

**SMALLHOLDER AGRICULTURE AND FOOD SECURITY IN THE  
CITY OF TSHWANE MUNICIPALITY**

by

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## DECLARATION

I, Nndavheleseni Dennis Ramanyimi, declare that the mini-dissertation hereby submitted for the Masters in Development Studies at the Centre for Development Support, University of the Free State, is my own independent work have never been submitted previously to any other academic institutions for qualification.

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Signature

January 2019

Date

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- ✓ The study is dedicated to my late Mother, Mrs Maria Munzhedzi Ramanyimi who departed in 2017 while I was still studying to be with the Lord. May her soul rest in peace.

**Dennis Ramanyimi**

## **ABSTRACT**

The study aims to investigate the role of smallholder agriculture contributing to food security system using resources within the area of City of Tshwane Metro municipality with special focus on the rights to agriculture resources and its value chain (markets/prices), rights to food security by assessing access food availability, food accessibility, food utilisation (meeting nutritional requirements), and food stability sustainability.

The study applied a descriptive research using a mixed model approach of both qualitative and quantitative research study. A purposive sampling method was used to identify 61 smallholder agriculture farmers from a population of 412 farmers and five officials participated in the study.

The main findings of the research indicate that there is a positive significant relationship between smallholder agriculture and food security as food produced is sufficient to satisfy food access to the household. The smallholder has powers to land but does not use it optimally. Further violations of rights to markets persist, especially formal markets with regard to food prices.

The study concludes that the relationship has the potential to contribute to the country's challenges of poverty and employment and it is therefore recommended that it should be considered by giving it necessary recognition it deserves. Where necessary the relationship needs to be nurtured by providing good environment for it to excel e.g. establishment of small-scale financial credit facilities.

The key words are: smallholder agriculture, food security, sovereignty.

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## **LIST OF ACRONYMS**

CASP :	Comprehensive Agriculture Support Programme
CoTM :	City of Tshwane Municipality
DAFF :	Department of Agriculture, Forestry and Fisheries
DRDLR:	Department of Rural Development and Land Reform
FAO :	Food and Agricultural Organisation
GDP :	Gross Domestic Product
GHG :	Greenhouse gas
IFAD :	International Fund of Agricultural Development
MAFISA:	Micro Agriculture Financial Institution of South Africa
PTO :	Permission to Occupy
RADP :	Recapitalization and Development Programme
SA MDG:	South Africa Millennium Development Goals
SACN :	South African Cities Network
SSA :	Sub-Saharan Africa
UN :	United Nations

## CHAPTER 1: INTRODUCTION

### 1.1. Background

One of the critical issues of concern to most developing countries is to eradicate hunger and ensure food security to all citizens. A household is considered food secure when all its members have access to sufficient food needed to sustain and live a healthy life (Tonukar & Omotor, 2010:1). This encompasses the ability to secure sufficient food by either producing or purchasing food for all members of the household that will continuously sustain them and meet dietary requirements (FAO, 2015:27). Food security is one of the developmental challenges faced by many developing countries, including South Africa (Jiboye, 2011: 211). Severe suffering of poor health is associated with malnutrition, poverty, and eventual death (Akinloye et al., 2016:102). The association of food security to poverty (as a main factor of food security) makes it a South African priority, especially as the right to food has been declared a human right in the South African Constitution of 1996, section 27 (b) and 28 (c). South Africa also adopted the campaign of introducing the concept of food sovereignty into the food production system. This helps in advocating for the rights of producers (smallholder agriculture) and consumers in relation to the four key determinants of food security, namely; availability, accessibility, utilisation and stability (FAO, 2013:18).

Smallholder agriculture has been viewed as the backbone strategy of development and food security since the 1970s in addressing food security due to its association to livelihoods, employment, income growth, and poverty alleviation (Langat et al., 2011:201 and Zhou, Isaac & Mtigwe, 2013: 2599). It plays a role as a source of livelihood in the African population and can account for more than 90 percent of food production (Seshamani, 2015:99). Smallholder agriculture together especially those farming within peri-urban areas supplies food to many cities in Sub-Saharan Africa (SSA), and contributes to urban diet requirements including exotic or perishable vegetables, fresh milk, and poultry products. In this way, peri urban agriculture shows its considerable role in contributing to a higher variety of foods in places such as city markets. The supply of livestock production and poultry by peri-urban agriculture has been growing globally and therefore is considered as part of the

solution to the developmental challenge of addressing food security and nutritional requirements, especially protein, in urban areas (Seshamani, 2015:99).

## **1.2. Problem statement**

It is in the interests of the City of Tshwane Municipality (CoTM) to ensure that all citizens are food secure at all times and have means to access food. Hence, the acknowledgement that food security is a developmental challenge in the municipality (Makwarela, 2009:7). The municipality further acknowledges the importance of smallholder peri-urban agriculture as a development strategy to address the challenge of food security for the residents and therefore become the subject of policy makers to prioritise intervention. The issue of food security is one of the suitable indicators of human development due to its association to poverty and a healthy life, especially when considering issues of malnutrition, notably amongst the low-income marginalised communities, and can be used to measure the extent of development from insecurity to food security (Makwarela, 2009:7). Further, access to food and nutritional requirements at all times can quantify the status of quality of life achieved by residents as contributed by the intervention of smallholder agriculture.

However, the challenge of food insecurity and hunger remains high in many households of South African cities including CoTM (SACN, 2015:5). Approximately 14 million (mostly urban) citizens are still experiencing hunger, malnutrition, desperation, injustice towards the landless, increasing exploitation of farmworkers, and restricted marine rights for smallholder fisheries. The CoTM, like other cities in South Africa is experiencing a growing rate of urbanisation caused by movement of people from other provinces; from rural areas to the cities in order to seek better life opportunities such as through employment (Rasoolimanesh & Badarulzaman, 2011:151). The growing population in the CoTM puts pressure on access to food supply, and residents face difficulties accessing the food they require to achieve a healthy life and survive (Makwarela, 2009:7). The ever-increasing urbanisation of cities continues to put pressure on food security, coupled with the high cost of living in urban areas. The inequality of income and associated poverty, versus the ever-increasing food prices, price shocks, unemployment, and lack of resources for

dwellers to produce their own food are contributing factors. In urban areas, the affordability of food by marginalised communities, due to various reasons such as high food prices versus lack of or low income among the poor unemployed, remains a challenge (Hart et al., 2009: 214).

Moreover, urbanisation also puts pressure on employment capabilities, of which unemployment brings constraints in accessing income to afford food quantities sufficient to satisfy dietary requirements, which would otherwise lead to starvation and malnutrition (Rudolph, 2012:9). Urbanisation in the cities of Gauteng province is growing at alarming rate. With the high urbanisation in the CoTM, which demands more food and employment, Peri-urban agriculture has a role to play in addressing the challenge (Rudolph, 2012:9). Similarly, the increase in malnutrition in the country, with the inclusion of CoTM, poses a serious problem that needs to be addressed, both city- and nationwide. It is therefore important to assess the contribution and the rights that smallholders enjoy in contributing to the local food security.

There is seems to be inconclusive debate on whether SA is either food secure or not. Some researchers argue that SA is food secure in that the country has sufficient food to feed all residents (DuToit et al., 2011:4; Koch, 2011:1 & Jabulani, 2014:84). However, others believe that the country is food insecure and unsovereign, with no democracy to both food producers (smallholder agriculture) and consumers, which suggests little to no development from food insecurity to security since the transition to democracy in 1994. The argument is that there are still many people who do not have access to food at all times due to affordability of food, which also affects accessibility to a nutritious and balanced diet at all times for their quality of health (Akinloye et al., 2016:103). Most of the food produced by commercial agriculture does not benefit the local poor, but is rather exported outside the country for capital gain. Smallholder agriculture still has the right to determine what food to produce, despite being dictated to by seed producers. Smallholder agriculture is frequently victimised in terms of land, as they are mostly the first to be targeted to dispose of land for other sector development and not for gaining food security.

A presentation by Rugude and Machete (2011) shows that, in the CoTM, approximately 1.5 million children suffer from chronic malnutrition, and 35% of people are vulnerable to food insecurity as they cannot afford to meet their dietary needs due to their poor household income situation. The causes of the imbalances are attributed to the inequalities of household income to provide purchasing power to afford food nutritional requirements at all times. This implies that food accessibility is made possible by the extent of household income (Akinloye et al., 2016:103 & Jabulani, 2014:84).

However, little is known by the municipality about the role of smallholder agriculture in relation to household food security in order to assess whether or not the policy is indeed the right one to assist in addressing the challenge and contributing to household economic growth. Akinloye et al. (2016:101) affirm that most cities in SA do not have knowledge about the role played by smallholder agriculture in the fight against urban and peri-urban food security. The challenge remains with the development practitioners and policy makers to quantify the problem and to plan proactively in order to reduce the food gap in urban areas (Akinloye et al., 2016:101 & Alemu, 2015: 5). In addition, there are very few studies conducted within the CoTM in relation to smallholder peri-urban agriculture and food security, and therefore little impact is known. The municipality provides more support in the form of financial resources, production inputs, and providing land as a way to strengthen food security and income growth, thus reducing poverty.

This study will assess the extent of development from food insecurity to food security, and ultimately food sovereignty, since access to food is considered a human right as per the SA Constitution. The argument that the country is undemocratic, unsovereign and food insecure after 25 years of democracy as claimed in certain literature are serious matter that needs to be explored. This includes challenges that smallholder agriculture farming system experiences with regard to rights pertaining to land and agriculture. Therefore, the study will answer the question and provide guidance to the municipality on the extent of the intervention of smallholder agriculture to the food security of household farming communities. It is again important to analyse the role of smallholders in peri-urban settings as a strategy to address challenge of food security; the results of which can

be used to make decisions regarding areas of improvement or in discontinuing with the strategy. Another possibility would be to try other interventions which can bring about the expected and desired results. The relationship of smallholder agriculture and food security needs to be known by quantifying the impact made in order for the policy makers to use in reviewing or maintaining the policies.

### **1.3. Aim of the research**

The study aims to investigate the role of smallholder agriculture in peri-urban areas contributing to the food security system under the area of City of Tshwane Metro Municipality.

### **1.4. Objective of the study**

The objective of the study is to examine contributions of smallholder agriculture to the household food security with special focus on the right to food availability, access to food, food utilisation (meeting nutritional requirements), and food stability and sustainability. The specific objectives are the following:

- To investigate the extent of rights that the smallholder agricultural sector within the South African agriculture system enjoys with regard to their contribution to the local food security system.
- To explore the amount of development from food insecurity to food security and food sovereignty post-1994.
- To assess the gap between the current food security systems in meeting the Sustainable Development Goals of eradicating hunger and malnutrition and reducing poverty.
- To identify and analyse constraints faced by smallholder agriculture under the SA agriculture system in contributing to SA's food security system.
- To recommend possible measures to enhance the smallholder agriculture towards household food security.
- To advise the government on the achievement of human food security rights as constitutional.

## **CHAPTER 2. LITERATURE REVIEW**

### **2.1. Introduction**

The chapter provides theoretical views of the literature on smallholder agriculture contributing to food security with a theoretical view from within South Africa and globally. The chapter also outlines the agriculture system in South Africa, and gives a historical overview, definitions, and types of smallholder agriculture. Furthermore, the chapter provides the description of food security in South Africa and role played by the introduction of food sovereignty into the food security system. The relationship of food sovereignty to the South African agricultural system and food security system is highlighted. The chapter also explains the effect of climatic change on food production. The chapter ends by providing a conclusion.

### **2.2. Agriculture system in South Africa**

The South African agriculture system is dualistic in nature created by historical patterns of dispossession, discrimination, segregation, and impoverishment policies directed to the majority African population by the former Apartheid regime (Louw, 2013:23). Still today, the sector is still characterized by inequality in terms of the distribution of economic assets such as land.

The system has a commercial sector which is well-integrated and highly capitalised, dominated by white farmers who own over 80 percent of total agricultural land and produce around 95% of agricultural output (Aliber & Hart, 2009:32; Thamaga-Chitja & Morojele, 2014: 147). The system also has a smallholder sector which are the majority (>4million) in the agriculture sector, but which utilises only less than 20 percent of agricultural land of South Africa in the former homelands and some in urban areas (Aliber & Hart, 2009: 32). The commercial agriculture system employs mostly unskilled workers earning low wages, with considerable numbers of seasonal and temporary workers being utilised. Being capital intensive, production is mainly for generating wealth through exporting the majority of their agricultural produce (Salami et al. 2010:1 & Aliber and Hart, 2009:32).



The smallholder agriculture sector is still known for its small farms even after 25 years of South African democracy; they are labour-intensive, use traditional production techniques, and often lack institutional capacity and support (Louw, 2013:23). They are still described as poor, less educated; less developed, and has fewer resources, with agriculture and low farming knowledge residing in a less developed infrastructure (Thamaga-Chitja & Morojele, 2014:148). The smallholder agriculture's operations are centred on family in terms of planning, decision-making and managing farm activities. The practice relies mainly on household family labour and can sometimes hire seasonal labours during peak periods for weeding and harvesting, or else hire permanent labours. They are deprived access to information and established commercial markets which affect their entrepreneurial abilities (Hall, 2009:35).

## **2.3. Smallholder agriculture system in South Africa**

### **2.3.1. Characteristic of the smallholder agriculture system**

The term “smallholder” agriculture in South Africa is highly disputed among researchers and scholars, and is therefore used in an inconsistent manner. It is sometimes used interchangeably with “small-scale”. According to Chirwa and Matita (2015:2), smallholder farmers may be resource-rich, resource-poor, or somewhere in-between, and could be involved in commercial production, semi-subsistence production, or somewhere in-between, and can be categorised into small-scale, communal, and emerging farmers.

Collins (2010:3) refers to “smallholder agriculture” as producers who seldom sell products for cash as a supplement to other sources of income; to those who regularly market a surplus after their consumption needs have been met; and to those who are small-scale commercial farmers, with a primary focus on production for the market. Two criteria tend to prevail: the size of land holding, and the extent of production for the market or the use of different types of labour (e.g. household or family labour, hired workers or cooperative labour). However, various researchers maintain some consistency in characterising the

smallholder agriculture by referring to small land size, limited resources and knowledge. Chirwa and Matita (2015:2) state that the “smallholder agriculture” sector consists of small-scale (approximately 1ha) producers, often with customary land tenure, self-financing, and relying on family and intermittently employed casual labourers. They are known to farm on a small piece of land, and have a small number of livestock holdings such as sheep, goats and cattle, and produce crops on a small scale

DAFF (2012:1) defines “smallholder agriculture” as a set of farming activities associated with limited resources, production inputs, and farming knowledge; using traditional means; low returns; family labour; and owning small plots of land.

Salami et al. (2010:1) define “smallholder agriculture” on the basis of the agro-ecological zones in which they operate, the type and composition of their farm portfolio and landholding, or on the basis of annual revenue they generate from farming activities.

FAO (2017:6) characterise “smallholder agriculture” as small production volumes of variable quality that reflect access to inputs and finance, as well as low levels of investment and limited access to knowledge of improved agricultural technologies and practices.

### **2.3.2. Types of smallholder agriculture**

In South Africa, the smallholder agriculture is divided into two, namely: subsistence and emerging agriculture. The subsistence agriculture farms have the primary intention of securing household consumable goods for food security and can sell little surplus. They farm from household backyards to small plots in communal land. Emerging agriculture is at the margin of being semi-commercial as they produce for the purpose of selling and obtaining goods for household consumption (Thamaga-Chitja & Morojele, 2014: 147).

All these types of smallholders, depending on their location, can farm in urban informal settlements, using either vacant land, communal land lying unused.

They can also farm in peri-urban areas on farm units that operate intensive semi-commercial farms to grow various crops, horticulture (vegetables), raise chickens, and keep livestock (Aliber & Hart, 2009:32). The South African government has a number of agricultural support programmes such as the Comprehensive Agriculture Support Programme (CASP), the Micro Agriculture Financial Institution of South Africa (MAFISA), and the Recapitalisation and Development Programme (RADP). These assist in uplifting the smallholder and assist the State in fighting food insecurity, hunger and poverty (Makwarela, 2009:2).

The farming within these smallholders is mostly part-time, seasonal, and even full time in some cases. Most of the subsistence farmers can only plant crops such as maize during rainy seasons, as the majority of subsistence farmers depend on rain for irrigation. The farm can then stay fallow until the next rainy season. The advantage here is that it allows the farm to recuperate while being prepared for the next sowing season. The land does not lose value due to swidden/shifting farming systems. On the contrary, the emerging farmers mostly farm throughout the year, practicing rotational systems depending on the season. Similar to those farming with tree plantations, after harvesting they allow the farm to regenerate in long-fallow systems (Louw, 2013:26).

### **2.3.3. Historical overview of smallholder agriculture**

The history of smallholder agriculture begins way back in 1910 at the time of the establishment of the Union of South Africa, which entrenched racial discrimination specifically with regard to accessing agricultural land (Louw, 2013:23). The subsequent enactment of the Natives Land Act of 1913 brought about a division between white and black landholding, and prohibited any transactions for a purchase, hire or acquisition of land by black people (Mbongwa et al., 2000 as cited by Louw, 2013:24). The Act initially allocated only 7 percent of land to Africans, which subsequent increased to 13 percent under the 1936 Land Act. The Act outlawed access to land such as land rights (tenure) as well as sharecropping, and brought much disruption to black

farming production. The impact of the Land Act of 1913 meant an increased demand for cheap labour on farms, and black squatters faced increased pressure in the form of taxes, rents, evictions, and limited access to land. White farmers increased their petitions to the State to introduce measures that would intensify the application of those provisions of the 1913 Land Act aimed at eliminating what remained of an independent black peasantry through sharecropping. The persistence of African sharecropping undermined the farmers' need for labour as it enabled black farmers to resist the process of becoming wage labourers (Louw, 2013:24).

The Act, together with other interventions, stripped the independence of the African household farming sector, and these African farmers were forced to practice agriculture production within small areas of communal land; hence smallholder agriculture. These farmers were denied opportunities outside of the labour market, such as capital, wealth, and farming skills (Mbongwa et al., 2000 as cited by Louw, 2013:24). The government of that time, on top of the oppressive policies aimed at Africans, also introduced several instruments to support white commercial farming. The instruments include legislation such as the Cooperative Societies Acts and Marketing Acts, investment in research and development, infrastructure and extension services, input subsidies, import controls, and disaster assistance towards agriculture. The main intention was to get smallholder farmers out of farming (Louw, 2013:24).

The transition from Apartheid to a new democratically-elected government in 1994 introduced many policies changes to reverse the legacy of the past, and to transform the agricultural sector into an open, unified economy (Mbongwa et al., 2000 as cited by Louw, 2013:24). Policy changes included the deregulation of the marketing system, abolition of certain tax concessions, and reduction in expenditure from national budget, land reform, trade reform, and new labour legislation. The improvement of smallholder agricultural production and increased participation of emerging farmers in the economy were pillars of the Reconstruction and Development Programme (RDP) (Louw, 2013:27). The new government accelerated support to smallholders to play a helping role in addressing issues of unemployment, poverty, and food insecurity. Land reform

programmes and all agricultural support programmes were aimed to be vehicles to address these challenges.

#### **2.4. Food security systems in South Africa**

Food security in South Africa is regarded as a human rights issue, embedded in Section 26 and 27 of the South African Constitution law of 1996 section 27 (b) and 28 (c). The Constitution stipulates that every South African citizen has a right to sufficient food and social security. The campaign of food sovereignty in South Africa began in 2015, triggered by a number of brutalities affecting a large proportion of poor, especially those involved in smallholder agriculture and vulnerable populations at risk of going hungry and experiencing powerlessness associated with hunger (Cherry, 2016:1). South Africa is regarded food unsovereign as it is still implementing food policies and programmes that do not address the root cause of hunger attributed to lack of democracy in the food system.

The campaign in South Africa is to address food insecurity; local people need to rise up against hunger, eviction (from arable land), exploitation, exclusion, and policies imposed without taking into account the voices or ideas of those being targeted or at risk (Cherry, 2016:1). Through food sovereignty smallholders can exercise opportunities to voice their concerns and fight for their humanity; to ensure the possibility of an ethical life which is full of meaning and fulfilment, and which contributes to the present and future (Cherry, 2016:3)..

The issue of food security has been critical in South Africa. South Africa is known to be a nearly self-sufficient, food secure nation producing sufficient essential foods or having the capacity to import/export food if needed, but simultaneously highly malnourished due to inequality in food dietary requirements and its affordability by all citizens (FAO, 2012:10). South Africa has made significant improvement by means of Millennium Development Goal setting to closing the poverty gap and hunger by ensuring that people are living above the poverty line (StatsSA, 2015:19). One of the strategies assisting in achieving this improvement is the introduction of social grants targeting poor

children. The proportion of households which are poor has been reduced from 17.9% to 8.0%. The country has also reduced extreme income-related poverty, largely as a result of a progressive, pro-poor tax system which provides basic social support (StatsSA, 2015:19).

Pereira and Drimie (2016:22) describe the South African food system as dichotomous in the sense that in the formal commercial sector, which is connected to international agribusiness and international finance, contrasts with a larger number of poorer, small-scale farmers and informal traders who operate at the margins of the formal system. The South African food security system is still skewed in favour of the capital minority while excluding majority smallholder farming and other informal traders (Pereira & Drimie, 2016:21). The system still highly imbalanced in terms of distribution of assets such as land and capital, where the minority still own and have more of a voice with regard to food production and trade (Pereira & Drimie, 2016:22). The system is dominated by the formal commercial sector, does not recognise the contribution made by the smallholder farming system. The large commercial agriculture is designed to contribute to national and international food security and smallholder agriculture is designed to contribute to household food security (Thamaga-Chitja & Morojele, 2014: 147).

There are deep inequalities in the development of human resources, resources and economy. Smallholders are not recognised as food production contributors due to an imposed perception of less farming knowledge as well as producing poor quality (Pereira & Drimie, 2016:22). Hence, they are squeezed in small plots of land which does not allow them to expand. Most of the marginalised poor are used as labour force and are not provided opportunities to contribute to food security, especially with regard to access to nutritional requirements (Pereira & Drimie, 2016:22). Although the government of South Africa has embarked on the challenge of balancing the inequality through land reform intervention for ownership, the success of this intervention is still to be realised; thus the continued dominance by the minority within the food system.

The food security system is susceptible to a range of environmental shocks

and stressors (Pereira & Drimie, 2016:23). A powerful example is mitigating power in reaction to climatic change. For example, the change in water availability caused by change in rainfall distribution. Natural water resources are unevenly distributed across the country, with smallholder agriculture struggling to access water rights. The agricultural sector consumes 60% of total water resources in the country, which therefore implies that any increase in irrigation for food production would impact water and energy systems (Pereira & Drimie, 2016:23). In South Africa there is provision of food parcels to the needy and poor communities on top of the social grants provided as a strategy to combat poverty and hunger. It is more prevalent in primary and secondary schools (StatsSA, 2015:18). Food aid is regarded as an emergency measure to avoid reaching a stage of chronic food insecurity.

## **2.5. The injection of food sovereignty into food security for sustainable development**

The injection of food sovereignty into the food system brings food justice through agrarian reform by advocating the rights of both food producers (smallholder farmers) and consumers (communities). They have voices on their own policies suitable for their ecological, social, economic and cultural unique environment with issues relating to which seeds to use, agriculture systems, labour, food and land titles (Bini, 2016:25). Food security is seen as a true right for human life, and includes food which is safe, nutritious and culturally appropriate, created by those who have knowledge of food-producing resources which will sustain themselves and societies. Smallholder agriculture farmers as the main contributor of food, in particular women, are protected against the imposition of the food-producing system, and determine the agricultural system to follow. They make decisions in choosing the type of system they want to use and follow, as well as resources they need (Bini, 2016:25).

The issue of land ownership as the main challenge facing smallholder agriculture is part of a vision requiring adequate land for the expansion of farming production. This means that their description by the small land size will

end as they will own land size based on the production ability they have. This includes protection against land displacement, dispossession by capitalism, and the prioritisation of land for local food production. Bini (2016:25) argues that food and nutrition security is sustainably for current and future generation. Local disadvantaged people's rights to food produced locally for food security over trade are secured by discouraging export as the primary aim and instead prioritising consumption (Bini, 2016:25). This includes protection against imposing the use of genetically-modified organisms, while prioritising and protecting nature and non-renewable resources. Smallholder agriculture is given power to control their own futures and makes their own decisions to shape the production and distribution of food according to their needs for the benefit of ensuring food security (Khumalo, 2014:3). This entails transforming the neoliberal food regime (of economic privatisation and capitalism) to the benefit of the local poor (Bini, 2016:25).

Food security is defined as the physical, social and economic ability to access adequate, safe and nutritious food (FAO, 2013:8). The definition of food security works with four pillars, namely: the physical availability of food, the economic and physical access to food, food utilization, and an enabling socio-political environment which fosters the resilience of food systems against shocks and crises. Each pillar is associated with the nutritional health of a household and individual's well-being. The lack of nutritional health results in undernourishment, which is an extreme form of food insecurity achieved because of a low caloric intake below the minimum dietary requirement. Hunger, on the other hand, is described as the uneasy or painful sensation caused by a lack of food built from lack of access to food (FAO, 2013:10).

Cann (2015:1) argues that hunger can be eliminated by creating better opportunities for smallholder agriculture farmers to produce more food and by focussing on the needs of undernourished groups. To ensure sustainable food security, it requires various principles to follow, i.e. the food producers, especially those who benefit the local people in addressing food security, need to be prioritised. Smallholder agriculture farmers, irrespective of gender needs secure access to productive resources of land, water, forests, biodiversity and

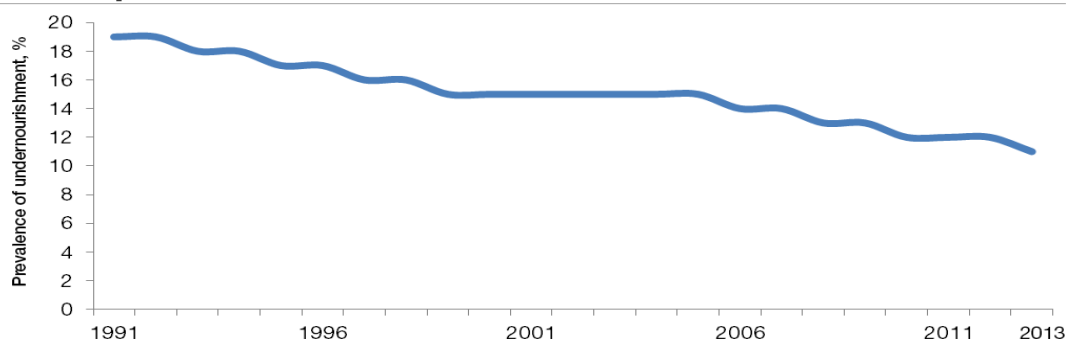


capital. This implies embarking on agrarian reform that gives smallholder agriculture farmers regulatory power over their land, and the protection of natural resources for sustainable development; establishing that food is primarily for nutrition and surplus can thereafter be sold to market for the purpose of making money (Khumalo, 2014:3).

The other condition is to preserve local natural resources and use agro-ecological principles in diversified production systems that will also take care of future food security (Helvetas, 2013:3 & Cann, 2015:1). This entails achieving sustainability through using fewer natural resources to produce more food and also thinking of the future. There should be an effective system of distribution and promoting local trade and regional markets which are accessible to all. Furthermore, food should be diverse and nutritionally balanced, as well as distributed fairly among family members to avoid malnutrition caused by undernourishment (Helvetas, 2013:3). Finally, the contribution of women to sustainable food security should be better recognised rather than subjected to oppression. Women dominate the number of smallholder agriculture farmers, and therefore should be involved and participate in decision-making processes (political). They should be involved in creating regulatory frameworks related to agriculture, land rights, food markets, and food prices (Helvetas, 2013:3).

Meeting all these conditions of food security will play a role in ending hunger and ensuring access by all people to safe, nutritious and sufficient food at all times, and will contribute to attaining the United Nations Sustainable Development Goal of reducing the number of people living under the poverty lines (United Nations, 2015:8). They will not be an excluded or underprivileged group still trapped under extreme poverty, but enjoy improved living conditions for all through social protection systems (United Nations, 2015:8). Cann (2015:1) argues that reductions in poverty and hunger have led to reduced food insecurity. The figure below shows a decline in undernourishment globally.

## Global prevalence of undernourishment, 1991 - 2013



Source: FAO Food Security Indicators, Our World In Data

Figure 1: Global prevalence of undernourishment (source: Cann, 2015:1)

The figure depicts a decline in number of undernourishment cases from 1991–2013 as attributed to the success in fighting food insecurity by employing the sustainable development approach in Sub-Saharan Africa (SSA). This is by means of Millennium Development goal setting, with the exception of South Africa, where there has been no improvement in levels of malnutrition. SSA is considered to have the highest rate of food insecurity, with an estimated one out of four people being undernourished (Khumalo, 2014:1). These countries struggle to feed their people, and, with a rapidly growing population, hunger is expected to intensify as the increase in demand for food is anticipated to double by 2040. To ensure the sustainable development of food security, the following should be introduced to the advantage of the smallholder agriculture as the main contributor to local food production: rights to food production, rights to food nutritional needs, gender rights, rights to land, access to markets, and control on food prices. These are explored below.

### 2.5.1. Rights to food production

Helvetas (2013:1) argues that smallholder agriculture has the potential to sustainably turn food insecurity into food security at the local level. Smallholders use local sustainable resources and therefore needs to be strengthened as reliable local food producers. They need to gain access to land and genetic resources (Helvetas: 2013:1). Food production by the large farms (the wealthy) at the expense of the impoverished must be discouraged

as it does not benefit the poor in addressing food security, and these large farms should be forced to first provide for local food security before exporting. The attitude must be that producing food for the sole purpose of profit maximisation should be regarded as unethical and detrimental to the food security of the local poor. The local people should have the right to access sufficient, safe, and nutritious food at all times as a human right (Bini, 2016:40). The local smallholder farmers must be given respect as the owners and managers of the process of producing food.

Smallholder agriculture supplies approximately 70 percent local food production and is considered the backbone and safety net of food security in SSA (Matshe, 2009:485., Murphy, 2010:16, Tibesigwa & Visser, 2015:1., Seshamani, 2015:99., Kremen et al., 2012:44 & UNCTAD, 2015:2). This requires smallholder farmers to exercise their rights of self-determination; define the origin and type of food resources, as well as how it must be produced, supplied and purchased instead of being forced to do what they do not want. They should be protected with state regulatory frameworks to foster local food production and markets due to the essential role they play in the food security of other countries or regions. Smallholder agriculture should be given rights in using genetic resources as a common good and to be a contending force on genetic resources against monopolies on agricultural inputs such as seeds, to ensure they will get the kind of foods they intend to produce (Helvetas, 2013:3). Moreover, smallholder agriculture is mostly ecologically-friendly and maximise productivity; the productivity being maximised using organic production inputs such as organic manure, seeds rather than chemical fertilizers, pesticides, and genetically modified seeds (Bini, 2016:34).

### **2.5.2. Rights to food nutritional needs**

Food insecurity can be described as not having access to highly nutritious food required to maintain healthy body and life. Access to highly nutritional dietary foods should also be regarded as a human right. This entails that even local poor people should be able to have a balanced diet through their meals rather

than relying on starchy food. Accessing nutritional food protects them against the risk of diseases linked to malnutrition (Kassie, Ndiritu & State, 2014:8 & Tibesigwa and Visser, 2015:1). Food insecurity exists on different levels that can be categorised as “transitory”, which occurs for a short period of time, and “chronic” which occurs consistently. The danger with chronic food insecurity is that it leads to high levels of vulnerability to hunger and famine. The increased nutritional requirement addresses the need for access to a variety of nutritious food required for a healthy life. Dioula et al. (2013:2) argue that smallholder agriculture produces low post-harvest losses of food nutrients because produce does not necessarily travel long-distance to the storage as it can be sold directly from the farm. The other advantage of the low post-harvest is that produce is utilised while still having more nutritional value and can maintain its inherent quality.

Smallholder agriculture contributes to the quality of diets through diversification, by adding horticultural and animal products to the basis of staple food (Kassie, Ndiritu & State, 2014:8 & Tibesigwa and Visser, 2015:1). The production of all varieties of nutritional foods such as eggs, meat, and vegetables allows for a more balanced diet by providing sufficient energy, protein, and micronutrients containing most essential amino-acids. It also contains large amounts of Calcium, Phosphorus, Magnesium, Iron, Zinc, and other vitamins, required for body growth and maintenance leading to the improvement of health and well-being (Kassie, Ndiritu & State, 2014:8 & Tibesigwa and Visser, 2015:1).

Ensuring that all people have access to nutritional food requires the protection of human rights. Consumers need to have access to and be able to afford nutritional foods. For example, a country such as Ethiopia, which has been known to suffer from food insecurity and hunger (malnutrition), has weak or absent effective functioning of food sovereignty in the country (FAO, 2015,27). Ethiopian agriculture is dominated by smallholder producers, who contribute approximately 46 percent of the GDP; 90 percent are exports, and the remaining 10 percent are reserved for the local market (FAO, 2015:32).

Smallholder farmers are able to make this contribution to the Ethiopian economy despite the fact that the fertile Ethiopian land is cheaply leased to over thirty-six countries without benefiting the poor in fighting against food insecurity (FAO, 2015:32). The Ethiopian government and transnational corporations are displacing and dispossessing Ethiopians, and give control and ownership of land to non-local corporations and governments.

Achieving sustainable food and nutrition security requires all contributors to advocate and appreciate local food products and the rights of local producers (United Nations, 2015:8). This paves a way forward to achieving sustainable food security by ending malnutrition, particularly in the case of children, while addressing the nutritional needs of adolescent girls, pregnant and lactating women, as well as older persons (United Nations, 2015:8).

### **2.5.3. Gender rights and food**

It is estimated that the majority of smallholder agriculture is dominated by women. In Ethiopia approximately 60–80 percent of food production is contributed by women. However, women are the ones mostly victimised by issues of land sales and dispossession together with their children; facing the impact of food shortages and insecurity when their husbands have either passed away or are divorced (FAO, 2015:26). These women end up in severe poverty and are eventually forced to migrate away from agricultural areas to city centres. Consequently, they put a burden on the emergency food aid provided by the State.

According to Helvetas (2013:3), women are key stakeholders for the interventions necessary to address food security as they play an important contribution in food production, post-harvest management, distribution and utilisation. The challenge they have is lack of land tenure; and being deprived access to inputs, equipment; have less education and knowledge regarding agricultural activities, as well as limited access to credit and extension services. The rights to land assist in protecting women and indigenous people from dispossession. It is argued that these groups face many threats to their access to land, though they are still as likely to be dispossessed by male relatives (or

relatives of an ex- or dead husband) or by the State or corporations. They also play a key role in conserving and preparing food, but often cultural norms lead to intra-household discrimination in the allocation and consumption of food (Bini, 2016:35). This stresses the need for women to be considered equal in the distribution of titles to land in order to enable them to continue fighting poverty and hunger.

Women need more support to secure access to land, water, production inputs (seeds, feeds, remedies), as well as capital and infrastructure in order to fulfil this important function of food security. They need low external input sustainable agriculture based on organic agriculture as way of promoting diversified agro-ecosystems. The rationale being that the smallholder agriculture farming systems preserve natural resources and minimise economic risks for the families (Helvetas, 2013:3).

The issue of gender, particularly with regard to the protection of women, needs to be included in high level policy frameworks at the national, regional and international levels aligned to pro-poor and gender-sensitive development strategies, in order to support accelerated investment aimed at poverty eradication mechanisms as part of achieving sustainable food security. Possibly this will guarantee the potential to double the agricultural productivity and incomes of smallholder food producers, through secure and equal access to land and other productive resources and inputs, knowledge, financial services, markets, and opportunities for value addition (United Nations, 2015:8).

#### **2.5.4. Rights to land**

One of the main constraints faced by the smallholder agriculture farmer for agricultural productivity is the land size and rights to own land (Helvetas, 2013:3). The small size of land and lack of rights are regarded as hindering the growth and expansion of the sector system. Securing access to land remains a central prerequisite for smallholder agriculture to massively contribute to food security. Smallholder agriculture rarely have land titles, especially in developing

countries, due to conflicting legal frameworks which are sometimes biased towards certain groups of people (Helvetas, 2013:3). Smallholders lack political and economic voices as they do not have land titles but only “permission to occupy” within communal land ownership system. Makwarela (2009:7) states that the availability of land especially within urban areas for agricultural purposes to contribute to food security is becoming thinner and thinner in South Africa. Depriving smallholder farmers of their land rights and livelihood neglects the importance of human rights and environmental protection.

The land authorities such as Government prefers to sell the land rights to large companies and foreign governments who have access to large amounts of capital, and leave no adequate land for agricultural food production by smallholder agriculture farmers (Frayne et al., 2014 as cited in SACN, 2015:19). These often pose risks, especially for the disadvantaged, poor communities, in lacking means to produce food, thus leading to food insecurity. In worse cases smallholder farmers are being evicted or expelled from their land with no or unfair compensation, only being told there is new development coming (De Schutter, 2011:525 & Helvetas, 2013:3). The land is then used to produce products that are export-oriented, leaving nothing or little for locals to address food security. The lack of land rights becomes a limitation in accessing financial support from financial institutions as they cannot serve as collateral to grant financial support (Frayne et al., 2014 as cited in SACN, 2015:19).

Further, acquiring land for extending farming operations continues to be a challenge due to high competition for land by other sectors such as housing development/informal settlements influenced by high urbanisation, land for industrial development, and other development in urban areas. In South Africa land is acquired through two forms, namely: private means (of self-buying from one’s own money) and/or land reform (distribution) implemented by the South African government (Du Toit et al., 2011:12). The Land Distribution Programme is aimed at creating access to land for the previously disadvantaged communities, with smallholder farmers in particular, as an input to produce food to address food security and to allow them to make a living. UNCTAD

(2015:6) acknowledges that access to land encourages smallholders to invest in the agricultural sector business and participate in long-term investments that will generate revenues to improve their living standards.

Further, for smallholder agriculture to be more effective in contributing to food security in South Africa, it requires discouragement of all kinds of land expropriation; instead promoting external purchase or long-term leasing of agricultural land, provided this is legitimate and based on informed agreement, sufficient compensation with clear local benefits (Helvetas, 2013:3). There should be equal rights for smallholder farmers, in particular poor families, indigenous and marginalised groups, for them to have secured access to land based on formally recognised property rights, land use rights, and land titles. Land rights offer protection to smallholders from land expropriation and eviction by other land users, as it is a fundamental threat to their livelihoods, food security, and food sovereignty. Smallholder agriculture must be able to have voice and land belongs to them provided with title deeds.

In particular, urban and Peri-urban agriculture suffer the most due to displacement, dispossession and exclusion in favour of the fast rate of city development, human settlement (urbanisation), and industrial developments, as well as the mass purchasing of agricultural lands by transnational companies (Rasoolimanesh & Badarulzaman, 2011:151). The vast development of squatter camps increases the rate of agricultural land-grabbing by the local communities at the expense of food production/security, employment, and environmental sustainability. Consequently, there is an increase in local food insecurity as arable land produce is used for something other than food production (Deng, 2011:2).

According to Cann (2015:2), having land rights and equal rights bring advantages of ensuring sustainable food security that all men and women, in particular the poor and the vulnerable, can enjoy. They then have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, as well as appropriate new technology and financial services, including



microfinance in the long run.

### **2.5.5. Food trade and markets**

Smallholder agriculture, especially in many developing countries, is still trapped in a bad corner of the world trading system (Bini, 2016:25). The majority of smallholder farmers are still suffering from elimination and discrimination in terms of marketing and public sector support (e.g. commodities boards, state development banks and subsidised credit, extension as well as accessing agronomic research programs).

Bini (2016:27) argues that there has not been enough attention given to the place of trade and distance in helping smallholder agriculture farmers secure more equitable, stable and democratic positions within trading networks. According to Burnett and Murphy (2014) as cited by Bini (2016:27), some of the hope for improving the equity and transparency of relations between smallholder agriculture and distant consumers is associated with the expansion of fair-trade networks. This emphasises the need for smallholders to receive fair networks of trade (Bini, 2016:27).

Food insecurity is often an indicator of lack of access to food due to low purchasing power and inefficient distribution systems, rather than a problem of insufficient production (Helvetas, 2013:3). The market plays a critical role in ensuring access to food, both locally and internationally. The food produced locally in sufficient quantities by the smallholder agriculture farmer can influence low prices due to the high supply of food produce to the market (Dioula et al., 2013:4). This emphasises that there should be a well-functioning local food market and local food production to satisfy all local residents, particularly the poor (Helvetas, 2013:3).

Helvetas (2013:3) claims that for smallholder agriculture to grow business in terms of increasing income there should be promotion of local markets as they are a key to efficient local distribution of food and income generation. Through local markets, smallholder agriculture reduce transport (transporting produce to faraway markets) and energy use, contribute to lower post-harvest losses

(which will conserve nutritional elements), and generate local economic growth. However, if there is a surplus of food produced there can be an option to export, especially cash crops, as a means of generating income and to improve access to a diversified food basket, provided cash crop production is part of a diversified farming system and does not compete with the production of crops for local consumption. Further, unfair terms of trade which discriminate against developing countries, in particular in food markets, should not be approved (Helvetas, 2013:3). The food losses during harvesting, processing and storing can go up to 30% or higher, thus contributing significantly to food insecurity of households. The use of smallholder agriculture will promote improved post-harvest management practices as an economic and ecological way to save food and increase food security (Helvetas, 2013:3).

Smallholders should have freedom to access markets rights which protect them when selling their produce (Bini, 2016:25). Smallholders must be allowed to sell anywhere and again not being dictated to use a certain seeds from specified companies, but allowed to purchase seeds they want from any retailers, including selling raw materials. They must buy seed that meets their ecological environment and needs rather than to have certain seeds imposed on them (Bini, 2016:25).

For the growth of smallholder agriculture and improving their effectiveness in food security, the food produced locally must first benefit local residents before considering selling outside through export. Those foods must also address the challenge of food security that the local people experience. Only the surplus can be exported. There should be an adoption of measures to ensure the proper functioning of food commodity markets and their derivatives, as well as facilitate timely access to market information, including that on food reserves, in order to help limit extreme food price volatility (Bini, 2016:25).

### **2.5.6. Power of food prices**

Food prices are one of the challenges that contribute to food insecurity and hunger (malnutrition). The effect of food prices is more prevalent in urban areas where access to food and nutrition is based on the availability of income (SACN, 2015: 20). This depicts the strong relationship between food security and household income. SACN (2015:20) further argues that a higher income in a household gives power to widen choices on buying ability and also on how much, especially to meet the dietary balance necessary for better health. This suggests that to survive in an urban area requires sufficient income and that the decline in household income together with increase in food prices can result in serious challenges to urban food security. To safeguard urban food security, it is important to improve household access to stable and sufficient income (SACN, 2015: 20). The sufficient food produced locally by the smallholder agriculture can influence low prices due to high supply of food produce to the market (Dioula et al., 2013:4). This is to discourage high dependency on external food supplies as it poses a risk of high food prices that rural poor people cannot afford or access due to income poverty, thus leading to food insecurity.

To ensure sustainable food security, it requires food prices which are affordable to all, including the poor marginalised communities. There should be an intervention on the food prices between the food producers and consumers. The intervention includes fortifying or re-building direct, solidarity-based relationships between producers and consumers (Bini, 2016:29). This involves addressing the benefits of environmental impacts such as fossil energy consumption and greenhouse gas (GHG) emissions to the food producers, as well as ensuring affordable food prices for consumers, which suggests floor prices and ceiling prices (Bini, 2016:29). The affordable prices can be used as defence against unfair foreign competition. According to Dioula et al. (2017:4), smallholder agriculture in general the main food producers, and increased agricultural production means enough food enters the marketplace, leading to lower food prices and better diets.

## **2.6. Food security and climate change**

Bini (2016:28) argues that the realisation of food self-sufficiency and food localisation can be achieved provided that an effort is made towards mitigating the impact of climate change. This includes an increase in temperatures, aridity, greater instances of extreme weather, and rising sea levels (Bini, 2016:28). Food producers experience climate change challenges such as seasons, floods, and storms, which follow an irregular pattern. The frequency of water stress, soil erosion, and infestations has also increased (UNCTAD, 2015:11). Climate change impacts such as the effect of global warming temperatures on natural resources pose a threat to agricultural productivity and food production (Khumalo, 2014:2).

Temperatures caused by global warming can result in severe weather outcomes, change in precipitation, increased extreme weather events, shortened growing seasons, and changes to the suitability of natural resources (Khumalo, 2014:2). It is argued that the change in climate increases the risk of crop failure and is estimated to decrease agricultural productivity by as much as 9 percent by 2060. The change of climate and precipitation can affect the majority of smallholder agriculture farmers as they depend on natural rain as source of water for irrigation and livestock survival (Khumalo, 2014:2). Their livelihoods will be distressed, which will aggravate food shortage and magnify food inaccessibility, for the poor especially, and result in food insecurity and malnutrition (Khumalo, 2014:2). There will be high food purchasing prices, greater dependency on food aid, and decreased agricultural activity, which will not meet household food demands (Khumalo, 2014:2). This also impacts the ability of the smallholder agricultural systems to adapt to these impacts and potential consequences on food security (UNCTAD, 2015:11).

To ensure sustainable food production systems, it requires building up the resilience of the poor smallholder farmers in those vulnerable situations and reduces their exposure and vulnerability to extreme climate-related events and other economic, social and environmental shocks and disasters. Furthermore, smallholder agriculture farmers should implement agricultural practices which

resist the effects of climate change, thereby increasing productivity and production that help maintain ecosystems, strengthens capacity for adaptation to climate change, extreme weather, drought, flooding, and other disasters, and that progressively improves land and soil quality (Cann, 2015:3)

## **2.7. Conclusion**

The chapter looks deeply at the contributions of smallholder agriculture with special focus on agriculture under peri-urban areas to the food security. Most research seems to agree that smallholder agriculture is a strategy to be used to ensuring food security in peri-urban areas. The contributions are made through food supply, employment, and income growth within the household. It has the added advantage that it can be used as a quick solution to address food security because it allows selling directly from farm gates, and most of the produce still conserves all necessary nutrients due to minimised post-harvest loss. Peri-urban agriculture has the potential of providing a balanced diet necessary for a healthy life as most farms a mixture of vegetables, poultry, and livestock. However horticultural production seems to dominate the peri-urban agriculture.

The chapter also explored the common challenges affecting the smallholder agriculture sector. The challenges are neglect of policy support; lack of access to finance and credit to the financial institution; lack or limited support from the extension services, land size and ownership; as well as lack of proper agriculture infrastructure and machinery, such as irrigation facilities, shelters and tractors.

## CHAPTER 3: RESEARCH METHODOLOGY

### 3.1. Introduction

This chapter focuses on the research design applied when investigating the relationship of smallholder agriculture and food security within the peri-urban farming communities of the City of Tshwane Metro municipality.

### 3.2. Research design

The study applied a descriptive research design using a mixed model approach of both qualitative and quantitative research methods. The purpose of using the mixed model is, according to Mayoh & Onwuegbuzie (2016:2), to:

- increase the validity of data and minimise bias;
- enhance the strengths and minimise the weakness of individual methods;
- help use the results of one method to enhance another (development);
- allow for analysis of data from different perspectives); and
- increase the overall scope of research (expansion).

The mixed model allowed the researcher to collect data from multiple methods such as surveys, interviews, and observation, which provide deep information to make meaningful analysis. The model aided in gathering descriptive information, and ensured participants provided descriptive and explanatory information that provided answers to the subject and purpose of the study.

The researcher considered not only the viewpoints of the principal participants of the study, these being farmers, but also the viewpoints of the relevant officials, especially in terms of participation in the agriculture and food security system and the sovereignty granted to the farmers. Thereafter, an analysis was made based on the information gained from various parties, as well as gaining insight from both parties. The information gathered was also substantiated by textual information obtained from observing circumstances on the farm.

### **3.3. Population and sampling**

The purpose of this study dictates that respondents should be sampled from the anticipated high population of smallholder agriculture farmers in the City of Tshwane Municipality area. It also allows that the sample must be conducted with a pre-determined set of criteria, such as experience in the field, to get more insights for the research topic. The study included farmers, the primary subjects, as well as the agriculture/food security practitioners within the field of agriculture (secondary subjects).

A total of 61 smallholder agriculture farmers representing 15% of the population of farmers participated in the study within CoTM. The respondents were from three areas: Soshanguve, Winterveldt, and Bronkhorstspuit. The researcher also selected four officials working with agriculture and/or food security at the National Department of Agriculture (n-2) and extension officers from the Gauteng Provincial Department of Agriculture (n-2) to give perspective on the subject. The sampling of the respondents was according to the set of criteria discussed in chapter one of the dissertation.

#### **3.3.1. Sampling design**

The study applied “purposive sampling” in order to get depth on the information anticipated that will provide better analysis and relevant responses to the study. Purposive sampling, is according to Etikan, Musa & Alkassim (2016:2), defined as a type of sampling in which particular settings, persons, or events are deliberately selected for the important information they can provide that cannot be acquired from others. In this case, the participants were selected based on specific purposes associated with answering the research study’s questions. The CoTM and purposefully selected the respondents to participate in the study based on the ability to provide necessary or required information based on the set criteria. Purposive sampling was also used for the officials working within the field of agriculture and/or food security.

### **3.4. Data collection techniques**

As the approach of this study is mixed method of both qualitative and quantitative data collection, the researcher applied two techniques used in data collection, which are to survey in order to obtain quantitative data, as well as observation to obtain qualitative data. The researcher conducted the exercise of entire data collection. The data collection tool (questionnaire) was written in both English and vernacular languages for ease interpretation for the respondents in their Tswana/Sotho language. Respondents were coordinated by the extension officers of the Gauteng Provincial Department of Agriculture. This after the researcher presented the proposal to the City of Tshwane region and allocated extension officers to liaise with.

#### **3.4.1. Qualitative data**

The survey was used to collect quantitative data through administering semi-structured questionnaire, with both closed-ended questions and open-ended questions, and applied to 61 respondents made up of smallholder farmers farming in peri-urban agriculture within the boundaries of CoTM. The researcher visited the respondents (farmers) on their respective smallholding (farms).

#### **3.4.2. Qualitative data**

Qualitative data from four officials were collected through semi-structured interviews which were sent to the officials. Furthermore, the study also applied the qualitative observation method of data collection to provide the textual qualitative data to the study, and was done during the farm visit while administering the questionnaire. It is a type of qualitative research method which covers observation of participants; it entails ethnography and research work in the field, and hence used for many years for both anthropological and sociological studies as a way to collect qualitative information (Jamshed, 2014:87). In this study, data was collected by observing and learning the activities of smallholder farming, which include observing the conditions under which production occurs, as well as employment in the field. This was used to interpret the ability and potential of smallholder agriculture in the Tshwane Municipality.



### **3.5. Data analysis techniques**

Data analysis is the process of bringing order, structure, and interpretation to the mass of collected data. It can be a messy, ambiguous, time-consuming, creative and fascinating process (Manaf, Harries & Clare, 2011:173). The rationale was to strengthen the data analysis with high data variation that will provide clear and comprehensive findings. The mixed method was used in the study of data capturing, and was also applied to data analysis.

#### **3.5.1. Quantitative data analysis**

The research data was analysed using Microsoft Excel due to the small size of data which included descriptive statistics (means and frequencies) on household-level characteristics, including food production, land size, nutritional requirements, household income and expenditure, as well as demographics of the sample households. The quantitative raw data was firstly coded according to the questionnaire codes to ensure it is organised and grouped into categories for easy analysis without discrepancies. Through coding, data was summarised, synthesised, categorised and sorted, and many observations were made. The codes used were objective, transparent, and representative.

#### **3.5.2. Qualitative data analysis**

The qualitative data obtained from observation and unstructured interviews, as well as open-ended survey questions, which comprised of textual data were divided into three categories, namely: positive views regarding smallholder agriculture and food security; negative views on the aforementioned aspects; as well as recommendations by the respondents on the research subject. The study applied the grounded theory as a means of analysing the qualitative data, which, according to Foley and Timonen (2015:1195), state that the grounded theory is concerned with the development of theory out of data.

### 3.6. Ethical Research Considerations

The researcher took into consideration the significant nature of complying with the ethics of working with human subjects or participants, and applied the approval of ethical clearance from the University. The approved ethical clearance certificate from the University of Free State was shared with the CoTM and Gauteng Provincial Department of Agriculture. The following was taken into consideration to comply with the ethical requirements and were communicated to the respondents through the “informed consent” letter:

- **Information confidentiality:** the respondents were informed that the information collected will be kept confidential and never shared with anyone except the researcher and /or the study supervisor. After data capturing, the hard copies of the questionnaire will be stored in a safe place for a period equal to five years and then destroyed. The survey will be conducted in a private place and the names of the respondents will not be written down or recorded anywhere without consent.
- **Nature of participation:** the respondents were informed about the voluntary nature of their participation in the study, and they are under no obligation to participate in the survey and/or allow the researcher to observe any activities in their household or farm.
- **Information storage:** the hard copies of the data collection tools will be captured into electronic data kept and stored in a locked safe cupboard for a period of five years for reference/clarity during the finalisation of the study and other similar research studies that may emerge, and thereafter will be destroyed. Only the researcher and/or supervisor will remain with electronic data captured on the computer for academic purposes.
- **Informed consent of all participants:** the issue of consent is primary in this study as all information obtained shall be viewed as willingly given by respondents/subjects. All research subjects will be briefed through a letter of

consent regarding the study, which they will be required to sign before the research can commence.

- **Honesty:** the researcher applied all the honesty in data management, including capturing, analysis and interpretation. No discrimination of any respondents based on gender, disabilities, and race was done in the research.

### **3.7. Limitations of the study**

The limitations of the study are viewed as a threat to the acceptance, acknowledgement, and use of the research results. Firstly, the size of the study area to such a national and global subject of smallholder agriculture and food security might limit the number of results users require to be convinced by the findings of the study. Conducting this kind of study in one small area (CoTM), which cannot even make a considerable representation to the larger smallholder agriculture population of entire Gauteng province or the country with the inclusion of rural farmers, is limitation in its own. The title of the study requires wider coverage to have high variation that will produce convincing results to be accepted and utilised.

Secondly, most of the participants are the land reform beneficiaries in terms of land ownership, and this contradicts the majority of literature which indicates that smallholder agriculture are deprived access to land and only have permission to occupy. The participants of this kind of study should have mixed participants of peri-urban smallholder farmers mixed with those farming in rural set-up who will outline their frustrations of rights to land. Furthermore, almost all participants stay in urban areas and have other means of employment somewhere, which defeats the level of dependence to agriculture as 100% means of survival, and therefore gives the wrong impression in terms of poverty alleviation. The researcher suggests further and wider research with mixed participants to be conducted within or a similar kind of subject.

Thirdly, the season of conducting the study was not conducive to some of the observation data such as crops/vegetable productivity, as the study was conducted after harvesting with little to observe on the farm to show productivity. This is similar to the employment ability of the smallholder agriculture, as more people are employed during the busy season of planting to harvesting, and were going to be observed and recorded for this conclusion to be made. Therefore, the research suggests that this kind of study should be aligned with the season of production.

Fourthly, the researcher believes that the size of data was not sufficient to provide wider analysis and interpretation of the results to produce a convincing conclusion and recommendation. Moreover, the short period of conducting the study resulted in

speeding data collection and not having sufficient time to extract sufficient data with the respondents. The researcher believes the study requires adequate time to collect data with the inclusion of the food insecurity status of CoTM. Further, the reluctance by the respondents to respond to the questions could be attributed to previous experiences with other researchers who made and did not fulfil their promises to farmers, ultimately posing a limitation to gain more in-depth data.

Furthermore, the researcher believes that the human capacity was a limiting factor in the study. Data collection was conducted by only one person in the vast areas of CoTM, and was thus a difficult exercise. If there were at least two other researchers or data collectors, the study should have been easy to conduct.

Based on all the above limitations, the research proposes that further research studies may be conducted, taking into consideration the aforementioned limitations. This is similar to the findings that are in contrast with the majority of other scholars from previous studies by Helvetas (2013:3) and (FAO, 2017:4) who argue that women dominate smallholder agriculture in the developing countries and disadvantaged with land ownership.

### **3.8. Validity and reliability**

Validity is defined by Leedy and Ormrod (2010:29) as “the degree to which the instrument measures what it is supposed to be measuring”. The researcher mostly focussed on content validity, which refers to the accuracy with which an instrument measures the factors under study. Therefore, content validity is concerned with the accuracy and relevance of the questions asked to obtain the desired information. For this purpose, the research instrument was tested for content validity by giving the questionnaire to the research supervisor and conducting a pilot study. Reference was also made to previous studies related to the research topic.

For any research instrument to qualify the test of validity and reliability, the questionnaire must be administered and approved by the ethical clearance committee and the study supervisor before being used. This is to ensure the

usefulness and worthiness of the instrument. The instrument in this study was found to have potential to accurately and consistently measure what it was intended to measure. This researcher conducted a pilot study before the detailed data collection to assess the validity and reliability of the questionnaire.

### **3.9. Conclusion**

The chapter highlights the research design used to conduct the study by describing the design employed, which was a descriptive mixed model using both qualitative and quantitative elements. The sampling design, which is purposive, was highlighted as well as the data collection techniques and analysis system used. The chapter further explained the study limitations encountered, as well as the validity and reliability of the instruments used in the study to ensure accuracy and consistency.

## CHAPTER 4: EMPIRICAL RESULTS AND FINDINGS

### 4.1. Introduction

The chapter presents and discusses the findings of the study based on the analysis of the data collected from survey and observation. The main respondents are the smallholder agriculture farmers situated within the boundaries of the City of Tshwane Municipality, as well as officials of the Department of Agriculture (both national and provincial). The analysis is presented in the form of graphs and tables to better articulate the findings. The results of the study are presented in various themes with in-depth discussion of the findings.

### 4.2. Discussion of results

#### 4.2.1. Household demographic profile of the respondents

The study surveyed 61 smallholder peri-urban farmers who practice farming within the City of Tshwane Municipality regions, as well as four (4) officials working with the smallholder farmers and/or food security from both the National and Provincial Department of Agriculture. The findings on the household demographic profile are presented in the following four categories:

- Gender status
- Employment status
- Years in agriculture sector
- Household income expenditure

##### 4.2.1.1. Gender status

Figure 2 (below) depicts that peri-urban smallholder agriculture as being dominated by males at 63.9% (n=39), while females constituted 37.1% (n=22). Gollin (2014: 5) state the reason that most women are employed part-time in the urban- and peri-urban agriculture are because they combine agriculture farming activities with child care and other household responsibilities. Further, this entails that males are actively involved in the agriculture activities under a peri-urban set-up, while females are in other sector, which include taking care of household matters.

These findings were also observed in the two meetings or gathering organised by the officials from the Gauteng Provincial Department of Agriculture where the majority were males. The male dominance 67.2% (n=41) is also shown in the other half of Figure 2, of being the head of the families and only 32.8% (n=20) being female-headed households; this attributed to being single parents.

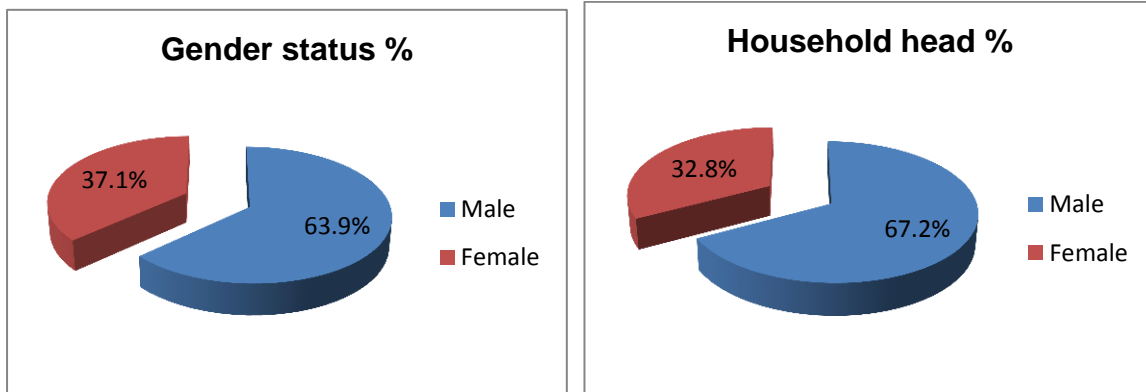


Figure 2a: Gender status

Figure 2b: Household Head

The findings can reveal that women might dominate the agriculture sector in rural areas as opposed to peri-urban set up, and are key stakeholders for the interventions to address food security through contributions to food production (Helvetas, 2013:3 & FAO, 2017:4). Hence, more literature affirms that women dominate smallholder agriculture in the developing countries.

Dioula et al. (2017:6) argue that the impact of smallholder farming on nutrition needs to be gender sensitive by considering both the role of men and women in agriculture and their roles in farming households, taking into account household gender dynamics. This will entail taking into account factors such as women's role as agricultural producers and caregivers, their time and labour allocation, as well as the decision-making roles relative to the use and distribution of resources and benefits within the household.



#### 4.2.1.2. Employment status

The employment status of the farmers was assessed to establish the extent of participation in agriculture by assessing the level of reliance of farmers to the agriculture sector in making a living or as an extra means of income. The results in Figure 3 depict that majority 66% (n=40) of farmers are employed or self-employed obtaining income from salaries or their businesses and regard farming as an extra source of income generation while, 34% (n=21) of farmers are not employed at all rely entirely on farming as a sole means of making a living.

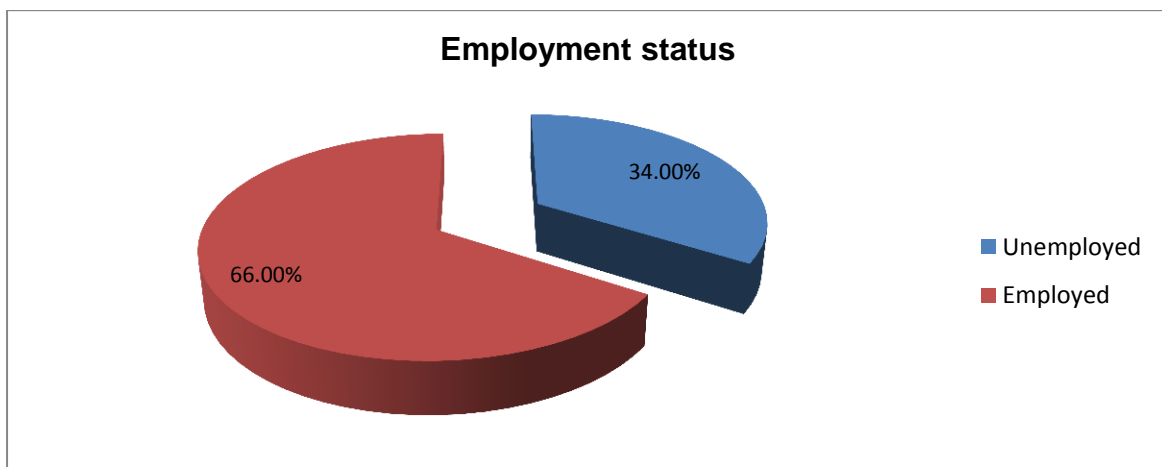


Figure 3: Employment status

The 40 (66%) farmers are mostly parttime in the agriculture farming while the 21 (34%) farmers are full time in farming. The part-time famers only visit their farms weekly or sometimes fortnightly, leaving the farm management operation to labours. Some stay as far as more than 300 km away from their farms. The unemployed farmers rely on agriculture for survival in terms of income generation and food security. One respondent stated: “we spend all time on the farm as our employment”. This shows that smallholder agriculture is a beacon of hope for better living and can therefore be regarded as a vehicle to contribute to the fighting hunger and poverty.

#### 4.2.1.3. Years in agriculture sector

The results of the study indicate that majority 68.9 (n=42) of farmers have been farming for more than five years followed by 18% (n=11) who have been farming for between three to four years and very few 13.1 (n=8) are between two to three years

in agriculture farming. The study by default visited a large number 70% (n=43) of vegetable farmers followed by poultry 50 (n=30), crops 42% (n=26) and less livestock 6.6% (n=4).

#### 4.2.1.4. Household income expenditure

The researcher also asked the respondents to rate their area of expenditure on their household income. The reason was to establish where they put value on as priority.

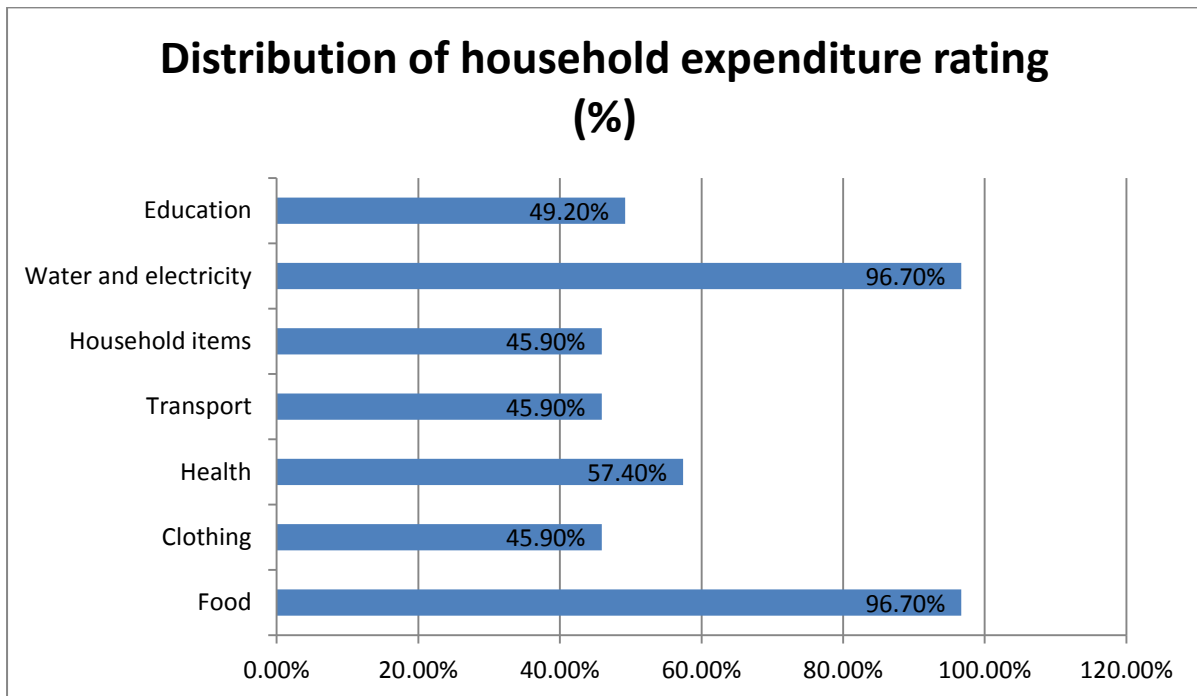


Figure 4: Distribution of household income area of expenditure

The results in figure 4 show that the food and water electricity bills lead the list. The findings are substantiated by Makwarela (2009:7) in that more than 60 percent of the urban household income is spent on household food. The findings support the concept of food sovereignty of treating food primarily as sustenance for the community and only secondarily for trading. The food and water and electricity 96.7% (n=59) are mainly for the operation of farms, especially for irrigation and lighting, as well as for the household and transport within and from the farm.

## 4.2.2. Smallholder agriculture and food security system

### 4.2.2.1. Rights to food

Section 27 (b) and 28 (c) of the South African Constitution law of 1996 considers food security as a human rights matter. The Constitution stipulates that every South African citizen has the right to sufficient food and social security. In realising that, Dioula et al. (2013:3) and FAO (2017:5) maintain that smallholder agriculture can play an essential role for local production of sustainable food and nutrition security at all times. The study assessed the right to food based on the following food security measuring parameters:

#### a. Food availability (access)

Figure 5 (a & b) reveals that a large number 59.3 % (n=36) of farmers show that the food availability is sufficient to satisfy household food access due to highly satisfactory food production from the farm. The 26.7% (n=16) who indicate little satisfaction are producing but not satisfied with production, since they eat all the produce without having surplus to sell. Further, the “too little” in Figure 5a is associated with the “less satisfaction” in Figure 5b.

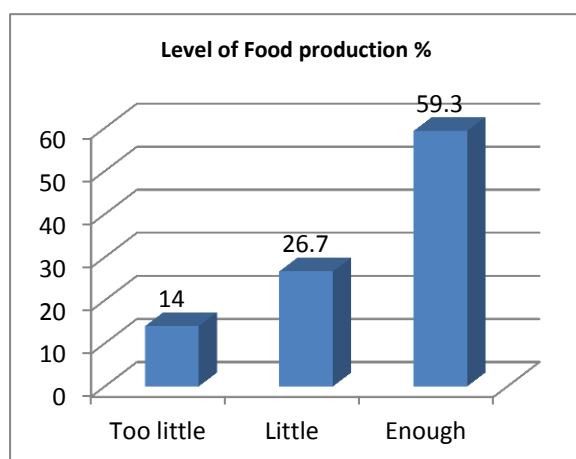


Figure 5a: Status of food availability

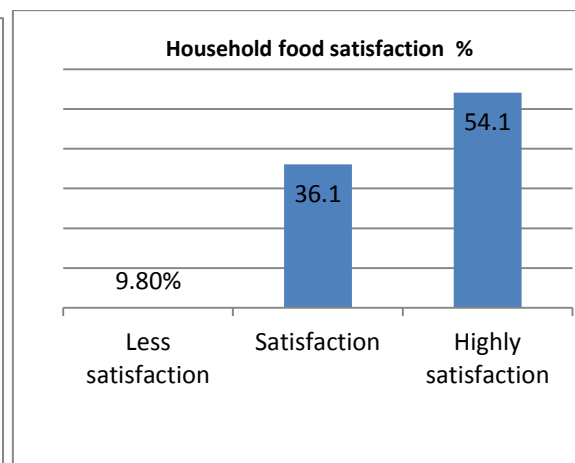


Figure 5b: Household food satisfaction

Figure 5b substantiates Figure a in that up to 54,1% (n=33) smallholder agriculture farmers are highly satisfied with the level of food production, followed by 36% (n=22) who are satisfied with household food availability, and only less than 9.8% (n=6) are not satisfied. Those who are less satisfied mostly farm with no irrigation at all, and

instead rely on rainfall. The production was observed to be very small by the researcher (myself). During the survey, only elderly persons were working on the farm with no extra labour force, and these persons can only cover small portion of land that will bring less yield. The results of 59,3% (n=36) and 54% (n=33) are substantiated by Dioula et al. (2013:3) and FAO (2017:5) that the sector is the main source of food in the developing countries such as SSA and Asia, and therefore makes smallholder agriculture central to an inclusive development process as their contribution is essential to food security.

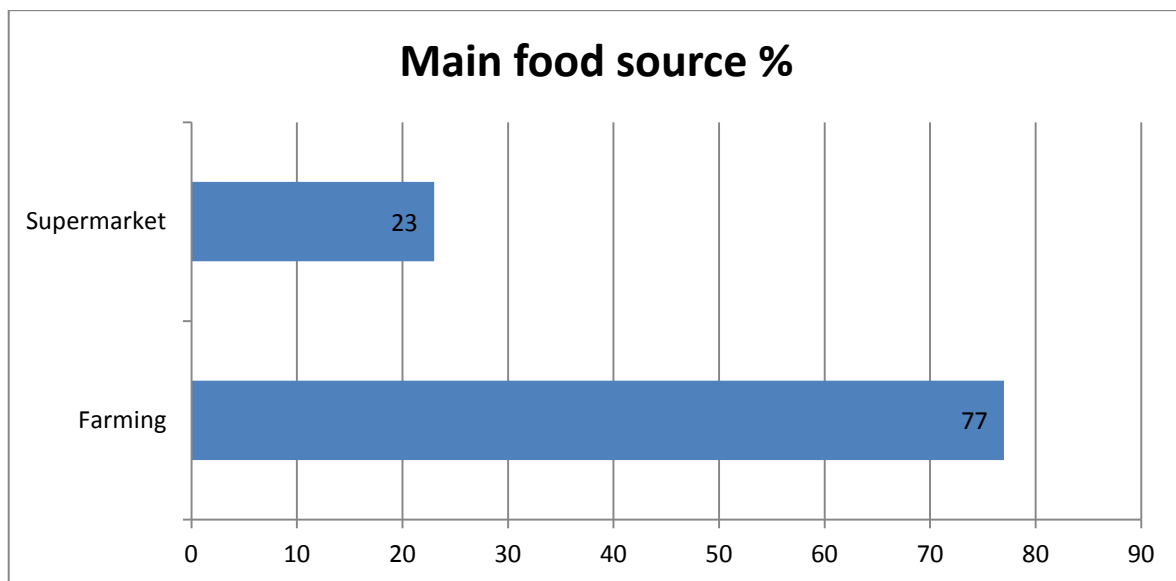


Figure 6: Rating of main food source

The study asked questions on the coping strategy that respondents have during the off -or low season of production for ensuring continuous flow of food availability in their household. Several extra sources of food were rated which are supermarkets, tuck shops, and own production. Up to 77% (n=47) of respondents generate food from agriculture and 23% (n=14) of the respondents buy food from supermarkets such as Shoprite, Pick 'n Pay and Checkers as places at which to buy extra food together with other food supplements that are necessary for the household as well as dietary needs. Pereira and Drimie (2016:23) concur that the increasing reliance on purchasing food to supplement subsistence production has extended into peri-urban. However, supermarkets are regarded to both enable and constrain food security outcomes within the food system as they can sell export food, which defeats the local food production and use.

Respondents attribute the reliance to extra sources of food to the fluctuation of agriculture production within season, with some seasons of the year experiencing less food availability.

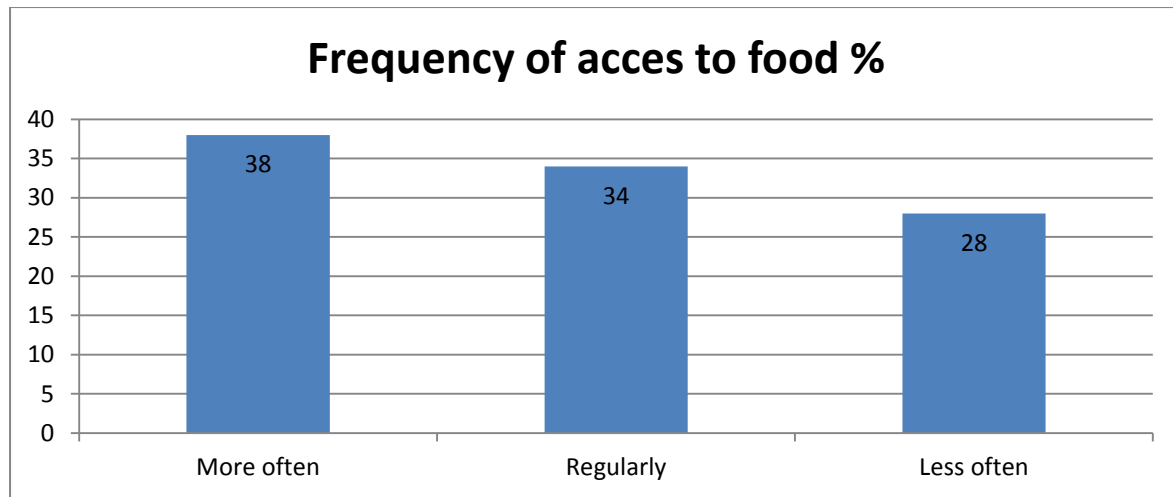


Figure 7: Rating of frequency of access to food

Figure 7 depicts that food availability enables the household to have access to food more frequently in their household, as revealed by 38% (n=23) of respondents, followed by 34% who indicate having access to food on a regular basis. Only 28% (n=17) indicate less frequency. In terms of times per day, the study reveals that is mostly influenced by personal preference or choice, as some prefer eating twice while others three times daily, and does not necessarily indicate a lack of food.

### **b. Food utilisation**

The study asked questions on the composition or combination of food variety in the plate per meal for the respondents. The rationale for the question was to assess whether farmers are eating one type of food frequently due to circumstances such as affordability, or exercising choices on food composition. This translates to the dietary balance for better, healthier conditions to prevent consequences of malnutrition and diseases that can all lead to death. In some cases, there may be only starchy food with no protein and a lack of other essential minerals such as vitamins, calcium, magnesium and potassium important for healthy body building. Three combinations were put forward which are: Pap/meat/veggies; Rice or pap/meat; and Rice or pap/veggies.

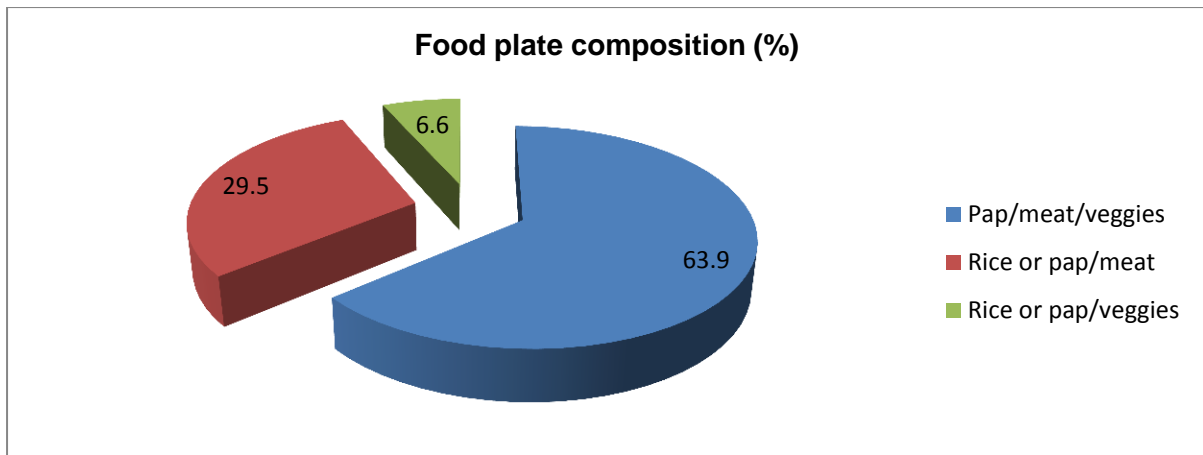


Figure 8: Household food plate composition

The results indicate that more respondents 63.9% (n=39) are eating a plate combination of pap/meat/veggies followed by other group 29.5% (n=18) accessing rice or pap/meat. This shows that the respondents have access to a balanced diet for proper body health condition, and are thus at minimal risk of malnutrition or food insecurity. At least key nutrients of starch, protein and fat are included. The wider combination of food, instead of only starchy food, is substantiated by Kassie, Ndiritu and State (2014:8) and Tibesigwa and Visser (2015:1). That is, the production of all varieties of nutritional foods such as eggs, meat, and vegetables allows for a more balanced diet by providing sufficient energy, protein and micronutrients containing most essential amino-acids, as well as other vitamins, required for body growth and maintenance leading to the improvement of health and wellbeing

A study by Dioula et al. (2013:3) further concurs that the production of food by smallholder farmers has the potential to influence the nutrition of household members both through direct consumption, as well as indirectly through generating income which increases their buying power of food locally. The smallholder farmers are able to grow enough to feed themselves sufficiently (Dioula et al., 2013:2). This is in line with the South African Millennium Development Goal (MDG) report that progress has been made towards eradicating extreme poverty and hunger as defined by the international MDG poverty lines (StatsSA, 2015:3).

#### 4.2.2.2. Smallholder agriculture sovereignty practices

##### a. Why agriculture sector?

The study assessed the rationale of the respondents participating in the agriculture sector over other sectors. The responses range from just love the sector 30% (n=18); making money (48%), and source of food production 22% (n=14), with a combination of both averaging at 50%. The results show that the main intention of engaging in agriculture by the respondents is to generate income. This reason can be attributed to the fact that income can address many challenges in the household; more so than just basic needs such as food and hunger. This includes school expenses, transport, decent shelter, and wider dietary choices. The extension officer substantiated that these smallholder farmers choose agriculture to generate income.

##### b. Power to agricultural land

The smallholder agriculture has always been associated with the small land size of approximately 2–3 hectares. This concurred with 6.6% (n=4) of respondents who have between 2–3 hectares. However, the study is in contrast with that argument by revealing that 67.2% (n=41) of the respondents are farming in more than 3 hectares of land. Over 26.2% (n=16) of smallholder agriculture farmers are farming in less than 2 hectares. The study further found that only 49.2% (n=30) indicate satisfaction with land size, while 50.8% (n=31) were not satisfied and found it to be a 50–50 situation.

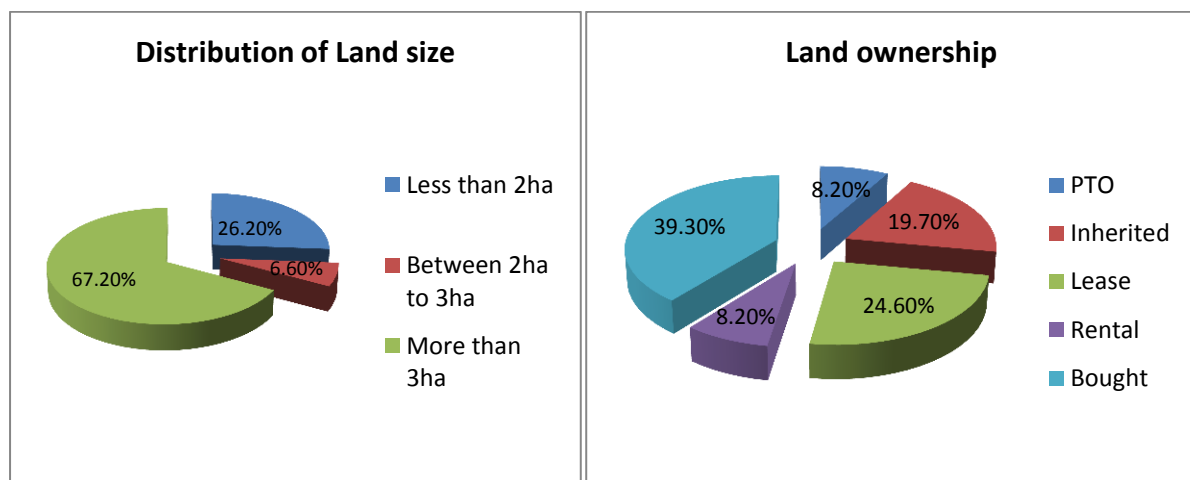


Figure 9a: Distribution of land size

Figure 9b: Land ownership

The researcher observed that majority of these bigger farms with respondents indicating a lack of satisfied are not optimally utilised, as only a small portion of land is in production even though they need extra land to expand, mostly on broilers, crops and vegetables. One respondent noted: “Yes, I am satisfied with land size because I do not even cover [the] entire land due to lack of resources”. A large portion of land, in various farms was unused citing various challenges which are common to the sector and requires intervention to support the sector for optimum productivity that will generate high income. The reason for the inability to utilise land was attributed to a lack of critical resources such as machinery, especially tractors and implements, irrigation infrastructure, and labour force. Those who indicated satisfaction was because their current situation allows them to be content with what they have since they do not have any means to change their situation, based on the above challenges, if they aren’t getting support from institutions such as government.

The request for larger land size was justifiable to livestock farmers. Almost all livestock farmers have similar issues in that the land size is too small to accommodate their current livestock. This again hinders them in expanding their farming since there will be serious implications on the grazing land quality. Most livestock farmers were in agreement that “the farm is too small to accommodate their cattle and limit growth as this small land creates overgrazing” (livestock respondent). The largest farm size was 17 hectares, which accommodates no more than 30 large livestock as per the livestock unit. De Schutter (2011:525) affirms that the quality and small size of the land used by the peri-urban smallholder agriculture, especially for the livestock grazing population, is a barrier for development to high levels of farming business. Small areas of land restrict the growth of number of livestock, which can even affect the quality of grazing vegetation by overgrazing, among many other challenges such as veld degradation.

The study found that most peri-urban smallholder farmers 39.30% (n=24) own the farms through purchasing and have title deeds, followed by 24.60% (n=15) leasing the land from their municipality and other fellow farmers through either formal or informal arrangement. The findings are in line with Du Toit et al. (2011:12) that farmers around the CoTM acquired land through two forms, namely: private means or self-buying from their own money and/or land reform implemented by the South



African government. Table 1 emphasises that approximately 50% (n=31) of women own land through purchase and have title deeds. Most acquired land through the support of the government land reform programme or inherited from their forefathers. Only 8.2% (n=5) of the respondents are using land through Permission to Occupy (PTO) practising farming within the land controlled by the municipalities and other fellow colleagues.

The findings support the study limitations that the study area contributed to the findings, as CoTM does not have communal land but only land under municipality and therefore land can only be acquired through formal means, hence title deeds. The researcher believes that, were the study was conducted outside the CoTM peri-urban area within rural areas; the results might have painted a different picture. However, the findings bring excitement that in other groups of smallholder agriculture farmers, including women, have land tenure.

Table 1: Distribution of land ownership by gender

Land Ownership	Male	Female
	%	%
PTO	11.6	0.0
Inherited	18.6	22.2
Leased	23.3	27.8
Rented	11.6	0.0
Bought	34.9	50.0
<b>Total</b>	<b>100.0</b>	<b>100.0</b>

The study also ascertained as to whether farmers have ever experience land dispossession. The results highlight that the majority 80.3% (n=49) have never experienced any land dispossession, with only 19.7% (n=12) once experiencing dispossession. Those who experienced dispossession of land attributed the situation to the land under lease agreement with the municipality, by which their hold over the land is threatened if the land is not used productively.

### **c. Powers to agriculture resources**

The rights to agricultural resources by the smallholder agriculture have been their main characteristics from the commercial agriculture sector who are known for high resources such as land, capital and sophisticated equipment. Various literatures substantiate that those operating within the sector have for many years been deprived of their rights to resources such as irrigation, infrastructure, machineries, and production inputs (UNCTAD, 2015: 10 & FAO, 2017:6). This has been cited throughout in the chapter as it implies the reason for the smallholders' inability to optimally utilise the land, and which has instead led to using a small portion of land that brings less production for both household food and market for high income (UNCTAD, 2015:10).

For example, the majority of respondents 86%(n=53) indicate that they have boreholes in their farms but lack irrigation facilities to irrigate their farm, while a certain number still rely on unreliable rainfall and are only active during the rainy season. A few farmers use water from the rivers/fountain adjacent to their farm with small yield, and this resulted in low production and has created furrow irrigation deviating water. A study by UNCTAD (2015: 10) substantiates that smallholder agriculture farmers are deprived access to various infrastructure of the market; machinery such as tractors and implements; irrigation; proper roads; and storage facilities and farming shelters for sheep shearing, among others.

Smallholder farmers who are using rain water were also found using hand hoes implement to plough the land, and, according to UNCTAD (2015: 10) this affects the quantity of production.

The study reveals that smallholder agriculture farmers are still trapped in their belief that chemical inputs are better than organic inputs. This was revealed by 47% respondents who are still using chemical resources such as fertilisers, feeds, and remedies. Only 42.6% (n=26) are using organic resources, especially fertilisers, with the remainder using both.

#### d. Agriculture income generation

The study asked questions on the level of income generated by the respondents at the smallholder level. The results revealed that the majority 41.0% (n=25) are generating more than R5000 per month, followed by those between R1000 and R5000 constituting 34.4% (n=21). Only 16.4% (n=10) generate less than R1000, with 8.2% (n=5) yet to generate any income attributed to size of operation, with those farming in small areas generating little income and vice versa.

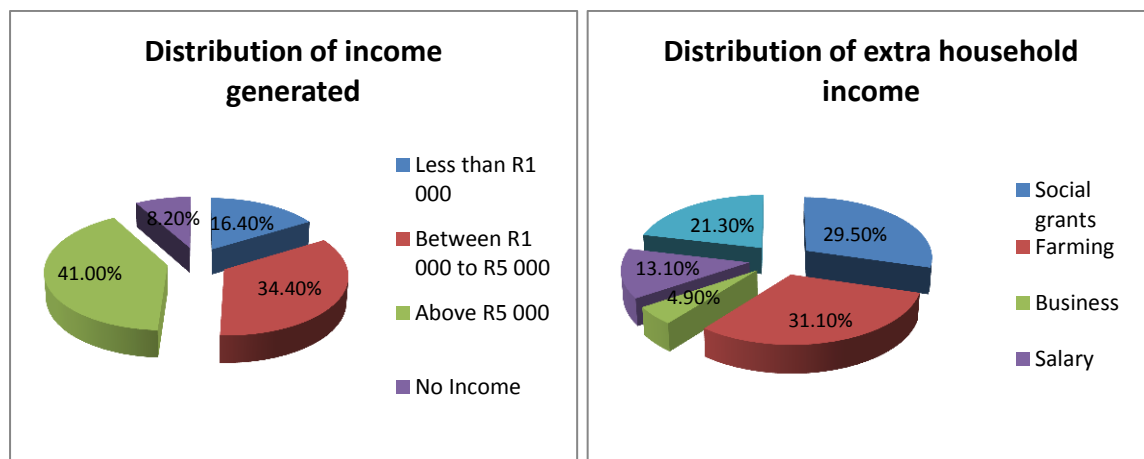


Figure 10a: Distribution of income generated. Figure 10b: Distribution of extra household income

The results reveal that the amount of income generated, if translated to food security, can result in a positive contribution to the quality of life of smallholders. Dioula et al. (2013:5) affirm that an increase in income enables smallholder farmers to diversify their diet and also buy more non-foods, and further the increase implies greater dietary quality.

The analysis was also supported by the assessment of the various sources of extra income in the household. The results stress that farming is the main source of income in these households compared to other sources such as social grants, business and salaries. FAO (2017:4) substantiates that smallholder agriculture is the main source of income. Indeed, 61% (n=37) of respondents show that they only use a portion of between 10–20% of the food produced in the farm for household consumption and the remainder goes for income generation through selling. This shows that the sector can be relied in terms of addressing income poverty and can

allow people to participate in the middle-class life of meeting improved living standards.

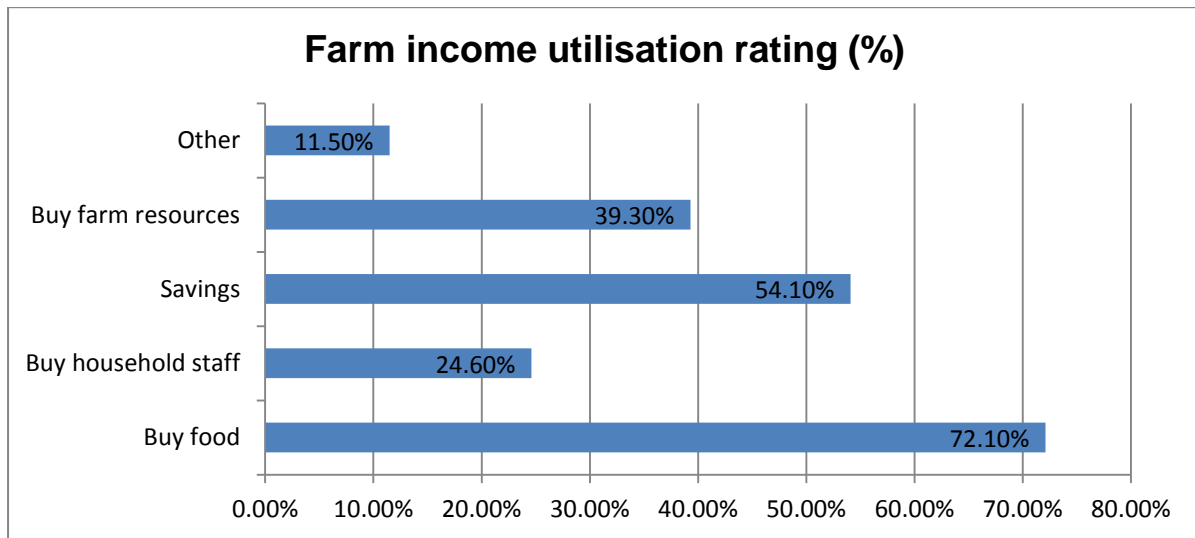


Figure 11: Farm income utilisation rating

The results in Figure 10 still emphasise that the income generated through agriculture is mostly directed to food production. This is followed by the significant 54 % (n=33) which indicates the saving of income for future use. The other income is directed to ensure farm sustainability and continuity by using it to purchase farm production resources. This indicates that the smallholder agriculture operation can generate surplus income which can be saved after attending to the basic household needs, which shows that the farming operation can attain sustainability.

#### e. Agriculture job creation

Various researchers share the same findings with the study that smallholder agriculture shows a positive relationship between peri-urban smallholder agriculture and the creation of employment, and therefore regard the sector as the main source of employment for the poor (Salami et al., 2010:3, FAO, 2017:4 & UNCTAD, 2015:2). The results of this study found that most 57%(n=35) farms created between three to twenty permanent jobs, with other creating more than ten jobs; this number can go up to 35 seasonal jobs during the busy season for harvesting, weeding and/or planting. Research by Oni et al. (2013:2294) at the Thulamela local municipality in Limpopo province found that smallholder agriculture created almost 22 percent of employment on a full-time permanent basis.

Matshe (2009: 497) argues that the intensive horticultural and livestock production that thrives in peri-urban areas can employ workers and produce high value-added products that can yield reasonable income and returns. The potential to create jobs entails that the sector contribute to fighting income poverty, which addresses the relative poverty, and can move vulnerable people from basic absolute poverty to better living standards. Peri-urban agriculture can also offer self-employment opportunities as families will be working like any other employee and still obtain remuneration in the form of sales income.

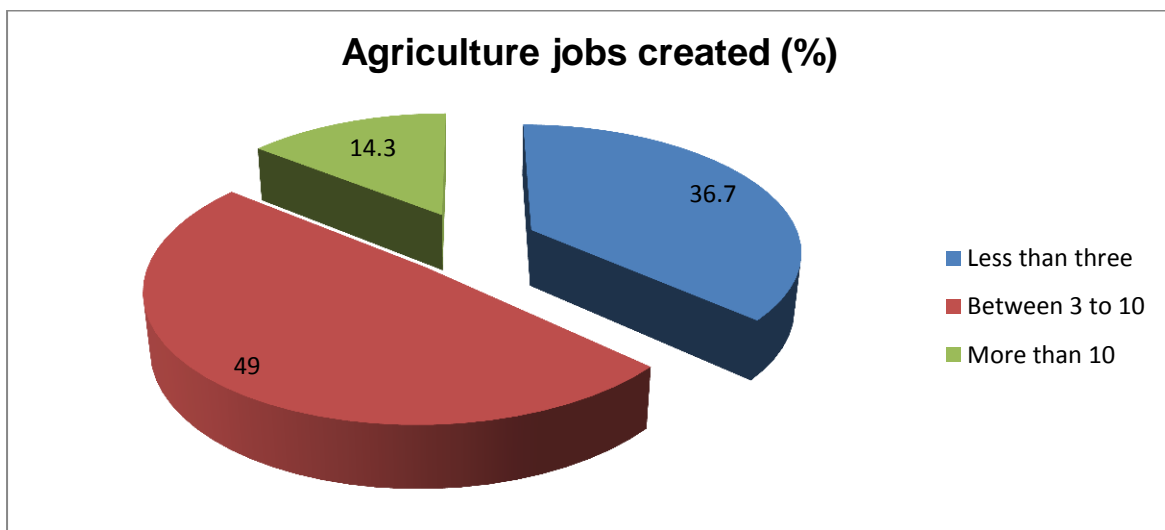


Figure 12: Distribution of job creation from the sector

#### f. Access to markets and power to prices

The access to markets, especially formal markets, was found to be a setback for the smallholder farmers. The findings concur with literature that shows access to markets is a challenge to the growth of the smallholder agriculture sector. A large number 59% (n=36) of smallholder farmers still sell their products to an informal market of street vendors. A low representative of 12.5% (n=8) sell to a formal agriculture marketplace with few selling in supermarkets 18% (n=11) and schools 11% (n=7). The extension officer stated that “most of the farmers sell in informal markets as people come and buy directly from the farm gate and therefore receive no recognition in contributing to [the] Gross Domestic Product of the country. Only few percentages of smallholders have contracts with big retailers, and farmers are finding difficult to penetrate”.

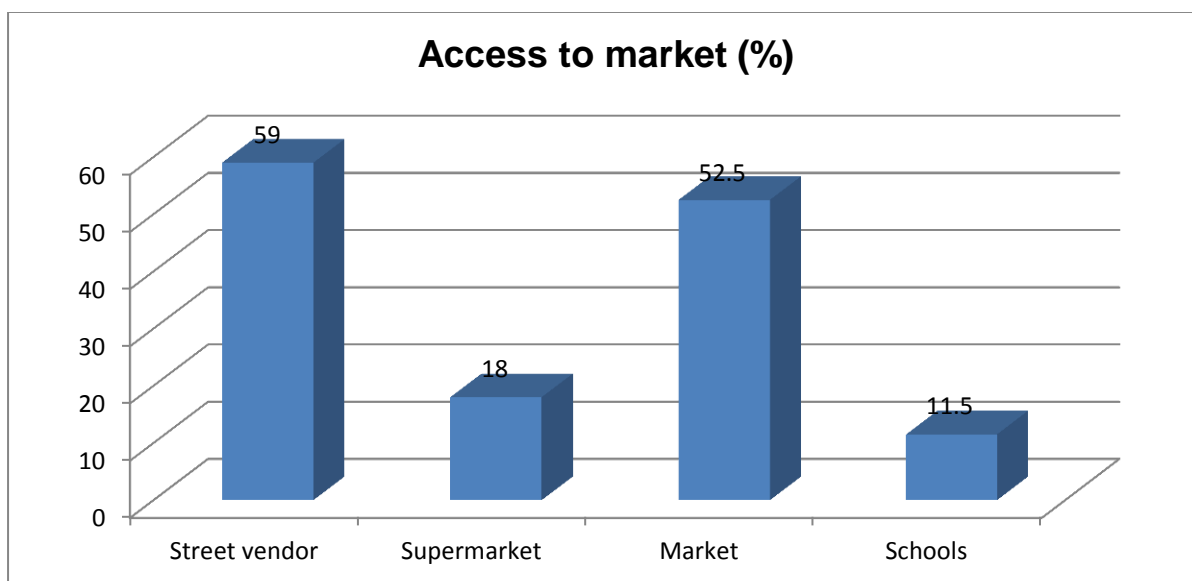


Figure 13: Distribution analysis of access to market

The power to set prices is another setback that the study discovered in the smallholder agriculture sector. Even though majority 82% (n=50) indicate that they determine or put prices to their produce, it is contrary to the narrative given by some respondents. Most of those selling through street vendors such as farm gates and taxi/bus ranks experience violation to rights to set prices. Most of the customers negotiate the prices so low that it compromises the price of produce, and thus leads to low income (Bini, 2016:25).

In addition, those selling at the commercial markets feel sabotaged by the big commercial farmers who collectively and secretly agree to stop bidding (during auction), causing the smallholder livestock to sell at very low prices. A quote from the extension officer: “We have no say in any of the auction[s] as they [are] dominated by commercial farmers who control the prices and availability of almost everything” livestock respondent. This also affects the vegetables as the market will always say the smallholder produces has some defects and lower the prices and force them to sell with low prices as produce are perishable and they cannot return home with them to avoid wastage”.

The study reveals that smallholder farmers still do not have rights to markets and prices. The sustainable access to markets has, according to FAO (2017:17), the

potential to contribute smallholder agriculture's ability to reduce hunger and poverty. Fleming and Goetz (2010:2) argue that the income generated by smallholder agriculture is affected by the lack of information, especially price and marketing. In most cases, they are caught up by the unpredictable price fluctuations and sell their produce without price knowledge, which brings in less income which is inadequate to meet household expenses. Furthermore, buyers especially those who are buying at a farm gate or street market, can influence the prices through negotiations, and the farmers end up seller at lesser prices which reduces income (Fleming & Goetz, 2010:2).

### **g. Access to training**

Smallholder agriculture is, according to various literature, categorised by lower levels of education and less knowledge and access to extension advisory services regarding agricultural activities (Chirwa and Matita, 2015:2., DAFF, 2012:1 & FAO, 2017:6). However, the results of the study affirm that smallholder agriculture farmers are exposed to informal non-accredited training with no certificate after as revealed by 54.1% (n=34) of farmers. 45.9% (n=28) of respondents indicated no access to training support, and that smallholder agriculture is characterised by a lack of knowledge and technical skills, which therefore affects their growth in the sector.

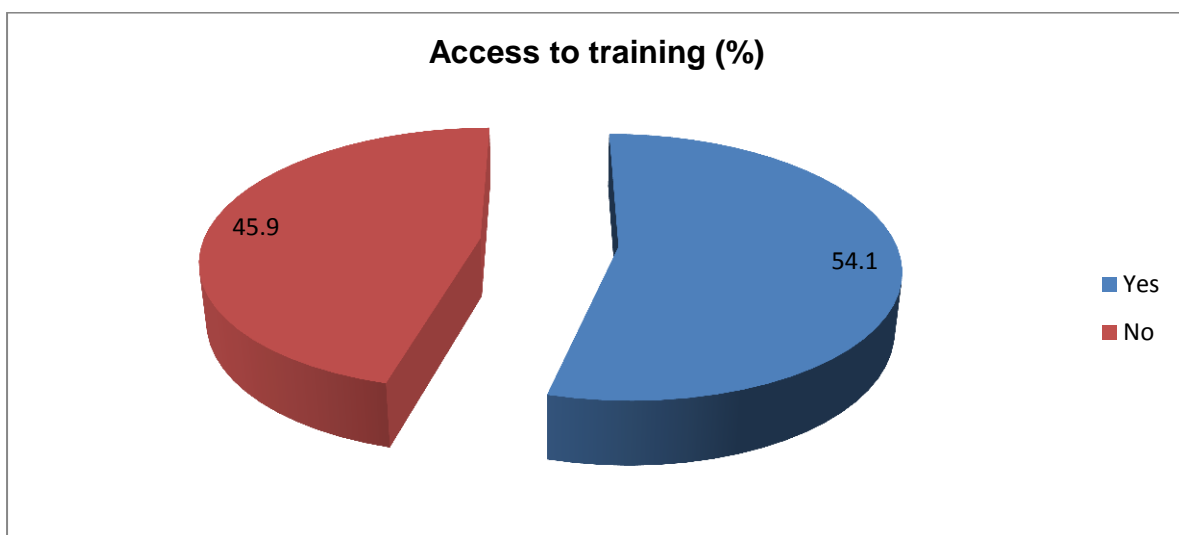


Figure 14: Distribution analysis of access to training

Some respondents, through qualitative information, indicated that the informal training is more along the lines of advisory services by government extension

officers, and covers basic agriculture production practices such as the application of chemical remedies, poultry management, crop management, and fertiliser application. Oni et al. (2010:2289) further substantiate that there is very little training offered to this group, especially in the field of farm management, productivity and marketing. They also do not having satisfactory training support on marketing issues such as access and importance of having market information in determining the price of their products, as well as deciding when to sell the products.

The inaccessibility of formal training can be considered to work against the concept of food sovereignty, which calls for appropriate research systems to support the development of agricultural knowledge that is already used, and it supplement with new skills and appropriate technologies. The extension officer indicated that smallholder farmers have the capacity to produce, since most of them have knowledge of being farmers for many years, and they have the ability to select cultivars, required at the market. They have the power to select their planting dates, according to season and control of pests and disease.

#### **4.2.2.3. Challenges faced by smallholder agriculture**

Various challenges faced by smallholder agriculture farmers were rated by the respondents from the list identified. The study reveals that a lack of farming inputs was rated by many 73.8% (n=45) farmers as the main challenge affecting the growth of the sector, hence less land utilisation. The other significant challenges are land size; low productivity, both indicated by 59% (n=36) of respondents; followed by lack of machinery/implements 49% (n=30); as well as discrimination 39% (n=24), which occurs mostly during marketing in commercial markets.



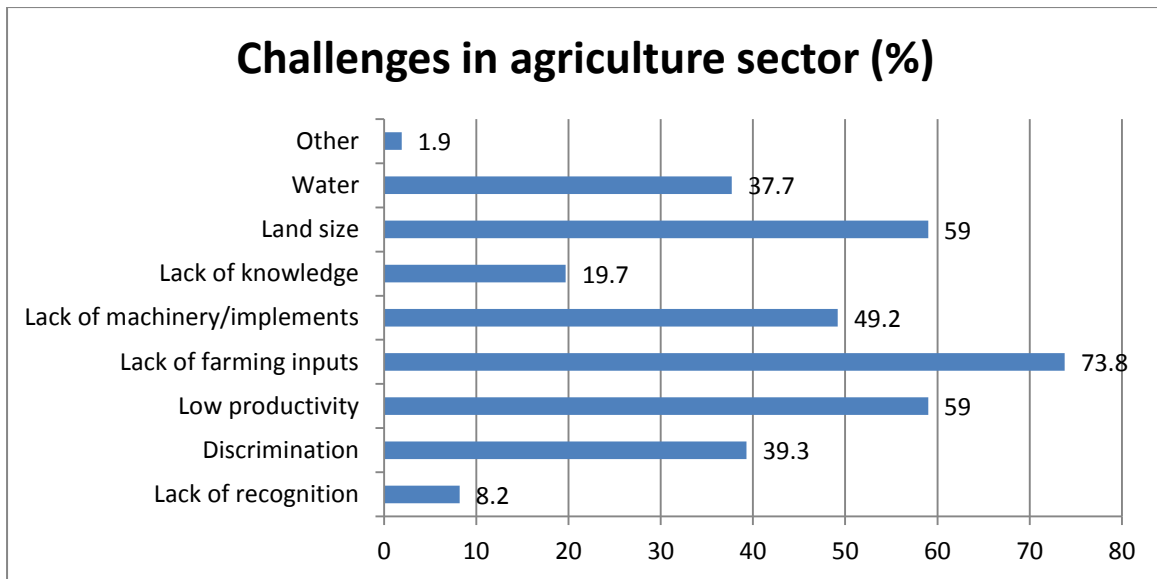


Figure 15: Distribution analysis of challenges faced by smallholder agriculture

The results are in agreement with the argument by extension officer during an interview that, although the government still provides extension services to smallholder agriculture, farmers seem to be unsatisfied with the services, with 75% calling for more support from the government, especially in respect to provision of inputs, and more. The lack of infrastructure and machinery revealed by 49% respondents is acknowledged by FAO (2017:6), in that there is inadequate infrastructure, as well as high storage and transportation costs experienced by the sector and affects their production. The extension officer further admits that implements/ machinery infrastructure such as fences, tunnels, poultry structure, piggery structure, and livestock infrastructure are a challenge to the growth of smallholder farmers.

Though some researchers argue that the support of policy has satisfactory results on smallholder agriculture, comprehensive support remains a challenge for the growth of smallholder agriculture operations. It is mentioned that the majority of smallholder farmers are neglected in terms of accessing protection through policy (UNCTAD, 2015:11). In South Africa the policies are mostly in the favour of large commercial agriculture, and little policy is available to support the smallholder agriculture sector (Thamaga-Chitja & Morojele, 2014:147 & Seshami, 2015:99).

### **4.3. Conclusion**

This chapter presented the analysis of the research data collected from the respondents. Generally, the findings reveal that the positive significant relationship between smallholder agriculture and food security can play a greater role in addressing poverty. However, a few challenges were identified which are common to the sector, namely the violation by commercial agriculture of the rights of smallholders with regard to the market and prices, as well as a lack of farming resources. The next chapter will provide conclusions and relevant recommendations extracted from the study.

## CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS

### 5.1. Introduction

This chapter presents conclusions based on the findings discussed in the previous chapter. The objective of the study was to examine contributions of smallholder agriculture to household food security, with special focus on the rights to access food availability, food accessibility, food utilisation (meeting nutritional requirements), and food stability and sustainability. The conclusion will give attention to the study objective.

### 5.2. Conclusions

The following conclusions are drawn from the study's findings in Chapter 4:

#### 5.2.1. Prevalence of gender inequality in the smallholder agriculture sector.

The study, in accordance with Gollin (2014: 5), sustains that smallholder agriculture in the peri-urban set-up is dominated by men with very few women participating in the sector. It was stated that women are part-time employees in urban and peri-urban agriculture, as they combine agriculture farming activity with child care and other household responsibilities. This might explain why women are more active in agriculture in other situations such as rural communal areas, hence regarded as key stakeholders to smallholder agriculture and playing a key role in addressing food security.

The study could not find a considerable number of youth participating in the agriculture sector, which poses a challenge on the succession and continuity of the production should the older farmers be unable to continue due to factors of age, or in worse case death. This will negatively affect food production which will result in food insecurity. Lack of youth in the sector will mean that there will be no new energy, skills, innovation and technology injected into the growth of the sector, and thus the sector will remain stagnant.

### **5.2.2. Smallholder agriculture has significant number of full-time farmers (self-employed)**

Interestingly, the study found that smallholder farmers are beginning to take on farming on a full-time business, as opposed to regarding it as a part-time/seasonal business. More farmers were found to be full-time as compared to the few part-time farmers. This goes with the findings that more farmers are self-employed to the farm, which translates into regarding the agriculture sector as business equal to other sectors to sustain and attain better living standards.

### **5.2.3. Food availability is sufficient**

The study concurs with the statement that smallholder agriculture can contribute to sufficient food production by revealing that the food produced is enough for the survival of the household and for the purpose of selling. In addition to the food produced on the farm, respondents can also afford to buy food from the supermarkets to supplement the food produced. The access to food shows that respondents are food secure and have sufficient income to supplement food from farming. Further, the food composition also indicates that farmers had access to balanced dietary requirements. Most farmers ate meals comprised of various foods such as pap, vegetables and meat, with others exchanging pap with rice. The wider choices confirm that smallholder agriculture contributes to better health, and can avoid negative implications of malnutrition attributed to food insecurity.

### **5.2.4. Peri-urban smallholder agriculture farmers have some powers with regard to land**

The study reveals that it is not always the case that smallholder agriculture has no access to bigger land and is deprived of land tenure, particularly in the case of women. Most smallholders were found having sizable land of more than 5 ha, which are not even used optimally. Further, a large number of farmers, including women, have title deeds to their land as obtained through purchase or assisted by the government Land Reform Programme. Therefore, it is concluded that peri-urban smallholders have powers to land, with the exception of the very few who are still using Permission to Occupy (PTO) land ownership. This is substantiated by SACN (2015:19), who argue that the challenges in the peri-urban areas are not equal to the

challenges in rural areas. In rural areas land is plenty and more easily accessible from traditional leaders through means as PTO, but with peri-urban areas land acquired can provide title deeds.

The findings show that the issue of land size is not as prevalent as is frequently argued, but the lack of sufficient means for development such as finance, human capacity, and machinery amongst the smallholder agriculture are issues for concern, and can begin new debates. According to observation substantiated by comments from some respondents, land is available and not used optimally due to the issues raised above, especially for crops, vegetables and poultry, with the exception of livestock farmers.

Since its inception in 1994, the Land Reform Programme has assisted farmers in obtaining land rights with title deeds, but land development remains a challenge. A considerable number of the study respondents are the beneficiaries of the land reform intervention, with others having acquired land through purchase and inheritance; hence the high number with title deeds. An unpublished report by the department responsible for land reform indicates that over 2,8 million hectares acquired through land reform have title deeds, and the land is in the possession of communities and individuals (DRDLR, 2018:17). Land redistribution is aiming at creating access to land to the previously disadvantaged communities as an input to produce food to address food security and make a living. UNCTAD (2015:6) acknowledges that access to land encourages smallholders to invest in the agriculture sector business and participate in long-term investments that will generate revenues to improve their living standards.

#### **5.2.5. Smallholder agriculture contributes to disposable income and poverty reduction**

The study confirms the findings from various literatures that the sector has indeed potential to generate income through selling agricultural produce. The income generated is also saved for future use which shows that sufficient income is generated. Saving extra income and having the potential to make wider choices of

what to buy in supermarkets indicates that the sector can move people from basic poverty levels to middle-class living standards.

The study further concurs with various literature which shows that the sector can play a pivotal role to the economic growth through income generation and thereby contribute to the improvement of the life of the people. The findings of the study therefore conclude that the sector can be relied on in addressing income poverty and achieve better living standards amongst the poor.

#### **5.2.6. Rights to markets and prices remain a setback**

The study showed the distresses that the sector has been known for and has experienced over its lifetime. The study affirms that the sector still experiences violation of rights during marketing of their products and affect the amount of income to be received. There are so many ways that the markets ensure that the sector is not exercising and/or enjoying their rights to set prices, which often leads to lower income. This affect the ability and inspiration for smallholder farmers to produce more if they know that, at the end, they will not get what they deserve due to the market or marketing behaviour.

Those in particular who sell perishable products such as vegetables are mostly the victims of these circumstances, as they are forced to agree with the price suggested by the buyers to avoid products to be spoiled and go to waste. Similar to the poultry broilers, who are forced accept the price negotiated by the buyers to avoid high costs of feeds and lower income, which subsequently lead to little to no profit. The study can conclude that the perpetual violation of the rights within the sector is detrimental to its growth and should be addressed as part of the objective of improving economic growth.

The issue of price determination is still a challenge and an issue of violation within the sector. The smallholder farmers should be given opportunity to exercise their rights in determining the prices of the produce that will bring significant profit. This challenge stresses that the smallholder agriculture still receive less recognition with regard to the marketing of their produce as little formal markets are available to them.

### **5.2.7. Smallholder agriculture still subjected to informal training**

The sector is still subjected to informal training in the form of advisory services offered by the government extension services, which is non-accredited. The study seldom found formal accredited training offered to the respondents, and this has become a concern for their growth and development. This concurs with the literature which shows that smallholder agriculture is characterised by less knowledge, less skills, and is not exposed to technology.

None of the farmers mentioned have access to research innovations, which translates into not having access to new technologies that will aid the growth of their sector. This non-exposure affects their decision-making by not having information and knowledge for farmers to base their decisions on, and therefore the sector remains small and inferior. Apart from those who do receive training, there are farmers who are not getting any training at all, either formal or informal. The lack of training, among other factors, will make it difficult for these farmers to progress in terms of agricultural practices and the benefits thereof, and make it challenging to grow their business.

### **5.2.8. Sovereignty in place**

The study interestingly found that almost all the smallholder farmers sell their produce locally, with none indicating that they export their produce. This shows that the element of food sovereignty is already prevailing within the sector but still needs to be further advocated. The majority, if not all farmers, indicate they are making decisions themselves with regard to farming such as inputs to use. The only threat was the reliance on chemical fertilisers as other groups of farmers still believe that the use of chemical fertilisers is the only way to go instead of organic fertilisers.

### **5.2.9. Common challenges still exist**

The sector is still experiencing the common challenges that have been documented which are lack of access to proper markets; lack of farming inputs, machinery and implements; low productivity; lack of access to financial support; and insufficient land. These challenges have been used to characterise the sector and have been mentioned by the majority of farmers. The challenges are cited as contributing factors to the lack of recognition, low productivity, and slow growth of the sector.

Some farmers do not have machinery such as tractors and various implements, opting to use the traditional hand hoes which limit the coverage of land. This hinders the possibility expansion and increase in production by covering entire land which would mean high income when selling.

A significant constraint in smallholder agricultural growth is a lack of capital, with farmers often opting to self-finance, which limits the innovation and expansion of the production (Zhou et al., 2013:2600 & Chirwa and Matita (2015:3). The lack of access to credit facilities has been a serious challenge affecting the growth of the sector, despite the sector remaining central in creating employment of approximately 55% of the population, and with only 1% of banks lending to the sector (IFC, 2014:5). Access to financial services is critical to providing funds for farm investments in productivity, improve post-harvest practices, allow for smooth household cash flow, enable better access to markets, and promote better management of risks as well as growth of the sector through expansion. Further, access to finance can also play a crucial role in climate adaptation and increase the resilience of agriculture to climate change, thus contributing to longer term food security. The above challenges have been cited as contributing factors for the limited coverage and optimal utilisation of land.

Various constraints are associated in the smallholders' inability to be recognised as an important part of the agricultural sector with large contributions, especially to the GDP and national food security. The other challenges include lack of collateral to serve as security on accessing funds, low revenue, as well as lack of formal markets. All these hinder opportunities to access financial support. As a result, the smallholders rely on government grant subsidies which are unreliable and insufficient. Vorley et al. (2012:21) add that smallholders are associated with a lack in economies of scale, a lack of capacity to invest, and a lack of technical know-how to gain recognition as reputable farmers who are business orientated.

The official from the National Department indicates that farmers who purchased land with the assistance of the land reform programme are still highly indebted by commercial banks such as the Land Bank, and therefore cannot qualify for further loans to develop the farm, which therefore remains a challenge.



## **5.3. Recommendations**

The findings of the study suggest the following recommendations:

### **5.3.1. Mobilise youth to the sector**

The low participation of women and youth in peri-urban smallholder agriculture is a concern, even though most literature states that women dominate the smallholder agriculture sector. Women mostly remain victims (together with their children) of the impact of food shortages and insecurity when their husbands have either passed away or they are divorced, and thus end up in severe poverty. The study recommends the further mobilisation of this group to the sector under the peri-urban set up because of the key role they play in the sector and contributing in fighting food insecurity.

Similarly, the study further recommends the involvement of youth in the sector as most respondents are old, and this affects the continuity in the sustainability of the sector. In the country of South Africa, where the youth unemployment is around 27%, the mobilisation of youth to the sector will generate income and improve their lives. FAO (2017:15) states that through education, empowerment and motivation of youth to take up agriculture activities are a prerequisite for improved and sustainable food production in Africa, given their numbers and with better opportunities for access to technologies, entrepreneurial skills and social marketing.

### **5.3.2. The smallholder agriculture sector demands full recognition in addressing food security worldwide**

The findings clearly show that the sector has the potential to produce sufficient food for access and utilisation, as well as income generation. These interpretations show that the sector can positively contribute to addressing both basic absolute and relative poverty, as allow people to participate in the middle-class by improving their living standards. These recommendations show that the sector needs to receive full recognition as a food security and agriculture system as vehicle for poverty alleviation. Further, the ability by the sector to create employment stresses the positive role that the sector has in improving the lives of the people. FAO (2017:8) argues that increasing opportunities and agricultural development can aid in

achieving full and productive employment, including women and youth, and boost income, employment and food production, which can address issues of hunger amongst the poor.

Dioula et al. (2013:9) argue that to encourage the smallholder farmers to play active role in food and nutrition security requires strategies and programmes embarked on by firm national, regional and international commitment and a conducive policy environment in which smallholder farmers as key players need to play a central role. This entails that government must give priority to the development of their agricultural sector through long-term strategies. However, this needs commitment, resources and investment, as well as good governance.

Though some researchers argue that the support of policy has satisfactory results on smallholder agriculture, comprehensive support remains a challenge for the growth of smallholder agricultural operations. It is mentioned that the majority of smallholder farmers are neglected in terms of accessing protection by policy to support them (UNCTAD, 2015:11). The study therefore recommends a change of focus to channel development policies to the sector so as to enable them to be sustainable.

### **5.3.3. Strengthening sovereignty in all value chain**

The concern faced by the sector is in the marketing of their produce, especially in getting the price they determine rather than being forced to compromise to lower prices by circumstances in markets and prices. The use of food sovereignty as a development approach inspires the equitable market participation by smallholders in the development of local food systems. Sovereignty will assist to develop strategies to know the way and extent to which farmers are linked to markets, and in that light the following needs to be taken into consideration:

- Smallholder farmers need to organise themselves as cooperatives and sell in groups in their own market centres.
- They need to have access to market price information and make informed decisions.
- Their prices must be determined by market value to minimise unnecessary price negotiations.

- Local retailers should have a certain percentage that is collected to local farmers on regular basis.

There needs to be an urgent upgrade to finance national research and extension systems specifically targeting the needs of smallholders, with supporting financial mechanisms. The main objective would be to increase productivity and resilience through diversification of the production system, with specific focus on the self-provision of diverse foods with a high nutritional value. Combining increased productivity and resilience will require a high level of investment in research to develop productive land use systems with minimal ecological risk so that that biodiversity may be used productively as well as be conserved.

Smallholder agriculture in general should be given priority by the State, linking them to domestic, national and regional markets, as well as to new markets that create direct links between producers and consumers. Developing these market linkages also requires investment in small and medium sized food processors, and small-scale traders at the retail and wholesale levels. Government intervention should also assist them to reduce transaction costs on markets and to stabilize prices and smallholders' incomes. This should also be applied to the value chains in terms of contracting opportunities by establishing the necessary regulatory instruments to bridge the significant gap in economic and political power that exists between smallholders and their organisations on the one side, and the other contracting organisations on the other side.

#### **5.3.4. Provision of land infrastructure development to the sector**

Lack of proper infrastructure such as roads to and from farms affect marketing; storage facilities including cooling storage to restore the post-harvest quality; broilers houses, and irrigation, for example are critical to the growth of the sector. Jabulani (2014:84) stresses that investment in irrigation may increase land productivity by at least 50%, and when this is associated with soil fertility improvement, productivity can increase. Since this is very expensive and has economic growth potential, it is imperative that the sector needs to be supported from both the public and private sector.

### **5.3.5. Establishment of small-scale financial credit facilities**

The study observed a need to support the sector by injecting capital resources, especially to optimal utilise the available land and expand the production, either in the form of grants and/or credit soft loans. The lack of access to agricultural financing and credit has been cited as a limiting factor to the growth and success of the smallholder agricultural sector. Access to financing will assist in purchasing key farming inputs and profitable markets to utilise their small landholdings optimally.

Smallholder peri-urban agriculture requires improved access to financial services suitable to their needs. This must include facilitating monetary transactions (such as mobile phone-based money transfers), safe savings deposits (with incentives to save), low-priced credit (such as through joint-liability group lending), and insurance (such as index-based weather insurance).

It is therefore recommended to establish small-scale financial credit facilities whereby smallholders can access soft loans to use in their business. Some of the farmers are swallowed by big commercial banks such the Land Bank, and are finding it difficult to come out of debt. Therefore, the study recommends specific affordable financial support to the sector for growth. Further, there is a need to examine how to overcome credit market failures and provide credit to smallholders, as part of support growth and employment creation.

### **5.3.6. Skills development**

The study recommends wider exposure to skills development opportunities for the sector, which includes access to formal accredited training, research materials, innovations and technologies. They need to be connected to the local agriculture academic/training institutions such as colleges to get accredited formal training and to gain access to research information.

## **5.4. Conclusion**

The chapter presents conclusions regarding the relationship of smallholder agriculture and food security. The chapter also details the recommendations which need to be taken into consideration with regard to the relationship of smallholder agriculture and food security. The dissertation is completed with the list of references

and appendices. The appendices attached include the letter which granted permission to conduct research and the research questionnaire instrument used for data collection for both farmers and officials.

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# APPENDICES

## Appendix A:



**GAUTENG PROVINCE**  
AGRICULTURE AND RURAL DEVELOPMENT  
REPUBLIC OF SOUTH AFRICA

**Reference:** *Permission letter for research*  
**Date:** *09 July 2018*  
**Enquiries:** *Shandukani Netshifhefhe*  
**Telephone:** *011 240 2718*

Mr. Nndavheleseni Dennis Ramanyimi  
University of Free State  
Department of Economic and Management Sciences  
Bloemfontein

20 June 2018

**Subject: Permission letter for research**

Dear Mr. N.D. Ramanyimi

We are pleased to inform you that we give you permission in respect of your research request of studying the relationship between the smallholder agriculture and food security system in City of Tshwane under the principal investigator Mr. Nndavheleseni Dennis Ramanyimi led by Dr. Johan van Zyl of the University of Free State. Your initiative is appreciable and we are ready to support this research at our best.

Please be advised that the research findings should be shared with officials, farmers and other stakeholders during the departmental scientific events such the annual agriculture research symposiums. Dates and venues for symposium will be communicated to you.

Attached please find the terms and conditions that you have to sign and send the document back to the department.

If you have any questions regarding this letter of approval do not hesitate to contact Mr. Shandukani Netshifhefhe (011) 240 2718, Email: [Shandukani.Netshifhefhe@gauteng.gov.za](mailto:Shandukani.Netshifhefhe@gauteng.gov.za).

We wish you all the best in your research.

Yours truly,

Mr. SR Netshifhefhe  
Acting Scientific Manager: Research  
Date: 20/06/18

Mr. MC Manyaga  
Acting Director: RTDS  
Date: 20/06/2018

## **Appendix B: Survey Questionnaire for Smallholder agriculture**

The Questionnaire is designed to survey Smallholder agriculture and food security within Tshwane region for requirements of “Master Degree in Development studies (MDS)”.

The research paper is registered with the University of the Free State under the faculty of Economic and Management Sciences.

The questionnaire is designed to collect information on the opinions of individuals. The information captured in this questionnaire is strictly confidential and will be used for research purposes by the researcher (student) and staff at the University of Free State, hence we guarantee you anonymity.

The respondent should be farming and residing within the City of Tshwane Metro Municipality.

### ***Survey Questionnaire ya balimi ba Tshwane***

*Questionnaire ye e diretjwe go shomishwa ge go botjishoa balemi-potlana ba go dula ka fase ga City of Tshwane Metro Municipality. Dipotsisho the ke tja go phetegatja “Master Degree in Development studies (MDS)”.*

*Lengwalo le la dinyakishisho le ngwadishitswe le University of the Free State ka fase ga faculty of Economic and Management Sciences.*

*Questionnaire ye e diritjwe go thusa ka go kgoboketja tshedimosho go tswa go batho. Tshedimosho ye key a sephiri gomme e tla shimishwe ke moithuti le baritishi ba University of the Free State bakeng sa dinyakishosho fela. Ke ka lebaka leo gore go kgonthishishwe sephiri.*

*Batjea karolo ba swanetje go ba balemi bao ba dulang ka fase ga City of Tshwane Metro Municipality.*

**SECTION A: HOUSEHOLD DEMOGRAPHIC PROFILE**

1. Gender of the farmer:

*Bong ba molemi:*

Male (1)		Female (2)	
<i>Monna (1)</i>		<i>Mosadi (2)</i>	

2. Are you the head/ the main provider of the household?

*Naa ke wena hlogo/mong wa lapa woo a shoma?*

Yes (1)		No (2)	
<i>Ee (1)</i>		<i>Aowa(2)</i>	

3. How is the household structure (how many?)

*Naa le lapa le na le maloko a ma kae?*

<b>Gender</b>	<b>Total <i>Kakaretso</i></b>	<b>&lt;10</b>	<b>11-18</b>	<b>19-35</b>	<b>36-65</b>	<b>66&gt;</b>
Male <i>(Monna)</i>						
Female <i>(Mosadi)</i>						

4. How is the educational level of:

*Maemo a thuto ya bao ba latelago:*

<b>Family</b>	<b>Primary (1)</b>	<b>Secondary (2)</b>	<b>Tertiary (3) <i>[Thutela moshomo]</i></b>	<b>No formal education (4) <i>[Ga se a tsene sekolo]</i></b>
Children <i>(Bana)</i>				

Mother <i>Mme</i>				
farmer <i>Molemi</i>				

5. Where do you originally come from?

*Naa o hlolega kae?*

City of Tshwane municipality	1	Outside City of Tshwane <i>(Pls mention....)</i>	2
Masepala toropo was Tshwane		Ka ntle ga City of Tshwane (O kgopelwa go ngwala gore o hlolega kae	

6. What is your employment status?

*Seemo sa tja meshomo ya gago?*

Employed	1	Unemployed	2	Self employed	3	Other (mention)	4
<i>O a shoma</i>		<i>Ga o shome</i>		<i>O a itshomela</i>		<i>Tjedingwe</i>	

7. Size of land

*Bogolo bja naga ya gago*

Less than 2ha	1	Less than 3ha	3	More than 3ha	3
<i>Ka fase ga 2ha</i>		<i>Ka fase ga 3ha</i>		<i>Ka godimo ga 3ha</i>	

8. Are you happy with your land size and please explain:

*Naa o kgotsofatja ke bogolo bja naga ya gago?*

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9. Means of land ownership

*Mokgwa wa bong bja naga*

PTO	1	Inherited	2	Lease	3	Rental	4	Bought	5
Tumelelo ya go dula nageng		Bohwa		A dimishwa		A dimishwa		Rekile	

**SECTION B: HOUSEHOLD INCOME [MATSENO A KA LAPENG]**

10. What is your monthly income?

*Naa letseno la gago ka kgwedi ke bokae?*

<R1000	1	R1001 – R5000	2	>R5000	3	No income	4
<R1000	1	R1001 – R5000	2	>R5000	3	Ga go letseno	4

11. What is your extra source of income?

*Naa letseno le lengwe la gago le tswa kae?*

Remit tance s	1	Social grants	2	Farmi ng	3	Busin ess	4	Salary	5	Other sours	6	No source	7
		<i>Mphi wa fela</i>		<i>Tsa temo</i>		<i>Kgwe bo</i>		<i>Mogol o wa mosho</i>		<i>Tje dingwe</i>		<i>Ga go selo</i>	



								<i>mong</i>					
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12. How much does the household receive from the following?

*Naa le lapa le humana bokae go tswa go tse latelang?*

Farming	1	Business	2	Social grant/pension	3	Remittances	4	Salary	5	Others	6
										Pls Specify...	
Temo		Kgwebo		Mphiwa fela		Thelete ya go rumeloe		Mogolo wa moshomong		Tje dingwe	

Others specify other:

*Ge gona le the dingwe, ke kgopela o hlalose.....*

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13. How much do you spend on food?

*Naa o o shomisa bo kae ya letseno la gago go reka dijo?*

1/4	1	1/2	2	3/4	3	Full	4	Zero	5
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14. What type of expenses do you pay for? Please rank you're spending from most important to less important. **E.g. 1= most important.....8 less important**

*Naa dili tjeo o di lefelelago ke eng? Ke kgopela o bee di lefelwa tja gago ka tatelelano go ya ka bohlokwa bja tjona, thoma ka tje bohlokwa o le leletje ka tja go sebe bohlokwa bjalo.*

**Mohlala 1 = bohlokwa kudu .....8 ya go sebe bohlokwa bjalo**

Type of expense	No[Aowa] =0	Yes [Ee]=1	Rank [Beakanya ka lenaneo]
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Food/ <i>Dijo</i>			
Clothing/ <i>Diaparo</i>			
Health/ <i>Maphelo</i>			
Transport/ <i>Dinamelwa</i>			
Household items/ <i>Diphahlo tja lapa</i>			
Water and electricity/ <i>Meetse le mohlagase</i>			
Education/ <i>Thuto</i>			
Others/ <i>Tje dingwe</i>			

15. Do you save money generated from farming?

*Naa o boloka letseno leo le dirang mo temong ya gago?*

Yes	1	No	2
<i>[Ee]</i>		<i>[Aowa]</i>	

Please explain why:

Ke kgopela o hlalose gore ke ka lebaka la eng:

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**SECTION C: FOOD SECURITY [KGONTHISHISHO YA DIJO]**

16. What is the main source of food

*Naa dijo tja gago o di hwetja kae?*

Own production	supermarkets	Tuck shops	Farming	Other: specify
<i>Tseo o didirang</i>	<i>Supermakete</i>	<i>Spaza</i>	<i>Temong</i>	<i>Tje dingwe: kgopela o di bolele</i>
1	2	4	5	6

17. How often do you get food from the above?

*Naa o di hwetja/reka ga kae go tjwa moo?*

More often	Less often	Regularly	other
<i>Ga ntshi</i>	<i>Nakonyana ye ngwe</i>	<i>Ka dinako</i>	<i>E ngwe</i>
1	2	3	4

18. From farming, how much do you produce?

*Temo ya gago e go fa puno e kae?*

Too little	Little	Enough	Too much	Not applicable
<i>Nnyane-nyane</i>	<i>Nnyane</i>	<i>Golekana</i>	<i>Go fitisha</i>	<i>Ga go diragale</i>

19. Are you satisfied with food produced from farm

*Naa o kgotsofalela puno ya gago ya go tswa tshemong?*

Yes (1)	No (2)
Ee (1)	Aowa (2)

Please explain:

Ke kgopela o hlalose:

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20. What is the level of satisfaction with production

*Kgotsofalo ya gago ka puno ya temo?*

Less satisfied	Satisfied	Highly satisfied	Not sure
<i>Go se kgotsofale</i>	<i>Kgotsofala</i>	<i>Kgotsofala kudu</i>	<i>Ga ke tsebe</i>
1	2	3	4

21. How many meals do you take in a day

*Naa o ja ga kae mo letsatsing?*

Once	Twice	Three times	More than three
<i>Ga tee</i>	<i>Ga bedi</i>	<i>Ga raro</i>	<i>Go feta ga raro</i>
1	2	3	4

22. What comprises your plate of food

*Setsholwa sa dijo tja gago be ba le eng?*

Pap /meat/veggies	Rice or Pap/Meat	Rice or Pap/veggies	Other
Bogobe le nama le merogo	Rice/bogobe le nama	Rice/bogobe le merogo	Tje dingwe
1	2	3	4

23. Does food availability change with seasons?

*Naa go ba gona ga dijo go ya le sehla?*

Yes (1)	No (2)
Ee (1)	Aowa (2)

24. Which food coping strategy do you adopt when you have no food and money to buy food?

*Naa o shomisa mekgwa e mefe go kgotlelela ge o sena ditjo goba tshelete ya go reka dijo?*

Farming	Hawker/vendor	Remittances	Begging from others	Social grant
<i>Temo</i>	<i>Barekishi ba tseleng</i>		<i>Kgopela go ba bangwe</i>	<i>Mphiwafela</i>
1	2	3	4	5

## SECTION C: AGRICULTURE INFORMATION (TSEBO KA TJA TEMO)

25. Why choosing agriculture?

*Ke ka baka la eng o kgething go dira tja temo?*

Source of food	income	Love it	other
1	2	3	4

26. What is your main activity of production?

*Naa temo ya gago ke ya mohuta mang?*

Vegetables	Crops	Poultry	Piggery	Livestock	Other
<i>Merogo</i>	<i>Dimela tja mashemong</i>	<i>Dikgogo</i>	<i>Dikolobe</i>	<i>Diphoofolo</i>	<i>Tje dingwe</i>
1	2	3	4	5	6

27. What is the production level?

*Naa puno ya temo ya gago ke ye kaakang?*

Low	Higher
<i>Fase</i>	<i>Godimo</i>
1	2

28. Are you satisfied with your farming?

*Naa o kgotsofalela temo ya gago?*

Yes	No
<i>Ee</i>	<i>Aowa</i>
1	2

Please explain:

Ke kgopela o hlalose:

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29. What kind of inputs do you use? E.g fertilizers

*Naa o shomisa di nyakwa tje dife mo temong? Bjalo ka mayora*

Organic	Chemical
<i>Mayora a hlago</i>	<i>Dihlare</i>
1	2

Reason for using that

*Bo baneng o shomisa seo?*

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30. What is the primary purpose of practicing your farming?

*Naa lebaka la gore o dire tja temo ke lefe?*

Household consumption	Making money	Extra source of income	other
<i>Dijo tja ka lapeng</i>	<i>Go dira chelete</i>	<i>Go dira letseno la go tlaletja</i>	<i>Tje dingwe</i>
1	2	3	4

31. What are challenges you faced in your farming?

*Naa mathata a o o hlananeng nao mo temong ke eng?*

Lack of resources (specify)e.g land	Low productivity	Lack of market	Lack of skills/training	Other
<i>Go hloka dilo tja go shoma, bjalo ka naga</i>	<i>Puno e nnyane</i>	<i>Go hloka mebaraka</i>	<i>Go hloka tsebo/thutelo</i>	<i>Tje dingwe</i>
1	2	3	4	5

Please explain other:

Ke kgopela o hlalose:

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32. How long have been engaged in farming:

*Ke lebaka le le kaakang o dira tja temo?*

<1 year	2-3 years	3-4years	4-5years	>5 years
<i>&lt;Ngwaga</i>	<i>Megwaga e 2-3</i>	<i>Mengwaga e 3-4</i>	<i>Mengwaga 4-5</i>	<i>Mengwaga &gt;5</i>
1	2	3	4	5

33. How is farm operating?

*Naa tshepidisho ya tja temo e bjang?*

Seasonal	Part time	Fulltime	Other
<i>Ka dihla</i>	<i>Lebakanyana</i>	<i>Ka mehla</i>	<i>Tje dingwe</i>
1	2	3	4

Please explain reason behind that:

Ke kgopela o hlalose lebaka la go hlola seo:

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34. If crops/vegetables, what is the source of irrigation?

*Ge o bjala dimela tja mashemong?merogo naa o shomisa meetse a go tswa kae?*

Borehole	municipal	River/dam	Other:
<i>Moleteng</i>	<i>Masepala</i>	<i>Nokeng/Letamong</i>	<i>Tje dingwe</i>

1	2	3	4
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35. How many days a week do you engage in farming?

*Naa o shoma tja temo matjatji a ma kae mo bekeng?*

One day	Two-four days	More than five days	other
<i>Letjatji le tee</i>	<i>Matjatji a mabedi- amane</i>	<i>Go feta matjatji a hlano</i>	<i>Tje dingwe</i>
1	2	3	5

Please explain reason behind that:

Ke kgopela o hlalose lebaka la go hlola seo:

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36. How much is your farm production?

*Ditsweletjo tja gago temong ya gago ke tje kaakang?*

Too little	Enough	More	Too much
<i>Nnyane</i>	<i>Dilekane</i>	<i>Dia fitisha</i>	<i>Tje dintshi</i>
1	2	3	4

37. Are you satisfied with the farm production?

Yes	No
<i>Ee</i>	<i>Aowa</i>
1	2

38. Please explain reason behind that:

Ke kgopela o hlalose lebaka la go hlola seo:



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39. How much is the proportion from produce that goes to household food consumption?

*Nna ke tsweletjo ya temo e kaakang ye e yang go jewa ka lapeng?*

10%-20%	20%-40%	40%-60%	60%-80%	Over 100%
1	2	3	4	5

40. If less than 100% of produce to household consumption what do you do with surplus?

*Ge e le gore tsweletjo ya temo ga e jewe lapeng ka mo ka, e e shalang go diragalang ke yona?*

Preserve	Sell	Give away	Other
<i>Fetolela go se sengwe/kwapisha</i>	<i>Rekisha</i>	<i>Fana ka yona</i>	<i>Tje dingwe</i>
1	2	3	4

Please explain other:

Ke kgopela o hlalose:

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41. If sell, where is your market?

*Ge e le gore o rekisha tja go shala, naa mmaraka wa gago moo o rekishang ke o fe?*

Street Vendors	Supermarkets	Markets	Schools	other
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<i>Barekisha mmileng</i>	<i>Supamakete</i>	<i>Maketeng</i>	<i>Dikolo</i>	<i>Tje dingwe</i>
1	2	3	4	5

42. How many jobs created by farming

*Naa temo ya gago e twetje batho b aba kae?*

<3	<10	More than 10 [ <i>go feta 10</i> ]
1	2	3

43. How many permanent

*Ke bashomi ba kae ba go shoma ka mehla?*

<3	<10	More than 10 [ <i>go feta 10</i> ]
1	2	3

44. Are you happy with income generated in the farm?

*Naa letseno la tja temo le a go thabisha?*

Yes [ <i>Ee</i> ] (1)	No [ <i>Aowa</i> ](2)
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Please explain:

Ke kgopela o hlalose:

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45. How much income do you generate from the farm?

*Naa letseno la gago la tja temo ke bo kae?*

Little (you can Specify)	More (you can Specify)	Too much (you can Specify)
<i>Nnyane (o ka hlalosa)</i>	<i>Ntshi (o ka hlalosa)</i>	<i>Ntshi kudu (oka hlalosa)</i>
1	2	3

46. What do you do with income generated?

*Naa letseno la tja temo o dirang ka lona?*

Buy food	Buy other household staff	Saving	Buy farm resources	Other
<i>Reka dijo</i>	<i>Reka dinyakwa tje dingwe tja ka lapeng</i>	<i>Boloka</i>	<i>Reka dinyakwa tja temo</i>	<i>Tje dingwe</i>
1	2	3	4	5

Please explain other:

Ke kgopela o hlalose:

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47. Do you receive farm training?

*Naa o humana hlahlo ka tja temo?*

Yes [ <i>Ee</i> ] (1)	No [ <i>Aowa</i> ] (2)
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48. What kind of training

*Naa o humane hlahlo ya mohuta mang?*

Informal	Formal
<i>Ye e seng ya semmusho</i>	<i>Ya semmusho</i>
1	2

Please explain training you need

Ke kgopela o hlalose dinyakwa tja gago mabapi le tseo o nyakang go rutishwa ka tsona.

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49. How often

Ga kae?

Weekly	Monthly	Long time ago
<i>Ka beke</i>	<i>Ka kgwedi</i>	<i>Kgale</i>

**SECTION D: AGRICULTURE AND FOOD SECURITY/SOVEREIGNTY SYSTEM INFORMATION**

***TEMO LE KGONTHISHISHO YA DIJO/***

50. Where is your farm situated?

*Temo ya gago e direga kae?*

On the plot	On another site	Both
<i>Mo plotong</i>	<i>Felo go gongwe</i>	<i>Bobedi</i>
1	2	3

51. What is the size of the farm?

*Naa polase ya gago ke e kgolo bo kae?*

<ha	<2ha	>3ha	Other : specify [ <i>Tje dingwe: o ka hlalosa</i> ]
1	2	3	4

52. What is the form of farm ownership?

*Mokgwa wa bong bja naga?*

Permission To Occupy	Title deed
<i>Tumelelo ya go dula nageng</i>	<i>Title deed</i>
1	2

Please explain how you obtained that:

Ke kgopela o hlalose gore o e humane bjang:

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53. How did you acquire land

*Naa o humane naga ye o dirang temo mo go yena bjang?*

Purchase (private)	Land reform	Rental/ lease	Other
<i>Itheketje</i>	<i>Pushetjo ya naga</i>	<i>Rente</i>	<i>Tje dingwe</i>

54. Have ever experienced land dispossession?

*Naa o ile wa tjeelwa naga?*

Yes	No	By who [ <i>ke mang</i> ]			
<i>Ee</i>	<i>Aowa</i>	Government	Industrial	Commercial farmers	Other

55. Who decide on the source and use of production inputs

*Naa ke mang a dirang sephetho ka tja di dirishwa tja tja temo?*

Myself	Department officials	Agricultural farmers union	Other
<i>Nna</i>	<i>Bashumi bja mmusho</i>	<i>Lekgotla la balemi</i>	<i>Tje dingwe</i>
1	2	3	4

56. Are you satisfied with your land size?

*Naa o kgotsofatja ke bogolo bja naga ya temo ya gago?*

Yes (1)	No (2)
<i>Ee (1)</i>	<i>Aowa (2)</i>

Please explain:

Ke kgopela o hlalose:

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57. Who determines prices for your products

*Naa ke mang a beang tefelo ya ditsweletjwa?*

Myself	Market value	Other Pls specify.....
<i>Nna</i>	<i>Mmaraka</i>	<i>Tje dingwe: o ka hlalosa</i>
1	2	3

58. Please rate challenges that you face in agriculture (1=bad; 2= good; 3=excellent)

*Naa ke mathata a fe a o o hlakaneng le ona mo temong? (1=gampe, 2=gabotse, 3=gabotsebotse)*

Lack of recognition [ <i>Go se tjeelwe hlogong</i> ]	
Discrimination [ <i>Go hlathologanywa</i> ]	
Low productivity [ <i>Ditsweletswa tje fase</i> ]	
Lack of farming inputs [ <i>Go hloka di dirishwa tja temo</i> ]	
Lack of machinery/implements [ <i>Go hloka mechene/ditlabakelo</i> ]	
Lack of knowledge [ <i>Go hloka tsebo</i> ]	
Land size (small) [ <i>Naga e nnyane</i> ]	
Water [ <i>Meetse</i> ]	
Other [ <i>Tje dingwe</i> ]	

59. What would you say about the rights as smallholder agriculture in terms of choosing crops, seeds, markets and availability of land?

*Naa o ka bolela eng mabapi le tokelo ya go kgetha dibjalwa, peu, mebaraka, le goba gona ga naga?*

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60. Please describe any violation of your rights that you experience or once experience in agriculture system

*Ke kgopela o hlalose ka kgatego ya ditokelo tja gago e ileng ya direga goba ye e diregang mabapile le tja temo.*

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**Thank you so much for cooperation.**





## Appendix C

### QUALITATIVE KEY INTERVIEW QUESTIONS FOR OFFICIALS WORKING WITH SMALLHOLDER AGRICULTURE AND/OR FOOD SECURITY.

The Questionnaire is designed to asked questions to the officials working with Smallholder agriculture and/or food security for requirements of “Master Degree in Development studies (MDS)”.

The research paper is registered with the University of the Free State under the faculty of Economic and Management Sciences.

The questions are meant to guide the responses to the study from opinions of officials. The information will be strictly confidential and used for research purposes by the researcher (student) and staff at the University of Free State, hence we guarantee you anonymity.

The respondent should be official from the Department of Agriculture (National/provincial; and or Local) working in the similar areas of the smallholder agriculture and/or food security and responses will be captured in a separate book. Below are the key guiding questions for the interview.

1. What is your general perception on the smallholder agriculture?
2. What is your comment on the contribution of smallholder agriculture to the food security system?
3. Please explain the powers the smallholder agriculture has towards their farming practices.
4. What is your view on the sustainability of the smallholder sector towards bettering their lives?
5. What is their main purpose of farming e.g. food production; income etc please explain
6. What do you think are the main bottle necks (challenges) faced by the smallholder agriculture within the municipality or in general?

////////////////////////////////////? *appreciate your support*////////////////////////////////////