species (FAO, 2021). The organisation further shows that apples support the Turkish economy and are traded internationally which is why they are a highly valued. Fruits, vegetables, and flowers are examples of horticultural crops that are essential to the lives of smallholder farmers. Horticulture creates jobs, food security, and revenue prospects for the rural community. This sector has various activities that help with the creation of jobs for farmers like harvesting, processing and packaging of the products. Horticulture also helps the rural community to diversify their income sources (FAO, 2021).

A vital part of modern agricultural production and national food security for people everywhere is the fruit subsector, horticulture generally has various socio-economic, environmental, and nutritional advantages (Nigussie *et al.,* 2019). Small-scale farmers in Ethiopia can engage in a variety of production, processing, and marketing activities to supplement their income through fruit production. Broadly, the scholars show that the country is known for its ability to grow different kinds of fruits regardless of whether they need cooler or warmer weather conditions. The country currently has a policy implementation of expanding the production of fruits (Nigussie *et al.,* 2019). Even though the country has implemented this policy, the areas for horticulture farming are usually small in size and most smallholder farmers in Ethiopia do not regard the production of fruits and vegetables their main activity. The farmers adopt this production as a supplementary activity to the main crops like cereal, this is because of traditional food consumption habits that favour grain crops and livestock products in most parts of Ethiopia (Admasu & Jenberu, 2022).

In Tanzania, Mkuna (2022) assessed the impact of exporting horticulture products to the welfare of the farmers in Arusha, the farmers realised the significance of exporting their products as

opposed to trading them locally as they embraced socio-economic benefits. In addition, Blasis (2020) shares the same sentiments that, given the labour-intensive nature of the horticultural industry and the increased need for labour in pack houses, the growth of the horticultural sector presents a chance to diversify agricultural production. The main reason being to reduce the idea of relying on exporting a small portion of traditional crops, so that smallholder farmers will be connected with the new international markets through contract farming schemes and to generate employment for the most vulnerable segments of the population (Blasis, 2020).

Additionally, Mulenga *et al*. (2020) postulated that the agenda of agriculture in promoting food security, poverty reduction and environmental stewardship among smallholder farmers in Zambia can be achieved more efficiently by expanding horticultural production. The authors further show that the horticulture sector in Zambia has the potential of generating higher income for the smallholder farmers even though the sector is not given priority. Horticulture production has maintained an important part of overall agricultural and pastoral practices in Zambia, as it does in many other nations that are faced with growing environmental constraints and income inequality (Mataa, 2021:1). Furthermore, the horticulture industry can contribute to reduced malnutrition by providing vitamins and mineral rich foods, and reduced poverty through high income generation for smallholder farmers (Simon *et al.,* 2020).

Peach production is important in Southern Africa more especially in Lesotho, it is mainly significant because of its benefits to the farmers and the entire country. The majority of smallholder peach farmers make a living by selling dried peaches in both domestic and international markets. It was claimed that the other farmers and farmers' associations sold both processed and unprocessed peaches in both formal and informal markets (Rafoneke *et al.,* 2020). High unemployment rates and a decline in agricultural production are among the reasons behind

Lesotho being poor (Walsh *et al.*, 2020). However, Seatle (2022) posits that, the production of vegetables has the potential to increase farmers' incomes because the right marketing channel can be highly profitable. The author further shows that the profitability of vegetables depends on the marketing channel.

Furthermore, the production of vegetables has raised the standard of living for smallholder farmers by boosting revenue, ensuring food security, creating job possibilities, and fostering skill development (Seatle, 2022). The author further revealed that the intervention strategies that include trainings, access to markets, availability of agricultural inputs and subsidies, to help the smallholder farmers to transform their production of vegetables to the full potential, so that the farmers can also benefit from their produce of vegetables. Most farmers in Lesotho use greenhouses for a mass production of vegetables and crops (Karki *et al.*, 2020). Further, the usage of greenhouses for production was a change implemented to enhance farmers' livelihoods and reducing climate-related risks because of the many benefits associated to this kind of producing vegetables and crops. This helps the smallholder farmers to improve their production.

Commercialising horticulture products has a transformative impact to the country of Lesotho's economy. The initiatives of sponsoring horticulture farming have shown that, commercial vegetable and fruit farming offers an important alternative to other agricultural activities. Furthermore, smallholder farmers get the chance to generate more income through selling these products, which widen their market accessibility (Jansen, 2022). Moreover, the development of large-scale commercial farms and helping the current smallholder farmers that are involved in horticulture farming is beneficial to the farmers as well as the country at large. Furthermore, successful partnerships and private investments in aggregation firms is important in assisting smallholder farmers. These partnerships make it easier to obtain specialised knowledge that is

necessary to enhance farmers' technical support and create crop varieties that are appropriate for the high altitude circumstances in Lesotho (World Bank, 2019).

Mostly the reviewed literature was fixated on the economic welfare from horticulture to smallholder farmers, how horticulture is helpful to the farmers by creating jobs and earning pleasant incomes. The literature does not show how horticulture contributes to the social development and social wellbeing of farmers. This study need to add new knowledge to the scholars reviewed by analysing the importance of horticulture to social development of smallholder farmers in Lesotho.

2.4 Horticulture and development

The agriculture and horticulture sectors in Netherlands are amongst the most efficient and productive sectors around the world. Netherlands is the world's second largest exporter of both horticulture and agricultural products, with advanced technology and expertise, farming is a highly specialised and intensive industry in the country (Farhangi *et al.,* 2020). Wenneker and Thomma (2020) state that apple and pear are important fruit crops that are cultivated in the Netherlands and these fruits are considered to be vital in the country due to their impact in the market, either international or local markets. The fruits contribute a lot of revenue to the GDP of the country and creates employment which is why the horticultural sector is considered to be productive in Netherlands. In addition, Vermeulen *et al.* (2020) state that horticulture boosts culture and tourism sectors in the country, by the cultivation of tulips and the fame that the country has with its flower industry. The attraction of tourism in the country generates revenue and advances the Dutch horticultural sector on a global scale.

Horticultural production is also considered the main source of rural income in Egypt, the country has acquired an experience in selling fresh horticulture crops to international markets (Ahmed &

Sallam, 2020). Additionally, Egypt has acquired international markets like European Union, the gulf region and far East countries where they export high value and volumes of fresh horticulture crops. Exporting of these horticulture products increased drastically since they started being engaged with the international markets. The increase in exported goods made the country eligible to benefit a lot of revenue from other countries (Ahmed &Sallam, 2020). The country benefited through trading and this helps the country to be more economically and politically connected. Moreover, the government and international donors made an intervention to improve horticulture value chain by improving agricultural practices for 40 000 hectares of small farms given that high value crops vegetables and fruits lead to improving rural economies and enhancing livelihoods (Zahran *et al.,* 2020).

In Zimbabwe, horticulture is the fifth largest agricultural activity that earns the country revenue through exports, it contributes to 6.5% to the agricultural GDP (ILO, 2022). The Ministry of Foreign Affairs in Zimbabwe reported that large-scale commercial horticulture products include vegetables, fruits, and flowers, which are produced mainly for export markets, local retailers and food processing companies (Ministry of Foreign Affairs, 2020). The report further shows that the small scale producers who have access to irrigation systems and enough water supply produce during the dry season while others cannot produce because of bad climatic conditions. Most of the farmers' products including fruits and vegetables, are sold through the informal market, however some are in contract to supply legal markets (retailers, agro-processors, and export markets) (WBG, 2019). Moreover, both large and small-scale farmers are offered a contract by certain companies (retailers and processors) to handle their farming which is good for the country and the farmers themselves. Contract farming is considered to be more secure and

effective business model because the revenues are usually higher than those from selling on the local market (WBG, 2019).

The horticulture sector in Zimbabwe also generates more revenue that contributes to the GDP of the country through exports, they export their horticulture products to European countries like Netherlands, the UK, France and Ireland (ILO, 2022). Zimbabwe exports more fruits than vegetables to nations like Bahrain, South Africa, Zambia, Vietnam, and the United Kingdom. In 2020 South Africa imported 62% of fruits from Zimbabwe valued at $18.525 million, while the country's fruit exports brought in about $33.803 million in 2019, a minor decrease from $35 million in 2018 (ILO, 2022). The sector generates a lot of money that help the country to invest more in horticulture to create a safer environment for the farmers and to also create employment in the country through the production of fruits and vegetables. There was a total of 135 505 workers in the horticulture industry in 2021 (ZIMSTAT, 2021).

Lesotho produced over 15,350 tonnes of fruits of all kinds in 2020 and less than $1 million was made from the nearly limitless market for exports, despite fruits being traded for more than $60 million yearly in domestic marketplaces (AU, 2020). The aim of the country was to upgrade the current smallholders and establish large-scale commercial farms in order to create a competitive horticulture industry. In Lesotho, fruit farming has a long history, however most people produced them for their own use. The AU (2020) report shows that despite the broad compatibility of climate and soils, many rural people have a few tiny fruit trees in their gardens, but very few attempt to make a substantial living from growing fruits and selling them, or from processing those fruits into items to be sold like dried fruits. Due to the country's large areas (550 000 hectares) that have been identified as having good potential for fruit production, its comparative natural advantages over South Africa, and its potential to produce a high-value crop that will

generate 15 times the income from maize and create approximately 1300 jobs per hectare as opposed to 0.01 for maize (AU, 2020).

Demand for fruits and vegetables in the global markets escalated because of changes in consumption patterns that was caused by demographic changes, population growth, rising incomes, increased popularity of healthy diets and increased urbanization that help to create new opportunities in Lesotho's agricultural producers and processors (World Bank, 2022). In Lesotho, smallholder farming is characterised by market-oriented horticulture farmers, most of the farmers sell their products to informal markets, and some supply institutional buyers (Reva, 2019). Furthermore, smallholder horticulture production helps to improve the livelihoods of the people in Lesotho through enhancing food security, creating jobs and reducing poverty which are some of the indicators that show the positive contribution of horticulture to development in Lesotho (Mukarumbwa *et al.,* 2018). The country of Lesotho through the increment of producing horticulture products has managed to reduce imports, which leads to high generation of revenue for the country (Reva, 2019). The production of horticultural goods help the country to generate more revenue through the sale of vegetables and fruits, this also leads to the creation of employment for farmers to maintain the mass production of horticulture products (Rafoneke *et al.*, 2020).

Given that protected vegetable growing has exploded in Lesotho from 2015 to 2019, the country has a high chance of increasing vegetable production, lowering imports, and raising farmer incomes (Reva, 2019). Many vegetables can be grown profitably on less than one hectare of land, making it possible for smallholder farmers in Lesotho to do business (Reva, 2019). According to Rafoneke *et al.* (2020), commercial fruit and vegetable cultivation including peach cultivation, is estimated to create roughly 1.3% jobs per hectare. This suggests that if fruits and

vegetables were grown commercially on all land suitable for horticultural crops, Lesotho may see a potential increase in employment of over half a million. The peach sector has contributed approximately 43.77% ($71,429) to the total gross value of all deciduous fruits ($285,714) in Lesotho (Rafoneke *et al.*, 2020).

Different sectors of agriculture are essential to almost every country in the world, but the horticulture sector is one of the most productive sector in many countries. Literature reviewed revealed that horticulture contributes to different aspects of development to the nations and to smallholder farmers. However, there are few who have focused on challenges that are faced by horticulture farmers. Against this background, this study will further assess challenges faced by smallholder farmers who are in the horticulture sector in Mahobong, Leribe, Lesotho.

2.5 Chapter summary

Reviewed literature on agriculture and rural livelihoods revealed that small-scale subsistence farming has historically provided rural households with their main source of income. In many rural areas, crop production remains essential for local populations. Similarly, rural families can find work and income through the cultivation of various cash crops. Most of the scholars have argued that agriculture is a significant source of employment in many regions, significantly impacting food security, economic growth, and livelihood strategies. For rural families, the cultivation of indigenous plants and farming areas are crucial sources of revenue, food, and animal feed. In many places, agriculture is important for livelihoods, with smallholder farmers dominating the economy.

The reviewed literature on horticulture and smallholder farmers shows that agriculture plays an essential role in the economies of numerous regions. For instance, some areas heavily rely on the agricultural sector, with a significant portion of GDP and employment opportunities depending

on it. The production of certain crops, such as apples, is important to local economies due to their export potential. Moreover, most of the reviewed literature revealed that horticultural crops, including fruits, vegetables, and flowers, offer diverse socioeconomic benefits, boosts food security, and serve as a means of subsistence for small-scale farmers. In certain areas, despite efforts to promote fruit production through legislation, smallholder farmers often prioritize cereal crops due to customary consumption patterns. However, mostly the scholars revealed that diversifying into fruit cultivation has the potential to generate additional sources of income.

Furthermore, the reviewed literature on horticulture and development has shown that fruits such as pears and apples, play a significant role in the economies of different countries that farm them by creating numerous jobs and generating income. Moreover, some scholars argued that the cultivation of flowers, such as tulips, also supports tourism and cultural industries by attracting visitors and generating international revenue. Studies have shown that most of African countries successfully export fresh crops to foreign markets, including those in the European Union, the Gulf region, and the Far East. Thus the production of fruits is primarily considered the source of income in remote areas in Africa. The following chapter discusses the research methodology.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter highlights the research methodology and the usage of the different methods and designs used to collect data and analyses it. The instruments that were used to collect the data to ensure the trustworthiness of the collected data will also be included.

3.2 Area of study

This study was conducted in Mahobong which is situated in Leribe, where the study focused on two horticulture farms which are Likhothola fruit farm and Maoa-mafubelu fruit farm. According Bureau of Statistics (2016) the population of Leribe district was estimated at 300000. The capital town in Leribe is Hlotse and there is one other town called Maputsoe which is also situated in Leribe. There is an estimation of 2000 villages from the district of Leribe. In Leribe there are multiple livelihood activities that the citizens engage in for survival, the people engage in industrial livelihoods activities, street vending, fishing and different kinds of agricultural livelihoods (Morahanye, 2020). The author elaborated more on agricultural livelihoods by mentioning a few agricultural livelihoods that people in Leribe engage in, like sheep rearing, horticultural projects, poultry farming, livestock rearing, block farming etc. The district has many potential livelihood activities but the study focused on horticulture.

3.3 Research Approach

This study adopted the mixed method research approach which is defined as the usage of both quantitative and qualitative methods in a single study. This approach was chosen because it interlinks the elements of qualitative and quantitative methods, to produce a fuller account of the research problem. Mixed method research approach can be more comprehensive since it is the combination of different types of data, and methods that could lead to a thorough understanding

of the research topic (George, 2022). Moreover, through providing a more comprehensive and thorough data collection, a mixed methods research approach enables the inclusion of diverse and intricate aspects of the research phenomenon. This facilitates the triangulation or corroboration of data or findings from different sources or methodologies, thereby enhancing the validity and trustworthiness of the research.

Within this study, the mixed method approach was helpful since it is an integration of both qualitative and quantitative methods. Different sets of data helped this study by producing deep and rich data set. For example, collecting both quantitative and qualitative data from the farmers has helped us understand why horticultural projects produce a certain number of fruits by adopting qualitative research methods and probing for more clarifications as opposed to quantitative data that asked closed ended questions. Quantitative data that was collected first was comprised of the number of different fruits being produced, the number of fruits produced per different types etc. After collecting quantitative data, the focus was now on collecting qualitative data through in-depth interviews where open-ended questions were asked, and the data that was collected here showed how the farmers accumulated certain number of different types of fruits they have in their projects, this kind of data helped farmers to give information on whether the project contributes positively to their socio-economic development

3.4 Research design

This study used an explanatory sequential research design, this research design is known as the incorporation of both quantitative and qualitative research traditions (Abu & Toyon, 2021). This design is characterized by collecting quantitative data, and then follows up with qualitative information to further clarify the quantitative results. A case study was used in this study for in-depth investigation, because case studies involve a thorough and detailed examination, often

using multiple data sources and methods to gather information (Creswell & Clarke, 2017). Horticulture farmers in Mahobong, Leribe were used as a case study.

3.5 Study population

Study population refers to the total amount of observations, or the parent group from which a sample is to be drawn (Firchow & MacGinty, 2020). The target population in this study were the horticultural farmers in Leribe, Ministry of Agriculture and Food security, agricultural extension, Non-Governmental Organizations, other relevant stakeholders, the community members will be from Mahobong Lithotaneng, Tota and Mohope villages

3.6 Sampling procedure

This study used purposive sampling procedure, which is defined as a non-probability sampling technique that is used to choose a particular group of people or units for analysis (Creswell & Clarke 2017). Purposive sampling was chosen because it allowed researchers to choose a sample on purpose as opposed to at random, and the researcher had a specific goal in mind, to choose the sample based on the qualities or attributes that the researcher was interested in studying. This sampling procedure helped this study to sample the farmers and other relevant stakeholders according to the qualities that they have with the horticultural projects. The participants that were chosen to take part in this study because they have experience in horticulture to avoid untrustworthy data whereby the study engaged farmers or individuals who have no idea about horticulture. Moreover, the study purposively sampled the Ministry of Agriculture and Food Security because they mandated by the government to educate the farmers in the country. Horticulture farmers were sampled because of the knowledge they have from practicing this type of farming. Agricultural extension officers were also integrated in this study because their main objective is to improve agricultural practices and increase productivity by sharing information

that is essential in agricultural production. NGOs and relevant stakeholders were involved because some of them sponsor these projects to be successful and lastly the villagers were involved because these projects are being run in their villages so they have a lot of knowledge in regard to how their day to day business are being run.

3.7 Data collection methods

This study used unstructured interviews and structured questionnaires.

3.7.1 Interviews

Unstructured interviews are known as qualitative research tools whereby open-ended questions are asked, to give allowance to interviewees to express themselves freely, in order to produce in-depth responses (Alam, 2021). A total of 9 respondents were interviewed. Among these respondents were the village chief, the councilor, an extension officer, a member of the Ministry of Agriculture and Food Security and farmers were interviewed. The community leadership were interviewed on the basis that they have knowledge on the benefits, which are brought by horticulture farming and how horticulture farming has helped the community. Extension officers and the Ministry of Agriculture and Food Security were also interviewed, to provide information on how farmers get assistance from the Government of Lesotho to farm their fruits. Horticulture farmers provided information on the experiences they had with horticulture farming and to understand how horticulture contributes to their socio-economic development

3.7.2 Structured Questionnaires

This study employed structured questionnaires to gather quantitative data, which is a commonly employed method for collecting information from participants. (Alam, 2021). It consists of a set of standardized questions with a predetermined structure, which establishes the precise wording

and sequence of the questions. Structured questionnaires are characterised by closed ended questions that does not allow for probing, these questionnaires helped to collect quantitative data. A total of 26 questionnaires were distributed to and were completed by horticulture farmers. The questionnaire allowed the farmers to give information regarding what they produced and the quantity they produced. The questionnaires also enabled farmers to disclose the amount of money they made and how much they spent on their expenses on the farms and their households.

3.8 Data collection procedure

Data collection procedure describes the particular approaches and strategies that are used to get data or information for analysis or study (Dawadi *et al.,* 2021). Strategies that are involved in data collection involve making the objectives of the study clear, so that the research questions are also understandable to be answered for better provision of relevant and useful data. During the data collection procedure, appropriate data collection methods have to be selected to avoid biasness or data that is untrustworthy (David *et al.,* 2018). Following these procedures was application of ethical considerations, such as requesting for permission to do the study and adequately emphasizing the significance of the research to participants. In addition, before conducting the study in the villages, the researcher asked for permission from the village chief. Permission to interview agricultural extension officers was requested from the Ministry of Agriculture and Food Security. While interviewing the respondents, the researcher was flexible enough to allow the respondents to choose the language they would like to use between English and Sesotho but the primary language was Sesotho. Where the interviewees chose to communicate in Sesotho, the interview guides were translated to Sesotho so that they understood and their responses were translated back to English.

3.9 Ethical considerations

This study adhered to all ethical considerations in research. According to Resnik, (2020) ethical considerations refers to the set of rules that guide research in order to preserve the rights of the participants. These ethical considerations involved informed consent, confidentiality and anonymity

3.9.1 Informed consent

Informed consent refers to the method by which people are given information about a research project, such as its goals, methods, possible dangers, and advantages, to enable them to make an informed decision about participating in the study (Anna & Michler, 2018). In this study, following the informed consent, voluntary participation was advocated for, and participants were not coerced into being involved in the study. The participants also had the right to withdraw at any stage without repercussions.

3.9.2 Confidentiality

Confidentiality refers to the protection of participant privacy and personal data that was obtained from them throughout the course of the study. This is to maintain trust, respect, and adherence to ethical standards (Bos, 2020). In this study, privacy to participants was ensured, they were informed that private information would remain confidential so that they can freely participate.

3.9.3 Anonymity

Anonymity is a principle that is employed in research to protect the privacy of the participants (Fleming & Zegwaard 2018). In this study participants were ensured anonymity, their real identities were not used. To protect the participants, the researcher used pseudo names for reporting the findings from the respondents, this was done to protect them so that the readers will not match the answers to the respondents.

3.10 Limitations

Some of the participants were hesitant to participate because they feared to be exposed, they feared that some questions might cause problems for them. The researcher ensured them that their identities will be protected and they will be anonymous.

3.11 Data analysis

The qualitative data was analysed through the application of thematic analysis. It is a systematic and flexible approach that helps researchers identify and analyse patterns (themes) within a dataset. Thematic analysis is often used as a tool to understand the experiences, viewpoints, and interpretations that people or groups give to a certain phenomenon. There are steps involved in conducting thematic analysis: data familiarization, data coding, code review and grouping, theme development, data extracting, review and refine, narrative development, data saturation, member checking and report findings (Mezmir, 2020). Quantitative data was analyzed with the use of stata and Microsoft excel.

3.11 Chapter summary

This chapter provides a concise description of the data collection process, the methods that were used to gather information that will be essential to the success of this study's purpose and how such data will be analysed. The study's focus is on small scale horticultural farmers from Mahobong Leribe, and they were engaged in interviews to ensure that the information aligns with the objectives and research questions of the study. The next chapter will focus on data presentation, analysis and discussions.

CHAPTER FOUR: DATA PRESENTATION, ANALYSIS AND DISCUSSION

4.1 Introduction

This chapter entails the presentation, analysis and discussion of data that was collected from Maoa-mafubelu fruits farm and Likhothola fruits farm. The data was based on the study on horticultural projects and their effects on socio-economic development of the smallholder farmers in Leribe. The first sub-section presents the results on the first objective which is whereby the study assesses the impact of horticulture to farmers' economic development, the second sub-section focuses on the investigation on the contribution of horticulture to social development of smallholder farmers and the last sub-section is focused on assessing the challenges encountered by the smallholder farmers.

4.2 The contribution of horticulture farming to economic development of local community

The results of the study indicate that the adoption of horticulture has positively contributed to economic development of the smallholder farmers by creating employment, market exposure, income generation and fruit diversification.

4.2.1 Employment creation

The study revealed that horticulture contributes to economic development by creating employment. Participants mentioned that among many other agricultural activities that people engage in to secure their livelihoods, horticulture farming has many benefits to farmers. According to informants, horticulture creates employment for farmers, since production of fruits has processes that require labour for planting, harvesting, packaging, taking care of the fruits and trees etc. One farmer confirms employment creation by horticulture as he remarked that:

> *Farmers in this village did not have jobs hence their dependence on agriculture to produce food for their families for consumption, but as we all know there are always ups*

and downs in agriculture due to various reasons. Since the commencement of these horticulture projects many people are able to engage in income generating activities like selling fruits from the farm (Interview with farmer1, Mahobong 11 April 2024).

Figure 4.1 below is the presentation on the employment created by horticulture farming from two farms. One farm produces apples only and it is called Maoa-mafubelu fruit farm and the other farm produces four different kinds of fruits namely: apples, peaches, plums and apricots which is Likhothola fruit farm. The two farms created employment for 32 workers from Leribe as illustrated in Figure 4.1 below.

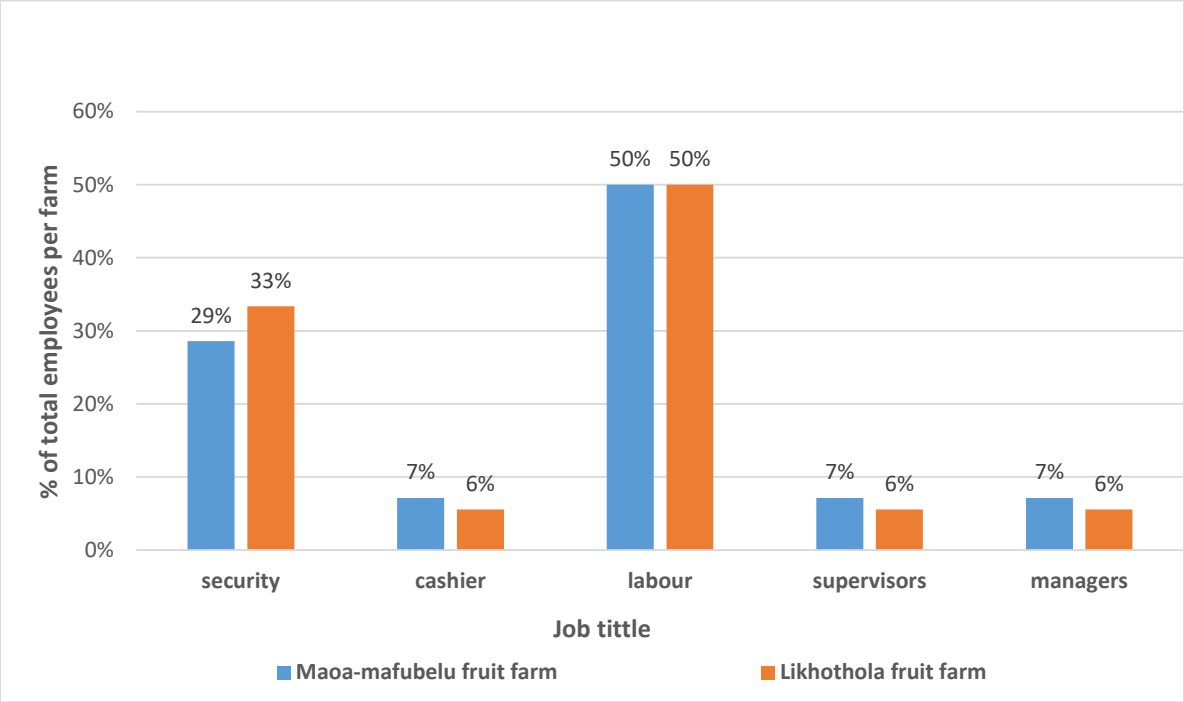

Figure 4.1: Distribution of employment creation per farm

Maoa-mafubelu fruit farm has a total of 14 employees. 50% of these employees are the general labours that are hired for different farm activities in a fruit farm, while 29% of these employees are the security guards followed by 7% of a cashier, supervisor and a manager that shows that these positions are constantly filled by the same number of employees. On the other hand,

Likhothola fruit farm has a total of 18 employees. 50% of these employees are labours, followed by 33% of the security guards and lastly 6% of the employees contributes to the positions of cahier, supervisor and manager. In addition, some people from the villages created jobs for themselves by selling either fresh products or dried fruits to generate income. The results of the study align with those of FAO (2021) whereby it is revealed that horticulture plays a pivotal role in generating employment opportunities, ensuring food security, and bolstering revenue prospects for rural communities. Within this sector, there is a series of activities, such as harvesting, processing, and packaging of agricultural products, these activities contribute to the creation of jobs for farmers.

4.2.2 Market exposure

Most of the informants revealed that market exposure is essential for horticulture farmers to achieve economic development. Farmers that have access to a variety of markets can exhibit their goods, to help boost sales and profits. The results of the study also showed that farmers can increase demand for their products by reaching out to a wider audience, the informants also mentioned that having access to both domestic and foreign markets can greatly increase their sales and revenue. The informant further added that the competition that is associated with big markets encourage them as farmers to diversify their production of fruits and to produce high valued products that are in high demand. During the interviews the informants showed that markets bring along massive competition and because of this the farmers resort to producing varieties of fruits to avoid the risks and to tackle the competition of the markets.

One of the farmers explains what helps them to increase their sales and revenue;

> *We currently have markets that we supply with fruits such as chain stores, local shops and international markets like Maluti fresh produce. Being exposed to local and*

international markets help us to produce high valued products to help in boosting our sales and revenue. If it was not for the market we would be facing problems, because we produce perishable products that need to go to the market as soon as they are ready for the market (Interview with farmer 2, Mahobong, 11 April 2024).

The outcomes of this study have unveiled the significance of multiple markets in the agricultural sector. The farmers from both fruit farms which are Maoa-mafubelu fruit farm and Likhothola fruit farm, revealed that they produce their products to local supermarkets, street vendors, Shoprite, Pick'n Pay, Enrich and Maluti fresh produce. One of the farmers' response:

We sell our fruits to different shops in the country and in South Africa. We also produce for Maluti fresh produce. So far it is the only market we have that is outside of the country (Interview with farmer 2, Mahobong 11 April 2024).

4.2.3 Income generation

The findings showed that most of the farmers generate a fair amount from their produce to cater for salaries and other farm expenses. The farmers from Maoa-mafubelu fruits farm mentioned that the sale of their apples generate the estimated amount of M400 000.00 and the farmers from Likhothola fruits farm highlighted that they make about M500 000.00 as the total sales of all the fruits that they produce from the farm. Furthermore, some of the farmers mentioned that on a monthly basis they spent about M30 000.00. This is the amount spent on salaries for the farm employees, this proves that horticulture farming generates income.

The study established that horticulture farming generates income in various ways for smallholder farmers and the public surrounding fruit farms, majority of the farmers showed that they earn

profits from selling their products. They even highlighted that the general public that resides near the fruit farms also generate income by buying and selling of the fruits. One of the farmers said:

> *I engaged in a lot of agricultural activities but horticulture farming is the one which is more efficient in generating income. It is not only beneficial to us who are engaged in a day to day running of the farms, some of the people from the village also make a living by selling these fruits they get from us (Interview with farmer 3, Mahobong 11 April 2024).*

One of the farmers articulated that:

> *I am now able to afford to pay for my family's expenses using the income we generate from the sales of fruits. I am even able to pay for my children's education (Interview with farmer 3, Mahobong, 11 April 2024).*

The study indicated that the income generated from the sales of horticultural products provides financial stability to farmers. This financial stability is crucial for planning and managing household expenses and also reducing the vulnerability to economic shocks. Most of the farmers have mentioned that horticulture farming is a significant source of income as it helps them and their families because the income they gain from these farms help them to make a living for their families and they are also able to send their children to school. The findings of this study are in line with the study of Pal *et al.* (2024) that revealed that horticulture is a rapidly expanding agricultural sector that is essential for generating income, reducing poverty and creating employment for farmers.

4.2.4 Fruit diversification

This sub section presents the results on the contribution of diversification of fruits to economic development. Most of the interviewed farmers mentioned that fruit diversification refers to

growing different kinds and varieties of fruits in a specific area, with the aim of increasing productivity and marketability. Farmers indicated that having different kinds of fruits help them to reduce risks of having a single fruit production that can be affected by different diseases and pests and delay progress of production. Fruit varieties help farmers to enhance their income stability by having their income sourced from different fruits and not depend on a single type of fruit.

The farmers revealed that different fruits ripe and get harvested at different times of the year and this allows farmers to capitalize on fluctuating market demands and prices. This ensures a more consistent cash flow throughout the year. Producing more fruits also demand more labour which creates employment opportunities, which contributes to economic development. In addition, farmers have shown that they engage in various activities like harvesting, processing, packaging, and branding. Since these activities are labour-intensive, they create additional economic activities and job creation. Fruit diversification boosts trade by attracting international and local markets. The informants also reported that offering a variety of fruits attracts a wider range of consumers and caters for diverse tastes and preferences. They also mentioned that it can boost sales and create more vibrant local markets. One of the informants mentioned that:

> *Producing different kinds of fruits help us with growth and boosting of sales. Many people have different preferences and taste when it comes to fruits which is why it is important to produce variety of fruits because they also sell differently (Interview with farmer 4, Mahobong, 12 April 2024).*

Figure 4.2 below presents the production of varieties of fruits from two different farms.

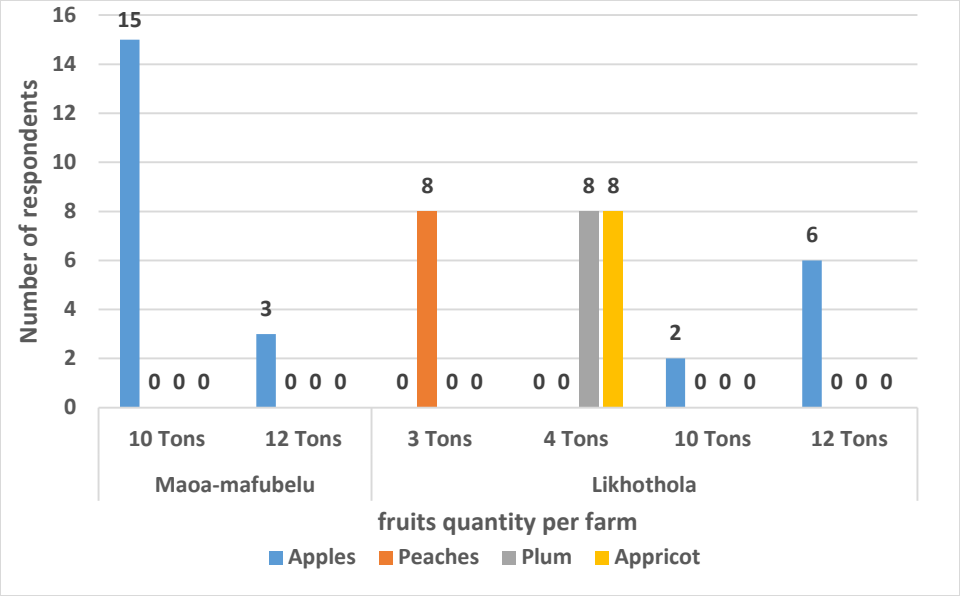

Figure 4.2: Fruit varieties and their quantities

The figure above shows that the fruit farm that produces apples only which is called Maoa-mafubelu fruit farm, has 18 farmers who own the farm and they have mentioned that they produce about 10 to 12 tons of apples from their fruit farm. On the other hand, the other fruit farm which is called Likhothola fruit farm is owned by 8 farmers who reported that they produce 8 tons of peaches, 4 tons of plums, 4 tons of apricot and about 10 to 12 tons of apples.

The findings of this study show that producing a variety of fruits help the farmers to accumulate more revenue and generate more profits because they have different kinds of fruits. Fruit diversification also help to secure the market easy by satisfying the preferences of different customers and to also assist in being at liberty to produce for the international markets. This confirms Das *et al.* (2023) argument that diversification of fruits or crops is supported by consumer demand and trade. The scholars further showed that the variety of crops or fruits is more about satisfying the wishes of the customers and to attract trade through the market.

The results align with the theoretical framework used for this study which is sustainable livelihood framework. This theory shows that people can maintain their livelihoods through

many developmental activities such as fruit diversification that is highly recommended for increasing the sales of the fruits because they satisfy different preferences of different customers. The components of this framework shows that the decisions of farmers and their households are determined by their livelihood capitals. Farmers use their capital to create livelihood strategies (Kelley *et al*., 2020).

4.3 The contribution of horticulture farming to social development of local community

The findings discovered that horticulture farming has contributed to social development, by bringing out social benefits for the farmers like being able to pay for the children's education, healthcare access, shelter, food and water bill.

Figure 4.3 below illustrates how the farmers spent their profits on different social benefits. The presentation of the data is classified in different categories being category 1 to category 5 as indicated below. These categories were done due to the fact that, the farmers' spending on some expenses intersects.

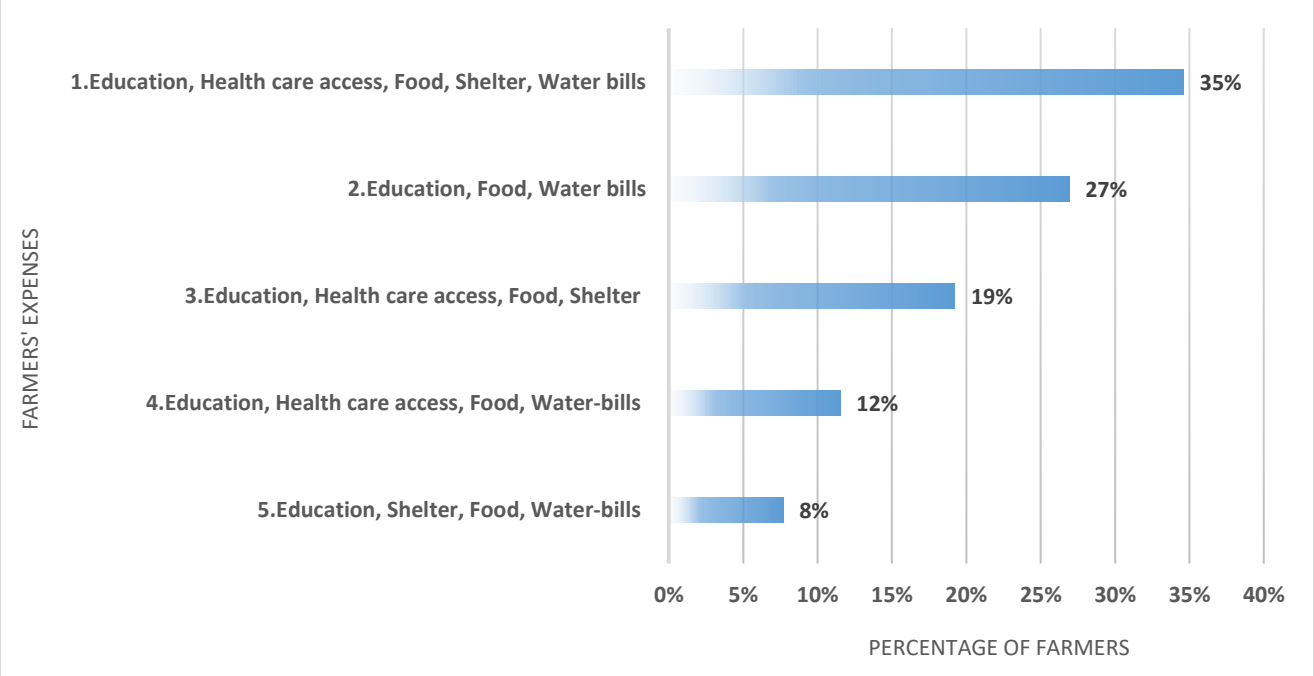

Figure 4.3: Farmers' expenditure

The study exposed that, the farmers' proportion 8% claimed that they use their income to pay for other expenses such as education, food, shelter and water bills. 12% of the farmers mentioned that they use their earnings from the farms to cater for all other mentioned expenses except for shelter. A marginally greater proportion of 19% of the farmers also stipulated that they spent their income on education, healthcare access, food and shelter. Furthermore, 27% of the farmers mentioned that they spent their income on education, food and water bills. Finally, 35 percent of the farmers stated that they use their income for all of the specified expenses, such as shelter, food, Education, healthcare access and water bills. This study is concurrent with that of Kashyap *et al*. (2022) that stated that horticulture crops generates income for the farmers to meet the expenses of their households.

The findings of the study are concurrent with the adopted theoretical framework of the study, which is sustainable livelihood framework. This framework supports that horticulture farming contributes to social development through social and human capital, horticulture farming provides farmers with important skills and knowledge that will help in improving their productivity. Furthermore, their skills help in generating income that will help them invest in their social benefits such as children's education, shelter, food, water bills and access to healthcare that contributes to social development.

4.3.1 Education

The study revealed that most of the informants mentioned that they are able to afford some basic needs due to horticulture farming. They revealed that they are now able to invest in their children's education. They highlighted that sending their children to school was somehow

challenging since they could not afford to do so, but ever since they became part of the farmers who decided to produce fruits, things turned out better for them. One farmer confirms that,

> *I use the money I get from horticulture farming to pay for my children's education. It was hard* for *me to pay for their education before I was involved in horticulture farming (Interview with farmer 4, Mahobong 12 April 2024).*

As illustrated in Figure 4.3, the farmers' expenses are categorised based on the intersections of their spending priorities. The figure highlights that most farmers have allocated their expenses to overlapping categories, with education being a common element across all groups with the proportion of 100%. This intersection of expenses indicates that education is a significant and consistent priority for the majority of farmers, even when resources are limited and have to be distributed among other essential needs. The study's findings revealed the importance of education to farmers and the local community. The farmers prioritised spending on education with the money they made from horticulture farming. The findings of the study are concurrent with the study of Khamthara (2020) that highlighted that horticulture farming has a positive association with spending on child education. The author additionally asserted that horticulture farmers yield more favorable outcomes in terms of child education. While compared to households with traditional staple crops as their main crops.

4.3.2 Food

The findings discovered that all of the farmers indicated that horticulture farming has helped them to be able to afford food for their families. Most of the informants highlighted that as important as food is to the people, they struggled to provide for their families before they transitioned into horticulture farming. One community leader attested to this by explaining that:

As a community leader, my community has both rich people and also those who struggle every day. Horticulture farming changed lives of those people who used to barely afford food (Interview with a community leader, Mahobong, 11 April 2024).

As illustrated by Figure 4.3 above food is also a common expense for all the farmers with the proportion of 100%. Justas education, food also appears to be a significant expense for the farmers to spend their income on. The findings of the study revealed that through horticulture the farmers and the local community afford to be food secure. The farmers manage to use the profits they get from horticulture farming to provide food for their families. The findings of the study are in line with the findings of Hanif *et al.* (2024), that states that horticulture is important to farmers because it helps farmers to afford food. The authors further mention that horticulture provides sustainable ways to provide food production for farmers.

4.3.3 Healthcare access

The study revealed that mostly the participants mentioned that healthcare access is very prominent to them, since they sometimes work under unsafe environment. The farmers highlighted that they sometimes come across life threatening situations while working at the farms but the profits they get through horticulture farming has made it easy for them to afford healthcare access. Especially if ever they come across any situations that will need the attention of healthcare personnel. One of the informants highlights that:

Working in the farms can be very dangerous for us farmers such as weather conditions and poisonous snakes. This is a major concern but being a horticulture farmer made it easy for me to afford healthcare services (Interview with farmer 1, Mahobong, 11 April 2024).

Figure 4.3 above illustrates how healthcare access is distributed among the farmers' expenditure, the figure shows that healthcare access appears in 3 categories which are category 1, 3 and 4. This shows that a proportion of 60% of the farmers, are able to afford healthcare access along with other mentioned expenses. The study discovered that farmers sometimes work under unsafe conditions in the farms. The farmers come across challenges that forces them to seek medical attention. The study established that horticulture farmers manage to access healthcare, through the profits they make from the sales of their products. The results align with Ghanghas *et al.* (2022) study that highlighted that horticulture sector provides health access to farmers and the population at large. The authors articulated that horticulture farming have healthcare access for farmers, because their work exposes them to dangerous fumes of pesticides they use to spray in the farms.

4.3.4 Shelter

The study revealed that most of the informants mentioned that, horticulture farming has helped them to have places they call home. A majority of farmers mentioned that they are able to pay rent, while some mentioned that they have houses because of horticulture farming. One of the farmers highlighted that:

> *I do not pay for shelter, I use my income from the farms to finance other expenses because I live around these farms (Interview with farmer 3, Mahobong 11 April 2024).*

One of the farmers attested that some of them use their income for shelter:

> *I am also the member of this community that reside around the farms, but I use my income to pay for shelter (Interview with farmer 1, Mahobong 11 April 2024).*

Figure 4.3 shows the proportion of 60% of the farmers who claimed to use their income for shelter. However, some of the farmers reported that they do not use their income for shelter, because the fruit farms are a walking distance from their homes. The results show that farmers are able to pay for shelter, using the income they get from horticulture farming. The findings are in agreement with Kashyap *et al.* (2022) study, which was aimed at assessing social benefits of farmers through horticulture farming. The study found out that the farmers manage to pay for basic needs like shelter, food, water etc.

4.3.5 Water bills

The study revealed that almost all of the sampled farmers are able to access water. They highlighted that they are able to pay for water bills ever since they got engaged in horticulture farming. They further showed that lack of water affected them at home and at the farms. One of the farmers said;

> *We are now able to pay for water which is one of the important commodities in our line of work (Interview with farmer 2, Mahobong 11 April 2024).*

As it is shown in figure 4.3, water bills appear in 4 categories which are categories 1, 2, 4 and 5. This shows that 80% of the farmers are able to access water because of horticulture farming, it is only 20% of them who reported that they do not pay any water bills. The findings of the study revealed that the farmers are able to afford water bills. Water is essential to farmers and the local community. It is through horticulture farming that the farmers have access to water. The findings are concurrent with the study of Jena *et al.* (2023) that discovered that horticulture farming contributes to the social wellbeing of the farmers by providing social benefits like water, food, shelter and social equality.

4.3.6 Capacity development and training

The findings revealed that the horticulture project management also helps in capacity development of farmers through training. Informants revealed that they were trained on choosing what they wish to produce in terms of the market, soil condition and the climate condition. The farmers mentioned that they developed skills that help them to produce to their full capacity, through attending seminars that help them develop skills. The participants revealed that the extension officers hold trainings and information sharing seminars with them before they get engaged in agricultural activities. The findings of the study are concurrent to the study of Reddy and Kumar, (2020), as they shared the same sentiments that, trained farmers are more likely to succeed than those that did not get any training. They further mentioned that farmers who were trained before any agricultural activities, are skilled to tackle any obstacle they might come across. One of the farmers articulated that;

> *Most of us attended the trainings that were hosted by extension officers. I attended the trainings because horticulture is a new kind of farming I wanted to be involved in (Interview with farmer 2, Mahobong 11 April 2024).*

The results showed that most farmers received training on how to produce and how to take care of the fruits. They were trained before getting engaged in horticulture farming. The study's findings further show that farmers who were trained prior to any production are more successful, because they produce top rated products than those that did not receive any training. This study's results align with the study of Agyei and Stringer (2021) that revealed that it is important to consult extension services to get trainings in order to address many challenges of agricultural production.

4.4 Challenges faced by horticulture farmers in Mahobong community

Majority of farmers revealed that they face numerous challenges in their fruit farms. They mentioned that some of these challenges hinder them from producing at full capacity. The informants further mentioned that even though horticulture farming positively impacted the socio-economic development of farmers, they faced challenges that hinder with production. Challenges like theft, weather conditions, expensive agricultural inputs and unavailable markets.

Table 4.1 below presents the data collected from two fruit farms in Leribe pertaining the challenges that are faced by farmers while producing their fruits.

Challenges	**Fruit farms**		
	Maoa-mafubelu	**Likhothola**	**Total**
Weather conditions and expensive agricultural inputs	6	2	**8**
Unavailable markets	4	1	**5**
All challenges	5	5	**10**
Total	**15**	**8**	**23**

***Notes*: available challenges: weather conditions, expensive agricultural inputs, no available markets and theft**

Table 4.1: Challenges faced by farmers

A total of 26 farmers from both farms took part in the study, 18 farmers from Maoa-mafubelu fruit farm which produces apples only and 8 farmers from Likhothola fruit farm that produces different kinds of fruits. From Maoa-mafubelu farm, 3 out of 18 farmers revealed that they don't have any challenges at the farm, and from the other fruit farm which is Likhothola fruit farm, all the farmers listed the different kinds of challenges they come across, none of them said they do not have any challenge. A total of 8 farmers from both farms mentioned that their farms are faced with the challenges of bad weather conditions and expensive agricultural inputs. Moving

on, unavailable markets for the farmers appears to be one of the challenges that worries the farmers as they complain that their products would go to waste if there is nobody to buy their products. However, 4 participants from Maoa-mafubelu fruit farm have revealed that they do not have enough markets to supply. One other farmer from Likhothola fruit farm also showed that they do not have markets as well. Lastly, a total of 10 farmers reported that both farms are faced with all the mentioned challenges.

The study discovered that there are more challenges than the listed ones, and these challenges can interfere with the progress of the farmers to be productive. This also affects the farmers to produce to their fullest capacity because challenges like unavailable markets can cause lack of dedication for the farmers, because their worry would be who would buy their products. The findings of this study are in line with the study of Yigezu and Tejada (2021) that stated that horticulture sector face numerous challenges that have an impact on their productivity and profits, these challenges include pests, weather conditions, unexpected frost etc.

4.4.1 Bad weather conditions

The findings of the study revealed that most of the informants stated that they face different challenges while producing their horticulture products. The farmers further articulated that challenges like bad weather conditions affect them and their products. Bad weather conditions affect horticulture products in various ways like early frost, heavy rains and excessive heat. These conditions cause damage to the fruits and affect their quality. One of the farmers stated that:

> *We sometimes get hit by unexpected frost which affects the quality and quantity of our fruits badly. (Interview with farmer 2, Mahobong, 11 April 2024).*

It is illustrated in table 4.1 that 6 farmers from Maoa-mafubelu fruits farm and 2 farmers from Likhothola fruit farm, revealed that they are affected by bad weather conditions in their fruit farms. The findings of the study uncovered that bad weather conditions affect the fruits from the fruit farms in different ways. Some of the fruits get damaged while others depreciate in quality. The findings of the study are in line with the study of Dalhaus *et al.* (2020) that stated that bad weather conditions affect the quantity and the quality of the fruits in the farms.

4.4.2 Expensive agricultural inputs

The findings of the study established that expensive inputs are one of the major challenges encountered by horticulture farmers. The farmers mentioned that it is hard for them to produce without agricultural inputs, which are hard to be accessed because they are expensive. One of the farmers explain that;

> *One of our biggest challenge is expensive agricultural inputs, they are not easily accessible and we only get them from South Africa in Stellenbosch (Interview with farmer 1, Mahobong, 11 April 2024).*

As illustrated in table 4.1 a total of 8 farmers from the two fruit farms revealed that they come across the challenge of costly inputs. The study further revealed that the farmers claim, they are not able to afford the needed agricultural inputs for their production in the fruit farms. The study further revealed that agricultural inputs are not only expensive, they are also hard to get as they are only purchased from South African markets. The findings of the study revealed that expensive agricultural inputs hinder the production of fruits. The results of the study are concurrent with the study of Hapsari *et al.* (2021) that revealed that horticulture farming faces the constraints of expensive agricultural input prices that reduces the welfare of farmers.

4.4.3 Lack of available markets

The study revealed that markets are important to horticulture farmers. However, some of the informants have reported that one of the challenges they encounter is unavailable markets. Some of the farmers mentioned that lack of markets affected their products, because they produce perishable goods that have to be sold quickly before they become wasted. One of the farmers articulated that;

> *We produce perishable goods and we sometimes encounter huge losses, because we do not have markets to sell our products and this affects our productivity (Interview with farmer 3, Mahobong, 11 April 2024).*

As illustrated in table 4.1, a total of 5 farmers reported that they have a challenge of unavailable markets. The study revealed that most of the farmers claim that their products are perishable and easily get stale before they access markets. This is because they take a long time after being harvested due to lack of available markets. The results of the study revealed that in horticulture farming market availability is important. The farmers that do not have markets for their fruits experience huge losses because their fruits become stale. The findings of this study are in line with the study of Mutwiwa *et al.* (2022) that explained that farmers that have no access to the market lose a lot of revenue, because most of their fruits perish.

4.4.4 Theft

The findings of the study revealed that most of the farmers face the problem of theft in their farms. The informants reported that they do hire security to protect their products, but their farms still get invaded by thieves that steal their fruits. One of the farmers mentioned that;

It is through our hard work and sacrifices that we manage to produce these fruits, but some people come and steal from us (Interview with farmer 2, Mahobong 11 April 2024).

The study revealed that most of the farmers claim they still experience theft in their farms, even though they have security officers patrolling the farms. The farmers further mentioned the theft affects them and their productivity, as they become demotivated to produce the fruits that end up being stolen. The findings of the study revealed that the farmers' fruit farms are attacked by thieves that illegally harvest their fruits without their knowledge. The results of this study are in line with the study of Dyer (2023) that highlighted that watchmen were allocated to farmers in Kenya, reducing the perceived risk of theft. This was done because the theft of fruits escalated in the fruit farms.

4.4.5 Snakes

The study revealed that farmers encounter a number of challenges in the fruit farms. Farmers reported that they sometimes run into snakes in the farms. They further mentioned that most of those snakes are very dangerous and can kill them. One of the farmers reported that;

Sometimes it is dangerous for us to work in the farms because snakes attack us unexpectedly, the snakes use the trees to hide and we hardly see them until they attack (Interview with farmer 1, Mahobong 11 April 2024).

The study revealed that snakes attack and harm the farmers while they work in the farms. The farmers also revealed that it is life threatening to them, because some of the snakes are venomous and a single bite can be deadly. The study's findings revealed that farmers work under life threatening conditions that make them hesitant to work in the fields. The study further revealed that the farmers' work ethic decreases due to the fear of wildlife in the farms. This study is in

line with the findings of the study of Yigezu and Tejada (2021) that stated that horticulture sector faces numerous challenges that have an impact on the farmers' productivity and profits.

4.5 Chapter summary

The findings of this study revealed the contribution of horticulture to economic development. Horticulture farming has positively contributed to economic development through employment creation, fruit diversification, income generation and market exposure.

The outcomes of this study revealed that horticulture farming contributes to social development of the local community. The farmers emphasised this by mentioning that they use the profits from the fruit farms to finance their social benefits like education, healthcare access, shelter, and food and water bills. The farmers also attested that they were trained by the extension officers about horticulture farming.

Lastly, the study revealed that in as much as horticulture farming contributes to socio-economic development, farmers face challenges that make it hard for them to be productive and produce to their full capacity. They face challenges like bad weather conditions, expensive agricultural inputs, no available markets and theft. The farmers also revealed that they live in fear of the snakes that attack them at the farms.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The main objective of the study was to investigate the contribution of horticultural projects, to socio-economic development of the local community in Mahobong community. This chapter summarises the dissertation and draws up a conclusion based on the objectives of the study. Lastly, the chapter presents the recommendations from the findings of the study.

This study was guided by the sustainable livelihood framework. The findings of the study showed that horticulture projects have a combination of resources and assets that help the farmers to build livelihood strategies. The study also proved to be more robust in showing how horticulture projects help farmers to acquire their socio-economic development. This study also asserted that the sustainable livelihood framework was essential to fully understand how farmers and the local community use their assets, and their different kinds of capitals to strive for socio-economic development. Farmers along with the local community have different kinds of capital assets such as financial capital, human capital, natural, physical capital and social capital that help them to achieve socio-economic development through horticulture. Financial capital was through government grants, human capital which is access to skillful labourers, social capital which involves market connections and natural capital which is access to land and physical capital which is access to machinery or any other relevant equipment needed for horticulture production.

5.2 Summary of dissertation

The primary objective of this study was to investigate the effects of horticulture projects to the socio-economic development of farmers in Mahobong community. The study was aimed at understanding the reasons behind obstacles and challenges that hinder socio-economic

development of the farmers and the local community through horticultural projects. An explanatory sequential research design was employed in this study to guide the research process, the data was collected through a combination of interviews and questionnaires, with provision of both qualitative and quantitative perceptions. The analysis for this study was conducted using thematic analysis, Stata, and Microsoft Excel. This approach allowed for a comprehensive understanding of the data, revealing detailed patterns and trends. With the allocation of explaining quantitative data with qualitative data.

The findings of the study indicated that horticultural projects have positively contributed to the socio-economic development of farmers in Mahobong community. The results show that farmers are able to finance their social needs through the income generated from horticulture projects, leading to improved living standards and economic stability. However, the study also highlights that despite these benefits, farmers continue to face challenges that need to be addressed to fully realise the potential of horticultural initiatives. In order to foster sustainable socio-economic development of the farmers and the local community situated in the area of the projects.

5.3 Conclusion

The study aimed to investigate the contribution of horticulture projects, to socio-economic development of the farmers and the local community. The first objective focused on impact of horticulture to smallholder farmers' economic development. The study concludes that the existence of horticulture projects in Mahobong has contributed to economic development of local communities. This is confirmed through the contribution of the fruit farms to creating employment, market exposure, income generation and fruit diversification. Therefore, this study has concluded that horticulture projects positively impact economic development of the farmers,

and other local communities who are engaged in it through various activities that bring about development.

The study further investigated the contribution of horticulture farming to social development of the smallholder farmers and the local community. The study reached a conclusion that horticulture farming has positively impacted on social development of the farmers and the local community. The farmers use the profits from horticulture farming for healthcare access, shelter, food, education and water bills. Therefore, the study concludes that horticulture contributes positively to social development of the farmers and the local community.

Lastly, the last objective of the study focused on assessing the challenges faced by horticulture farmers. The study concludes that there are challenges encountered by horticulture farmers and they affect the production of the fruit farms and the farmers. These challenges are bad weather conditions, expensive agricultural inputs, no available markets and theft. This study therefore, concludes that horticulture farmers face difficulties while farming their fruits.

5.4 Recommendations

- Majority of the farmers have a challenge of expensive agricultural inputs. It is recommended that farmers should be trained by the Ministry of Agriculture and Food Security to produce their own seeds instead of buying expensive seeds from foreign countries.
- There are no facilities to keep perishable products fresh. It is therefore recommended that the Government of Lesotho funding should not only focus on the production processes but it should also be extended to keeping the products fresh through acquiring storage facilities that will help in keeping the products fresh for the market.

- Horticulture products are perishable and they go to waste in large quantities. The department of Agricultural Research in the Government of Lesotho should train horticulture farmers on how to use stale products to produce organic fertilisers.

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APPENDICES

APPENDIX I: CONSENT FORM

Informed consent form

I _____ (participant's full names) hereby prove that I am aware of the purpose of the research, and I give my consent to be a part of it and participate in it. I am aware that it is within my rights to withdraw at any moment if I feel unsettled to continue. I consent to participate in this study because I am aware of its purpose and significance. I am also aware that a report will be created using the findings of the study still adhering to ethics in research.

I agree to have this interview recorded (if necessary).

Full name of participant _____

Signature of participant _____ Date_____

Full names of researcher _____

Signature of researcher _____ Date _____

APPENDIX II: QUESTIONNAIRE
QUESTIONNAIRE FOR FARMERS

Good morning/afternoon, I am Khamokha Matsoso and I am currently a Masters of Arts in Development Studies student in the National University of Lesotho. My research project is on the effects of horticulture projects on socio-economic development of the local community in Mahobong community in Leribe. You have been selected to take part in this study and the questions that are going to be asked will strictly relate to horticulture and socio-economic development of smallholder farmers. The answers that you produce will be confidential they will not be shared with anybody but will be used for the purpose of the study. You are not forced to take part in this study, your participation is voluntary and you can withdraw at any given time if you feel not comfortable with answering any of the questions.

Section A

Background information *(tick the appropriate box)*

1. **Sex**

Male	
Female	

2. What kind of crops and fruits do you farm?

Crops	**Tick**
Peaches	
Apples	
Pears	

Oranges	
Tomatoes	
Lettuce	
Other(*specify below)*	

3. How many years have you been practising horticulture farming?

Years	**Tick**
1	
2	
3	
4	
5+	

Section B: Economic contribution of horticulture

4. .How much do you spent on inputs?

Inputs	**Amount (Maloti)**
Seeds	
Fertilizers	
Pesticides	
Water	
Others *(specify below)*	

5. How much products do you produce in a year? *(Provide an answer in the box)*

Products	**Quantity**
Peaches	
Apples	
Pears	
Oranges	
Tomatoes	
Lettuce	
Others*(specify below)*	

6. Where do you sell your products?

Markets	**Tick**
Retail shops	
Local owned shops	
International markets	
Other*(specify below)*	

7. How many people work for you in the farm?

Job title	**Tick**

8. How much do you spent on salaries?

……..

Social contribution of horticulture

9. How do you use the money you get from farming? (Tick all relevant answers)

Services	**Tick**
Education	
Healthcare access	
Shelter	
Food	
paying water bills	
Other (*specify below)*	

Challenges faced by farmers

10. What challenges do you face in horticulture farming?

Challenges	**Tick**
Theft	
Weather conditions	
Expensive agricultural inputs	
Unavailable markets	
Others*(specify)*	

APPENDIX III: INTERVIEW GUIDE

Interview guide for The Ministry of Agriculture and Food Security and Agricultural extension officer

1. What are the different farming activities being practised in Leribe?
2. What role does the ministry play in agricultural activities in Leribe?
3. How many horticultural projects do they have in Leribe?
4. Which organisations are involved in funding these horticultural projects?
5. What strategies does the ministry take to promote horticultural projects?
6. What kind of farming equipment do you provide to horticulture farmers?
7. Do you train farmers prior to engaging in horticulture farming?
8. What kind of farming inputs do you provide horticulture farmers with?
9. What challenges are faced by the Ministry in promoting horticulture projects?
10. What do you do to overcome such challenges?
11. Which markets are being supplied by the horticulture farmers in Leribe?
12. Do you help the farmers to identify the markets?
13. What challenges do horticulture farmers face?
14. What strategies do you implement to solve those problems?
15. Do you have any suggestions or recommendations regarding horticulture farming?

INTERVIEW GUIDE FOR COMMUNITY LEADERSHIP

1. When did horticulture farming start in your village?

2. How many farmers practise horticulture in the community?

3. Who initiated the horticulture projects in your community?

4. Where do the farmers get their agricultural inputs for the horticulture projects?

5. What type of crops and fruits do they farm?

Objective 1: Impact of horticulture on economic development

6. From your experience as the community leader, can you say farmers gain profits from horticulture projects?

7. Which markets do these horticulture farmers sell to?

8. How many people from your community are employed n horticulture projects?

Objective 2: Impact of horticulture on social development

9. What benefits does the community get from horticulture farming?

Objective 3: Challenges faced by horticulture farmers

10. What kind of challenges do horticulture farmers face?

11. How do they overcome those challenges?

12. Do you have any suggestions or recommendations regarding horticulture farming?

INTERVIEW GUIDE FOR FARMERS

1. When did you start horticulture farming?

2. What kind of crops and fruits do you farm?

3. What kind of inputs do you need for horticulture farming?

Objective 1: The impact of horticulture to economic development

5. Who provides the inputs for you?

6. How much quantity do you produce in horticulture farming?

7. Do you produce for the market or consumption? If for markets, which markets do you produce for?

8. How do you identify the markets?

9. Are they paying you well?

10. How much do you roughly make from selling your horticulture products?

11. Do you make profits from your products?

12. How many workers do you employ?

13. How much money do you use to pay the workers?

Objective 2: The impact of social development

14. How do you use the money from horticulture projects?

Objective 3: Challenges faced by horticulture famers

15. What kind of challenges do you face in horticulture farming?

16. What do you do to overcome those challenges?