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Exploring the link between urban agriculture, food security and the role of community development: a case study of Soweto, South Africa

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A thesis submitted to the Faculty of Science, University of the Witwatersrand, Johannesburg, in fulfilment of the requirements for the degree of Master of Science in Geography

10 November 2014

Declaration

I Obakeng Tendani Molelu, hereby declare that this thesis is my own original work and that is has not been and will not be presented in whole or in part to another University for the award of any other degree.

Signature_____

Dedication

To my late father Daniel Molelu, I am thankful for the love, support and help during the fieldwork, and to my mother Christina Molelu, I am grateful for the love, support and continuous encouragement at all times.

Abstract

This MSc thesis is aimed at assessing the food security of people actively participating in urban agriculture. In addition, it aims to assess the role of community projects that are involved in urban agricultural activities in Soweto. The fieldwork took place in five suburbs of Soweto; Meadowlands, Chiawelo, Mzimhlophe, Motswaledi and Nancefield Hostel. The findings suggest that there is a link between urban agriculture and food security in Soweto. Field based research revealed that the participants who engage in urban agricultural activities are doing so to supplement their households' daily dietary needs. The community projects that mainly engage in food gardening are doing so for the same reasons as the individuals. However there is a greater potential for the community projects to grow into more sustainable micro-economical entities that can supply the community and local retailers with locally grown cheap vegetables. Hampering this potential is the need for continuous skills development and training in agriculture and financial management. In addition, there is a problem pertaining to access to resources and funding than could assist both the community projects and individuals to grow good quality food. There is however a need for more data to assess the spatial distribution of the urban cultivators, livestock keepers and community projects. Nonetheless, it is important to note that urban agriculture is quite significant in the lives of those involved as it has helped reduce food insecurity in their households and encourages social networking among cultivators.

Key words: urban agriculture, food insecurity, Soweto and livelihood assets

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List of Abbreviations

FAO:	Food and Agriculture Organisation of the United Nation
FGF:	Food Gardens Foundation
GDARD:	Gauteng Department of Agriculture and Rural Development
HDDS:	Household Dietary Diversity Scale
HFIAS:	Household Food Insecurity Access Scale
Soweto:	South Western Townships
UA:	Urban Agriculture
UN:	United Nations
UNECA:	United Nations Economic Commission of Africa
USD:	United States Dollar

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1 Chapter One - The Frames of Reference

1.1 Background to the study

Hunger eradication and poverty have been assigned as a top priority to be dealt with globally, by the United Nations, World Bank and FAO. The target date to achieve this goal and other is the year 2015. Various goals have been set out for countries highly affected by hunger, food insecurity and food shortages, poverty and matters pertaining to economic growth and equality in general. The major movement being The Millennium Development Goals was developed in 2000 at the United Nations Millennium Summit (SA MDG country report, 2010). The first and major goal is to eradicate extreme poverty and hunger (SA MDG country report, 2010). Largely affected by food insecurity, shortages and poverty are sub-Saharan countries and other developing countries outside of Africa. South Africa has taken a stand in reducing poverty as well as fulfilling the other seven goals set out by the UN, by being part of the UN and making sure that the MDG goals are fulfilled by 2015 (SA MDG country report, 2010). These goals are inter-linked in many ways, thus in achieving them other goals also need to be constantly considered and also achieved. Drawing back to the first goal "To Eradicate Extreme Poverty and Hunger", there needs to be improvements in gender equality and economic growth, while policies allow for appropriate and equal use of public revenue generated by the fast economic growth being experienced (FAO, WFP and IFAD, 2011).

Fast Economic growth is associated with rapid urbanization in most developing countries (FAO, WFP and IFAD, 2011), more so in sub-Saharan Africa, including South Africa. It is coupled with increased poverty because populations are growing, but employment prospects for these populations remain low (UNDP, 1996; Lynch *et al*, 2001; Smit and Bailky, 2006; Thornton, 2009). In addition poverty, malnutrition and food insecurity are shifting from rural areas to urban centres (Ruel *et al*, 1998 and Maxwell *et al*, 2000). Furthermore, consideration has to be given to the people's access to basic services such as sanitation, clean water and adequate health care for the poor (De Wet *et al*, 2008; SA MDG country report, 2010).

Impoverished populations in the urban centres in developing countries are faced with challenges of earning livelihoods. This affects the food security of the household and how the vulnerable groups (women, children, the disabled and elderly) are cared for in the household (Maxwell, *et al*, 2000). In urban centres where the majority of inhabitants rely on incomes from labour, there exists an inequality in income due to gender roles. Males do more skilled and some unskilled labour while females are subjected to unskilled labour (Maxwell *et al*, 2000). Due to this we see a difference in male and female headed households where in the latter it's difficult to make ends meet as more effort is needed to acquire food and basic needs while in the former there is a higher income which

makes life a little less stressful (Maxwell, *et al.*, 2000; SA MDG country report, 2010). Females find more innovative methods to earn wages and to find food to feed and support their families, one of these methods is urban agriculture (UA) (Hovorka, 2004; KIguli and Kiguli, 2004). Urban Agriculture constitutes agricultural activities that occur in built-up 'intra-urban' areas and the 'peri-urban' fringes of cities and towns (Thornton, 2008). These activities range from the production, processing, distribution and marketing of agricultural products (Mougeot, 2000; Thornton *et al*., 2012). Products are either food crops or livestock (Thornton, 2010; Frayne, 2010; Crush *et al*., 2010). Urban agriculture takes places on vacant land along the roadside, along river banks and streams and in wetlands (UNDP, 1996; Obosu-Mensah, 1999; Vagneron, 2007; Crush *et al*., 2010; Thornton, 2010).

Urban agriculture is on the increase in sub-Saharan African cities, despite some of the challenges of access to basic services and land tenure. In South Africa, the urban population has increased, with Gauteng Province having the highest, 12.2 million people in 2011 followed by Kwa-Zulu Natal with 10.3 million people (Statssa Census, 2011). This is attributed to the labour migration to the larger cities from rural South Africa, (Statssa Census, 2011; De Wet *et al*, 2008). Urban agriculture is seen to be growing within pockets of the city, where vacant plots of land are used to grow food near informal settlements, in backyards and adjacent to rivers. These plots are kept going either by individuals or groups of people keen to feed their families and possibly make extra money to support their families and sustain their growing potential.

1.2 Thematic Consideration

Impoverished households are exposed to a myriad of developmental problems ranging from no proper housing, limited or no basic services, unemployment and food insecurity (UNDP, 1996; Frayne, 2006; Wills *et al*, 2009; Crush *et al*, 2010; Frayne*, et al.,* 2010). With reference to food security in South Africa, the 2007 General Household Survey indicated that 10.6% of adults and 12.2% of children were sometimes or always hungry (Altman, 2009). In another survey by AFSUN, when participants were asked what they thought was the meaning of poverty, majority responded that it was not having food (Frayne *et al*., 2009).

It is widely accepted that many of these poor households across the urban centers are involved in some sort of urban agriculture as a response to food insecurity and in an attempt to have an income and better their quality of life (UNDP, 1996; Thornton, 2008; Crush *et al*, 2010). Urban agriculture has thus become an important part of the landscapes of many African Cities; South Africa is no exception to this fast growing trend (UNDP, 1996, Crush *et al,* 2010). Previous studies in African countries such as Zambia (Thornton *et al*, 2010), Sierra Leone (Thornton *et al*, 2012), Botswana (Hovorka, 2003) Malawi (Mkwambisi *et al,* 2011), Zimbabwe (Drakakis-Smith *et al,* 1995; Moyo,

2013) Mozambique (Sheldon, 1999), have indicated the impact of UA at household level. UA contributes to food security and socio-economic needs of the household thus providing fresh and nutritious produce and either saving or generating an income from the sale of fresh produce. In view of the observations made above, this research will be guided by the following research questions:

1. What evidence is there to show that the urban cultivators are food insecure?
2. If Urban Agriculture is linked to food security, how does it guarantee the dietary needs of the household being met?
3. Is there a market for the urban cultivators and livestock keepers to sell their surplus and animals?
4. Do community projects have the potential to grow into micro-economically successful enterprises?

1.2.1 Research Aims and Objectives

The aims of this research are:

I. To determine if the residents involved in UA are food insecure
II. To explore the role of growing exotic vegetables for the informal trade market
III. To determine if UA in Soweto can be used as a community based economic development tool.

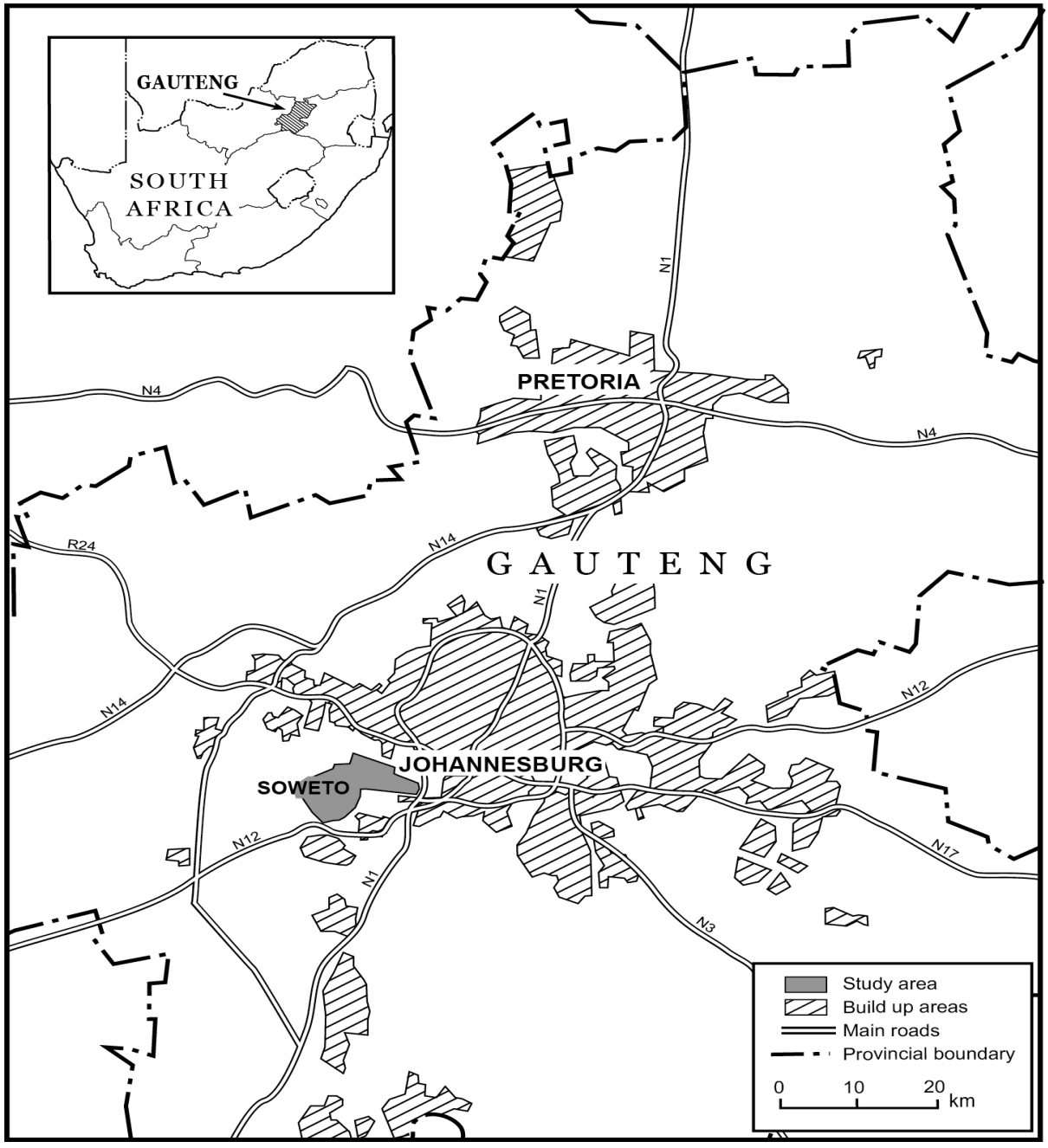
In view of the above aims, the overall objective of this study is to obtain vital information that will assist local municipalities within Soweto to consider certain factors with regard to food security and the importance of urban agriculture during policy formulation as well as during development planning for the township. In addition, the research will contribute to the body of knowledge on UA and food security in South Africa.

1.2.2 Choice of topic and Study locations

Urban agriculture is a growing phenomenon in South Africa and has greatly increased in Soweto. Public spaces are slowly being transformed into food growing plots and are also being used for grazing by cattle and other livestock. Much research has been conducted in other provinces and towns i.e. Eastern Cape-Pedi (Thornton, 2008), Cape Town and Msundunzi (Crush *et al*., 2010), and Johannesburg-Orange Farm (Rogerson and May, 1995; Crush *et al*, 2010). No formal research on urban agriculture and food security has been conducted in Soweto, which lies south west of Johannesburg, (see figure 1). The name Soweto is derived from the townships geographical location relative to the city of Johannesburg. Soweto is very big and is still growing, according to Ramchander (2004) in 2004 it was 96.4km^2 but it can be argued to be bigger at present, 2014. It boasts a rich

history pre and post-apartheid and has a relatively growing population facing diverse challenges ranging from high unemployment, slow service delivery, high poverty and food insecurity.

Figure 1.1: Locality Map of Soweto, within the Gauteng Province and the City of Johannesburg



Source: Wendy Phillips (2013), Cartography Unit, Geography department, Wits University

1.3 Methodological considerations

This study on urban agriculture falls within the social sciences. The study will be looking at people who are actively involved in urban agriculture. The phenomenon of urban agriculture in the city and settlements adjacent to the city is quite common in Africa and developing countries around the world. In Soweto urban agriculture has been in existence since the late 1970s.

The study mainly focusses on the use of un-used municipal and private land by people to grow food and for animals to graze. In addition, community groups making use of un-used school property (sports fields) are considered. To retrieve data that will assist in answering the research questions, a questionnaire survey and interview were used. These data collection instruments are favorable because they allow the researcher to assess relationships between and amongst different characteristics, sites and subcategories (Secor, 2010). By talking to research participants and building a relationship with them enables them to open up and give more information during interviews. The questionnaire for individuals involved in UA was divided into three sections; a) personal and socio-economic data, b) urban agriculture and c) Food security. The sections enabled the researcher to obtain all the relevant data on UA and the respondents' food security status. The socio-economic data gave a background of the individuals' household structure, sources of income and origins in South Africa. The community projects were interviewed with all the members there. Therefore, each person was able to comment during the interview, which enabled me to g*et al*l their views, not just those of the leader. Lastly, one organization, Food Gardens Foundation, based in Soweto was approached. The interview with the CEO was very informative, especially with respect to making community projects more economically sustainable.

The data was mainly qualitative in nature. However, it was possible for it to be captured and analyzed using IBM SPSS statistical computer software. The software allows easy analysis as it does the analysis for you and eliminates human error. The software also reduces the time it takes for manual statistical analysis and calculations by 80%. The more qualitative data was captured in Microsoft word. This data did not need software for analysis as it consisted of explanations from conversations with the research participants. Therefore analysis was based on looking at comments and explanations that appeared more often as well as those considered significant in the context of the research and answering the research questions. A more in-depth look into the methodological considerations is found in chapter four of the thesis.

1.4 Theoretical considerations

During the first half of the 19th Century planners were already anticipating spatial, structural and social issues within the cities of England linked to population growth and rural-urban migration. Earlier ideas of organized communities come from early Utopian Socialists such as Thomas More, 1478-1535, and John Beller, 1654-1725, (Batchelor, 1969). Thomas More's idea in 1515 was to create a town with a limited population size of 6000 people and have dwelling units be separated by an agricultural belt whose dimensions would be fixed by distance between adjacent cites (Batchelor, 1969). Following this notion was that of John Beller in 1696 that considered the rural people more as well as functional specialization in clothing, textile centers and fishing towns to support larger populations. His conceptual framework was based on two factors; to make a plentiful living for the poor and to give the youth a good education (Batchelor, 1969). Unfortunately these concepts were never applied after 1696, until Ebenezer Howard, 1850-1928, a shorthand writer and social reformer started taking notice of these writings. By combining the ideas from More and Beller with his own ideas he created what is termed: The Garden City (Batchelor, 1969)

Batchelor, 1969 argues that Howards' ideas may not be as original as they are portrayed in literature, yet it is his style of writing and diagrams that made it possible for him to be recognized. Howard was able to effectively synthesis previous ideas and contributes some important points of his own. He created simple and detailed diagrams that were understood by planners and architects at the time, and those who were also concerned about the growing urban populations, extreme poverty and increased crime levels in cities of England (Batchelor, 1969). Effectively his vision was to bring the country side to the city, and combining three magnets: country, town and people. According to Howard the Garden City would: *"reduce the prevailing encroachment of contemporary cities on adjacent rural areas; the drift of agricultural population to large urban centers; the subsequent decline of rural life; ensuing overcrowding; fluctuation of economic activity particularly in the agricultural sector of the economy; growth of land values without benefit to the community; the exclusion of the benefits of the city life from residents of rural areas and the insanitary conditions of in contemporary metropols"* (Batchelor, 1969, 185).

The elements of an ideal Garden City are as follows; firstly it had a limited population size of 32 000 people. Secondly it incorporated the creation of a permanent agricultural belt around the city to act as a barrier for further urban growth and an agricultural hinterland for the city. Thirdly it permitted permanent ownership and control of the entire urban tract by the municipality, the use of unearned increment of land value for the purpose of benefiting the community. And Lastly it gave provision for private commercial and industrial firms to lease property and draw profits from the operation of

their businesses and the construction of similar cities and a road rapid transport system to link to another city of 58 000 people (Batchelor, 1969). The first cities to be built making use of the Garden City Concept were Letchworth in 1903 followed by Welwyn in 1920 (Batchelor, 1969).

The idea behind the Garden City Concept can be considered in three points; 1) self-sufficiency of the city, 2) agricultural or green belts and lastly 3) public ownership. These three elements make the Garden City Concept applicable even in today's society as the same problems identified by Howard in England in 1898 are now occurring in developing countries of the global south. This concept also influenced the way in which townships in Gauteng were planned and developed during the apartheid era (Crankshaw and Parnell, 1997).

Today the locations of settlements and settlement patterns of Soweto and other old townships in Gauteng have been shaped by policies of the apartheid era, 1948-1990. This particularly applies to Johannesburg, which was the first stop for many migrant laborers from the homelands in search of work on the Gold mines and in the city (Worger, 1997; Bonner and Segal, 1998). When the apartheid government under the leadership of D.F Malan came into power in 1948, many changes with regard to resettlement of people living in slums, and in the city were eminent (Worger, 1997; Japha, 1998). A Committee was assigned to deal with the elements of the 'native township' of the apartheid state (Japha, 1998). The townships would provide orderly housing as a prerequisite for control. Therefore the scheme would house all workers under control, co-ordinate the control of influx and would radically improve the conditions of the Native populations of the town (Japha, 1998).

1.5 Thesis Outline

The remaining six chapters are organised as follows. *Chapter two* is a description of the three different phases in which agriculture played an important role for subsistence and for the micro-economy in which it was occurring, particularly during the Late Iron Age and during the early 1900s. This followed by a look into the development of Soweto and the documented emergence of urban agriculture in the 1970s and it growth till present. In *chapter three* the theoretical and practical aspects concerning urban agriculture and food security are discussed. The chapter includes the theoretical framework which will be used in analysing the findings. In *chapter four* is a presentation of the methodological considerations of the fieldwork. It is here that a detailed description of the data collection, instruments, as well as respondents and interview guides are discussed. The chapter ends with a brief look at the methodological reflections. In *chapter five*, the empirical findings are discussed. The section describes the findings on urban agriculture, food security and community projects, with perspectives from urban farmers and an organisation working in Soweto and training people on food gardens. In *chapter six* is the analysis where the findings and meaning of the study

are presented. It is here where role of urban agriculture is discussed with reference to food security, and positive livelihood outcomes. The chapter ends with a discussion on the effectiveness of community projects involved in urban agriculture and how they can grow into sustainable micro-economical entities. In *chapter seven* the key discussions are synthesised. It ends with recommendations toward further research.

2 Chapter Two - An Image of the Area

2.1 Introduction

In southern Africa farming has played an integral part in shaping landscapes, relationships between people and the building of the country. As an essential economic activity it is able to feed communities, used as a means to trade physical produce or pay for bride's wealth and build micro economies, it has remained as one of the important economic and livelihood activities. This section looks at farming in three stages of history. First during the 13th Century with particular attention given to floodplain agriculture at Mapungubwe and how their economy become one of the most successful due to political rule and effective control of farming activities. Then I will fast forward to the mid-1800s and early 1900s where an economy of African peasant farmers had emerged and managed to gain strength by either independently owning land to produce and trade with white people or as sharecroppers on white owned land. Complexities were present during this phase which made it difficult for some African peasant farmers to prosper, while others ended up resorting to wage labour on the white owned farms or the mines. The complexities developed following the 1913 Land Act which was the demise of sharecropping as it was designed to remove independent rent paying African tenants and cash croppers residing on white-owned farms (Plaaitjie, 1916). The last phase of farming in the urban and industrial areas is in the 20th Century, particularly Johannesburg.

2.2 Migration and spread of Bantu Languages

The floodplains of the Limpopo Basin are a great source of evidence on early farming communities in Southern Africa. The Shashe-Limpopo Basin was occupied from AD 900 until AD 1300 during the Middle Iron Age by the Zhizo, K2 and Mapungubwe societies. The area was also occupied by different groups of people during the Late Iron Age as well, AD1220 to AD 1900 (Huffman, 2005; 2001). The historical period of the Iron Age is important as it is a pinnacle time in history that influenced the generations that followed. Of most importance and related to the topic at hand is the spread of farming and settled village life. The origins of the people who occupied the Limpopo Basin during the Iron Age lie to the north of the African continent. According to Mitchell (2002) the spreading of farming, distinctive ceramics and metallurgy is generally understood as the expansion of the Bantu-speaking population. Various hypotheses have attempted to explain the direction in which these early population may have migrated. To explain this movement of people linguistic and archaeological evidence has been presented. To follow is a brief overview of the migration of the Bantu people to southern Africa and their settlement in the Limpopo Basin, Linguistic evidence will be presented as well archaeological evidence to support the theories of movement and growth of

subsistence agriculture on the Shashe-Limpopo Basin. There is extensive literature that delves into the expansion of the Bantu language and culture during the Early Iron Age. Here only the aspects related to the agriculture will be examined and discussed. The migration of Bantu people is related to the use of iron tools for land clearance and cultivation (Mitchell, 2002, 2006). For these people the advantage of having iron tools enabled them to clear land for cultivation which fuelled population growth. As with present day society, population growth results in expansion and a need for people to move into the outskirts in an attempt to avoid the over populated areas of the city. The same was true of the Bantu society during the Iron Age. It is important to know the manner in which the Bantu people moved south toward South Africa and how they transitioned over time and settled within the Shashe-Limpopo Basin and then later moved to Great Zimbabwe

The linguistic evidence is important for the following reasons; it determines the common origin and subsequent diversification of people and determines borrowed features in a language therefore it's an indication of cultural contact (Huffman, 1970). The linguistic evidence shows that the point of origin for the Bantu Language and culture is East Africa along the Cameroon Nigeria border (Dalby 1975 in Mitchell, 2002; 2006). To come to this conclusion Lexicostatistical methods were used where "linguists build trees by comparing overall similarity among language pairs across a standard vocabulary (Holden, 2002, 793). From the point of origin the Bantu Languages separated into the western and eastern streams. The western Bantu-speakers, archaeologically known as makers of the Kalundu pottery, moved south along the Atlantic coast and inland up rivers and inland. They spread into Eastern Botswana and south-eastwards as far as Kwa-Zulu Natal and Eastern Cape. The makers of the Urewe Tradition spread rapidly south along Africa's Indian Ocean coast towards the Great Lakes. They continued and reached Mozambique and adjacent parts of Swaziland, Zimbabwe and South Africa (Mitchell, 2002; 2006). According to the linguistic and ecological reconstruction this group became acquainted with cereal, cattle, sheep and goats (Vansina 1984; Schoenbrun 1988 in Mitchell, 2002). To support the above statement archaeological evidence is able to verify the growth of agricultural activity by the Bantu population. This evidence consists of pollen sequences that demonstrate land clearance as well as Urewe pottery discoveries. According to D Phillipson (1993, 261) in Mitchell (2002) Urewe pottery was found in close proximity with areas in which cattle, sheep and cereals had been used for several centuries which is part of the Early Iron Age assemblages of Eastern, south-central and southern Africa.

Ceramic typology is a widely used tool to identify a cultural society. Ceramic typology was used quite extensively to trace the expansion of iron using farmers across southern Africa (Mitchell, 2002). The widely used approach is that of Huffman (1980) which makes use of three variables; vessel profile,

decoration layout and motif to reconstruct different ceramic groups. This method has been applied to archaeological discoveries of pottery in all stage of the Iron Age; early, middle and late iron age. The pottery is effectively used to trace the movements of people, though not necessarily of specific social or political grouping. Certainly during the Early Iron age the climate was not favourable to settle in the Limpopo Basin as the period of early Iron Age has no evidence in the area. Only from AD 900 is there evidence of settlements, with the Zhizo people in the capital Shroda (Ad 900-1000). Occupation was followed by K2 in the capital K2 (Ad 1000-1220) and lastly Mapungubwe (AD 1220-1300). Of importance here is the society of Mapungubwe.

2.3 Flood Plain agriculture at Mapungubwe and K2

As previously mentioned the Bantu expanded south east along the main rivers. They brought with them four main traits: Bantu languages, cultivation, settled village life and metal tools. Settlement in the Shashe-Limpopo river basin was largely influenced by the warm climate, the availability of water from the Limpopo River and the summer rainfall. In addition, because the Limpopo flooded during the rainy season, it was an ideal location to settle and use the surrounding areas for cultivation (Mitchell, 2002). Evidence of farming is found in lower levels of the stratum at K2 and Mapungubwe sites.

It is imperative to first briefly discuss K2 before Mapungubwe as K2 was an essential predecessor to the development of Mapungubwe. K2 is situated about a kilometre from Mapungubwe hill. During the K2 period (AD 1000-1220) the climate was favourable and enabled the people to cultivate and keep livestock as grazing land was abundant. The settlement pattern was central cattle pattern. This settlement pattern emphasises a symbolic relationship between the women's houses and graves and the importance of the cattle as it was a form of wealth (Mitchell, 2002) This pattern can still be found in many rural areas to date (Mitchell, 2006). Around the kraal would have been the houses/ huts made of daga (mud and cow dung) (Huffman, 2005). Behind the houses were the grain bins and middens (household refuse dumps).

The K2 settlement was adjacent to the Shashe-Limpopo river confluence thus supported an extensive cultivation operation (Meyer, 2002). The cattle kraal was largely associated with the men's activities. Cattle were and still are a good sign of wealth and were used as payment for the bride, a practice known as *lobola* which is still practiced in present African society (Huffman, 2000; Mitchell, 2006). Men looked after the cattle and spent a substantial amount of their time around the kraal; hence men would have been buried in or near the kraal (Huffman, 2005). In addition, the kraal area was the court area where men resolved disputes and made political decisions (Huffman, 2005). The presence of grain bins indicates that the surplus grains were stored for use during the dry season. In

addition, discoveries of carbonised grains show that at K2 the people cultivated sorghum, pearl, millet, finger millet, ground bean and cowpeas (Huffman, 2005). All these cereals have African origins with a general requirement of a minimum rainfall of about 500mm. The floodplains as a site for cultivation were ideal as flooding enabled the soil to hold more water for longer periods of time than other soils. The population of K2 expanded to the periphery of the capital and thus prompted an increase in agricultural production to support the growing population. In addition there were specially designated fields other than those owned by individuals. On these additional fields everyone was expected to work as a form of tribute (Huffman, 2005).

Over the 200 years that K2 expanded, leadership and spatial changes occurred which eventually led to the abandonment of some homesteads. One of the greatest changes is related to social organisation. The cattle were moved away from the centre and the court area was extended over the kraal. It is assumed that cattle were no-longer a medium to bind everyone and the central court had become a place for commoners only (Huffman, 2005). Social ranking was becoming more distinct (Huffman, 2005). Two main factors influenced the development of social class ranking: agriculture and trade. Wealth had been generated by ruling families through the Indian Ocean Trade. This gave the families a platform to become the upper class and gave them power. Agricultural intensification on the floodplain assisted in intensifying social differences, thus K2 society transformed from a society based on social ranking to one based on social class (Huffman, 2005). To effectively implement the new ranking system the settlement had to change gradually. The change led to people abandoning K2 and moving to Mapungubwe. Here the commoners settled below the hill and around it. The cattle were moved out and the elite people lived on the hill top. Prior to settlement on the hill, Mapungubwe was a rainmaking hill. Therefore by moving to the top of the hill, the leader become more powerful and he himself became the rainmaker. At this point he was the link between the people and the ancestors, an essential characteristic of sacred leadership.

From AD 1220-1300 Mapungubwe had grown substantially to a state with a leader physically removed from his people and literally on a pedestal above them. In addition he was now the connection to ancestors which made him more powerful. Mapungubwe was the first largest state in southern Africa during the 12th and 13th Century with about 5000 people living there. The people connected to the elite class (royalty) were involved in the Indian Ocean Trade. Evidence to support this is found in excavation on the hill, at burial sites and below the hill where the commoners may have resided. Not only was trade conducted with explorers, but with other people in neighbouring villages near Mapungubwe. The elite were successful in monopolising access to strategic resources which further made them more powerful (Huffman, 2000; Mitchell, 2002; 2006; Schoeman, 2006).

They may have traded agricultural produce, animal skin and pottery for items such as glass beads, gold items and cotton, all of which were exotic items (more so the beads and cotton). This enabled the elite to maintain their status in society. The items attained during trade were used to draw loyalty and support from juniors. Further reproduction of beads into larger "garden roller" beads made them rarer and a sign of royalty (Mitchell, 2002; 2006; Huffman, 2005).

Items from Mapungubwe have been found at sites nearby. This is evidence of trade, tribute, payment for brides wealth and court fines (Loubser 1991a in Mitchell, 2002). The vast evidence presented here: the migration of Bantu people, K2, the importance of floodplain agriculture, trade and Mapungubwe is a clear indicator on the role the migration in introducing agriculture into southern Africa. Despite the abandonment of Mapungubwe during the little Ice Age and resettlement at Great Zimbabwe certain practices (subsistence agriculture) have been passed down the generations and remain to be an important part of people's lives in the 21st Century. The growth and success of Mapungubwe during its time shows the significance of power and leadership. Through great leadership the Royal family was able to rule the people and encourage them to work hard toward producing surplus agriculture which enabled them to trade with those who did not have the luxury. In addition to this the ability to trade Ivory with explorers of the Indian Ocean increased their wealth and domination.

2.4 African Peasants and Sharecropping in an industrializing land

By fast forwarding to the 1800s and the 1900s this chapter aims to reflect on the role of agricultural production during a time of contact between the Whites and the African peasant in an industrializing society. This is particularly following the discovery of Diamonds in the mid-1800s. By taking a look at the Eastern Cape region of the country, Mayer (1980) makes the observation on how contact with the 'whites' coupled with industrialisation had an effect on rural dwellers who were accustomed to their lives as sub-subsistence rural dwellers. Soon according to Mayer (1980) the rural dwellers could not support their families on agriculture which prompted a dependence upon wages earned in 'white' industrial areas and on white owned farms. The introduction of tax also put pressure on the Africans thus prompted some to migrate to the mines to support the families. This caused a breakdown in some family structures as mainly the young men would be sent to work for the white man while the older men and the women stayed behind. In the rural areas the men were responsible for taking care of the animals while the women took care of crop production, though the men helped only with land clearing as the task was hard labour (Mayer, 1980). Agriculturally economic developments within major regions such as the Transkei and Cape Colony (Bundy, 1979/1988), Pondoland (Mayer, 1980), the Witwatersrand and Free State (van Onselen, 1996)

display an era where black skilled peasants were able to manipulate the market and find a way of avoiding wage labour while doing what they loved and were most familiar with, farming.

The introduction of taxes and fees by the authorities was putting pressure on families to send their young men to go work in the mines or the city. The breakdown in family structures were making it difficult for them to survive on subsistence farming alone as there was a constant need for some money to cover taxes paid to authorities, not the chief of the area anymore (Jooste, 2013). The reasons for black people not being able to support themselves on subsistence farming vary. The main reasons are: the spread of European rule and the loss of land through land expropriation, an increase in migrancy from rural to urban areas and backward agricultural techniques of black farmers (Mayer, 1980; Bundy, 1979/1988). During this period the black subsistence farmers had to adapt to the changing economic situation they were faced with. Some African peasants became part of an adapted form of subsistence methods which were a preferred alternative to wage labour on white colonists' terms in the form of limited participation in the produce market (Bundy, 1979/1988; Jooste, 2013).

From the 1870s following the boom of Diamond mining there was a demand for agricultural produce from both the white farmers and African peasants. However the most significant boom for demand was after the discovery of Gold that the prices of meat, draught animals, dairy products, grains, fruit and vegetables all rose sharply and encouraged increased agricultural output (Bundy, 1979/1988).It was however difficult for some of the African peasant farmers to meet demands due to the limited land available to them. In addition, their lack of technologically advanced agricultural implements made it difficult to increase output (Bundy, 1979/1988). Nonetheless, Bundy (1979/1988) notes that elsewhere it has been argued that the above is not extensively accurate, as in some areas the opposite actually occurred. His account is only related to the Cape Colony and attempts to sort of paint a picture of what was happening there which 'may' have been occurring in other parts of the country. The following section will span the years from the 1870s to the early 1900s and show how African peasants further inland were a part of the production and supply system of some agricultural produce needed.

Indeed the above mentioned restrictions may have had an impact on some African peasant farmers, but not all of them. According to Bundy (1979/1988) in areas such as the Cape, Transkei a small number of peasant farmers particularly the Mfengu, were successful farmers. Their access to capital, technologically advanced implements, and large tracks of land created a class of small commercial farmers who managed to respond vigorously and effectively to the new economic activities on the mines. The most popular item with a great demand was wool. Other products that were sold by

peasants included wheat and other cereal crops. The peasants in the Eastern Cape (Transkei) had already created a lucrative market for themselves. They had managed to compete with the Boer farmers and acquire much of the land needed. Trade was great, as demand for wool and other produce was high. All these according to Bundy (1978/1988) are indicators that this community had the ability to generate surplus and had a capacity for social change. This enabled the Mfengu to become economically stable and contribute money toward building schools, a church, roads and paying school fees and even affording to pay taxes and fees levied by the Cape Government (Bundy, 1978/1988).

In addition to the African peasants in the Eastern Cape there are other accounts of African peasants who migrated further north, inland. These African peasants worked on white owned farms as sharecroppers. Here the white landlords would enter into verbal agreements with black tenants to share harvest in proportion to the economic inputs they made to the farm (van Onselen, 1996). Similar to the opportunistic black peasants of Transkei there were the Sesotho speakers of the Maluti Mountains of Lesotho and the better watered plains along the eastern parts of Kimberley (van Onselen, 1996). Lesotho before the 1870s was considered the granary of the Free State and Cape Colony. Due to the arrival of the railroad, land dispossession in the upper Caledon River, imports of cheaper grains from the Unites States of America and the economic recession their agricultural production declined in the mid-1880s. However, the discovery of Gold in 1886 lead to agricultural related produce opportunities being available again. This attracted Boer newcomers to occupy the drier north-western regions of the Highveld plateau and white farmers in areas of high rainfall on the Eastern Orange Free State. These farmers were rich in land but not in capital or sufficient labour or even agricultural implements such as draught oxen, harrows, labour and ploughs to expand their grain production (van Onselen, 1996).

It is at this time that peasants from Basotholand (Lesotho); north western Transkei and Northern Cape Colony were looking for opportunities and land to apply their farming skills. The meeting of the landless blacks and property owning whites led to one of the first significant inter-racial sharecropping contracts on the Platteland. The contracts between black peasant farmers and white farmers were economically viable to both parties, yet the white farmers always had the upper hand in negotiations. As the racial and political inequities ensued during the early 1900s these contracts were already under strain. The Natives land Act of 1913 made the contracts non progressive as Blacks were being restricted access to land and their ability to acquire land in designated areas (van Onselen, 1996). The land Act of 1913 led some toward wage labour and to work as labourers on white owned farms and mines while those who resisted migrated to the drier Western parts of the

south western Transvaal. It is here that they encountered poor white land lords and got into new sharecropping agreements. The areas were some of the driest yet had the most extensive maize and sorghum producing properties in South Africa.

The Land Act of 1913 aimed to relocate peasant farmers to land that was of poor agricultural capacity. This affected the self-sufficiency of families and led the men to go out in search of cheap labour in the city, particularly on the mines and commercial farms. Ultimately leading to severe social impacts on the family and the society stuck on the land with poor agricultural capacity. The white colonists took over the best land suitable for agricultural intensification (Jooste, 2013). The conquest of the African peasants and Sharecroppers for economic freedom in an ever changing landscape has portrayed their resilience to change and ability to adapt. In-between the years during which peasantry and sharecropping was growing the people were faced with challenges such as war and conflict that were not explored in this section. This section was aimed at portraying the ability of landless yet agriculturally skilled African peasants to use their knowledge and skills to work in their favour. Their ability to negotiate terms of land use, generate money and trade with merchants from far and wide shows how 'urban' farming was prevalent in the early 19th century.

The last fast-forward it to recent history and the study area, Soweto in Johannesburg. To follow is a brief history of Soweto and the documented evidence of urban farming/agriculture. During this time the activity was illegal (Magidimisho, 2013), but subsistence farming in the rural areas was the norm. Therefore, wherever it may have occurred within the city it may have been in backyards and not on open and unused land.

2.5 Soweto and Johannesburg

2.5.1 Johannesburg and Soweto, a brief geographical profile

The Gauteng province has 6 districts, one of them being The City of Johannesburg. Johannesburg is further subdivided into the north and south, and Soweto is located in the south. Soweto is an acronym for South Western Townships. The name is a geographical indicator that it is situated south-west of Johannesburg and is the largest township in South Africa (Ramchander, 2004). The name was adopted in 1963 (Bonner and Segal, 1998). Today Soweto consists of 34 suburbs covering an area of 96.400 km^2 (Ramchander, 2004). Over the years it has expanded further west due to housing developments, thus it may be bigger.

2.5.2 Historical Outline in the making of Soweto

The first black settlement to be established on the outskirts of Johannesburg was Kliptown in 1903. It was characterised by huts and corrugated tin shacks built close to a sewerage farm. As economic prospects in the city of gold increased, migration followed suit. In 1904 Kliptown officially became an official suburb in Soweto, with only black people residing there (Bonner and Segal, 1998). The suburb expanded and other areas were given different names, a section of Kliptown was renamed Pimville in 1934. In 1932 the first clinic was opened in Orlando (Bonner and Segal, 1998; Malcomess and Kreutzfeldt, 2013).

In 1939 the Second World War initiated a growth of factories and industries manufacturing goods which South Africa supplied its allies during the war (Bonner and Segal, 1998; Worger, 1997). The result was a demand for more labour, primarily black women. In 1941 the Imperial Military Hospital which was later renamed Baragwanath hospital was built to accommodate and treat British troops, many of whom had contracted tuberculosis (Bonner and Segal, 1998). As the populations continued to grow, so did the number of homeless people in Johannesburg. Two emergency camps were built in Soweto in 1946 in Moroka and Central Western Jabavu to accommodate them (Bonner and Segal, 1998; Malcomess and Kreutzfeldt, 2013). Immigrants were also coming from neighbouring countries in search of work; their presence in Soweto was indirectly influencing the culture and environment of Soweto. The Basotho from Lesotho also settled in Soweto in 1947 and formed a social club called the Russians, who dressed in blankets and were admired for their taste in music and dance (Bonner and Segal, 1998). In the same year a clinic in Moroka was built to service the homeless people. Following the elections in 1948, the black wing of the patients at the Johannesburg Hospital was transferred to Baragwanath hospital, which today is the biggest hospital on the continent (Bonner and Segal, 1998).

To accommodate the residents, the standard low cost four roomed houses were commissioned and built from the 1950s, and later these became a characteristic feature of the landscape of Soweto. In 1953, forced removals due to the Group Areas Act of 1953, led to Blacks being forcefully removed from Sophiatown, Newclare and Martindale and relocated to various parts of Soweto. It is at this point that people were further ethnically separated according to the language they spoke. More houses were built from 1956 to accommodate the new citizens in Meadowlands and Diepkloof, (Bonner and Segal, 1998).

Political unrest in the townships was increasing and was aggravated by the laws implemented by the government. In 1976, students embarked on protest against principles of the Bantu education system and the use of Afrikaans as a medium of instruction (Worger, 1997; Bonner and Segal, 1998).

The social instability during 1976 affected residents as many services could no longer reach Soweto. Trucks delivering food were not reaching their destinations in Soweto as they would be overturned on route. Subsequently two ladies, a geologist and a farmer's wife, started food gardens foundation, and introduced food gardens in Soweto. In 1977 they were formerly registered as a socio-economic project to teach people grow their own food using sustainable organic principles. Today the foundation is based in Kliptown and achieves community development and social improvement by continuing to teach people small scale low-cost organic food gardening. Services offered are: training workshops to interested people, technical advisors are available, seed sale, food and nutrition training and small-scale or urban agriculture entrepreneurial support.

The decline of apartheid in the late 1980s led to changes in the landscape of Soweto. From a formerly homogenous landscape of government designed houses to one of heterogeneity and ownership of houses by the Black population. People were getting ownership of houses, and due to the skills shortages, many blacks already working were given jobs in the skilled labour departments, thus enabling them to earn more and have the opportunity to renovate their homes (Crankshaw and Parnel, 1998; Feinstein, 2005). The last decade of apartheid, 1980-1989 "*African townships came with the proliferation of backyard shacks as families spilled out of their overcrowded houses",* Crankshaw and Parnell, 1998, H8. This was mainly due to the growth of the Black population and in-migration which soon outstripped the existing supply of statehouses available (Crankshaw and Parnell, 1998). During this time there were more people living in backyards than in official houses, Shanty towns and camps had increased at this time, so did the rate of unemployment among the unskilled, semi-skilled and uneducated African population (Crankshaw and Parnell, 1998). Shanty towns or settlements were characterized with houses being built with wood and corrugated iron sheets while "*Cattle and goats would often be left to roam in the streets, a clear sign of the rural origins of many inhabitants",* (Crankshaw and Parnell, 1998, H8) in and around the shanty towns. According to literature it appears urban agriculture appeared in Soweto during the 1980s when populations in the city were increasing, yet many of these migrants from rural South Africa, and possibly from neighboring countries remained poor and resided in shanty towns or backyard dwellings. These migrants continued to use the skills of food production to survive in the city thus have played a role in transforming some of the open spaces seen today in Soweto where food is grown and animals graze.

2.6 Conclusion

The first two stages of the role of farming and a bit of urban farming are significant because they are a clear indication of self-sufficiency and the development of a supply and demand economy. During

the Late Iron Age the royal family used their location (flood-plains) and wealth to rule over the people and trade with people from further afield. This gave them more power. Their leadership style was effective as they used it to gain loyalty from lower ranking individuals whom went all out to ensure the kingdom was in order and the commoners kept working hard to ensure there was agricultural produce at all times. The grain bins also enabled them to store surplus for the dry season, thus added an element of resilience during the dry season. In the second phase farming was a vital economic activity that enabled Black peasants to become an important. This may have been a short period of time yet they made their mark as people capable of being self-sufficient. The Land Act of 1913 was the Governments' way of reducing the level of self-sufficiency the peasants and the black population had. By taking away their land and relocating them to the homelands with poor soil quality and having over populated areas, this led the men to seek work on the mines and on farms. This created a wage dependent society of former subsistence farmers and cash croppers. Today things have changed in that the government is attempting to promote a self-sufficient society in the urban and rural realm. Their policies and strategies are geared toward economic and skills development, and reduction of food insecurity at household level. A more detailed account on government strategies is found below in chapter three.

3 Chapter Three - Theoretical considerations

3.1 Introduction

The increased rate of rural urban migration has led to increased populations in the cities of many developing countries (FAO, WFP and IFAD, 2012). According to Ruel, *et al, 1998,* Maxwell *et al,* 2000; Crush *et al,* 2010, there is an increase in the number of impoverished people in the urban areas of developing countries. The poor are faced with challenges related to food shortages, food insecurity, scarcity of employment opportunities and reduced access to basic services (SA MDG country report, 2010; Crush *et al*, 2010; Frayne *et al*, 2010). The poor (particularly women) in the city and urban areas are faced with the challenge of ensuring the daily well-being of household members and vulnerable groups (women, children, the disabled and elderly) have some access to food, healthcare and education. Research in urban areas assessing the complexities present in the lives of the urban poor is not easy, thus analysis relies on frameworks such as the livelihoods framework. The framework is a people centred approach used to analyse and understand the livelihoods of poor people living in urban areas. With reference to this study, the approach is applied and a brief discussion into what it entails follows below. In addition to the analytical framework it is essential to look at some of the factors affecting the poor people in relation to their access to food and how they go about creating means to access nutritious food. This relates to urban agriculture as a livelihood strategy and its importance in the livelihoods of the poor living in the urban areas of developing countries, Africa in particular. In addition, as agriculture is an essential activity in many developing countries, a general view of the role of governments with regard to the activity is also discussed. This chapter will discuss the above mentioned issues facing the poor urban African populations and how social capital can be used to help reduce food insecurity through urban agriculture.

3.2 Analytical Framework: Livelihoods Framework

In an attempt to adequately analyse the data for this research, the livelihoods framework is considered the most suitable framework. In the framework, a livelihood refers to the ways in which people make a living, which includes the assets, access to institutions and processes and strategies that a person or a household utilizes to achieve livelihood outcomes (Rakodi, 2002; Parkinson and Ramirez, 2006). The framework places the people, particularly the rural and urban poor at the centre of the analysis (Rakodi, 2002). To better understand the framework, it is applied to analyse the interaction between the poor and their external factors see (figure 3.1). At the centre are the livelihood assets the households use to make a livelihood see (table 3.1). An asset is defined as a "*stock of financial, human, natural or social resources that can be acquired, developed, improved and*

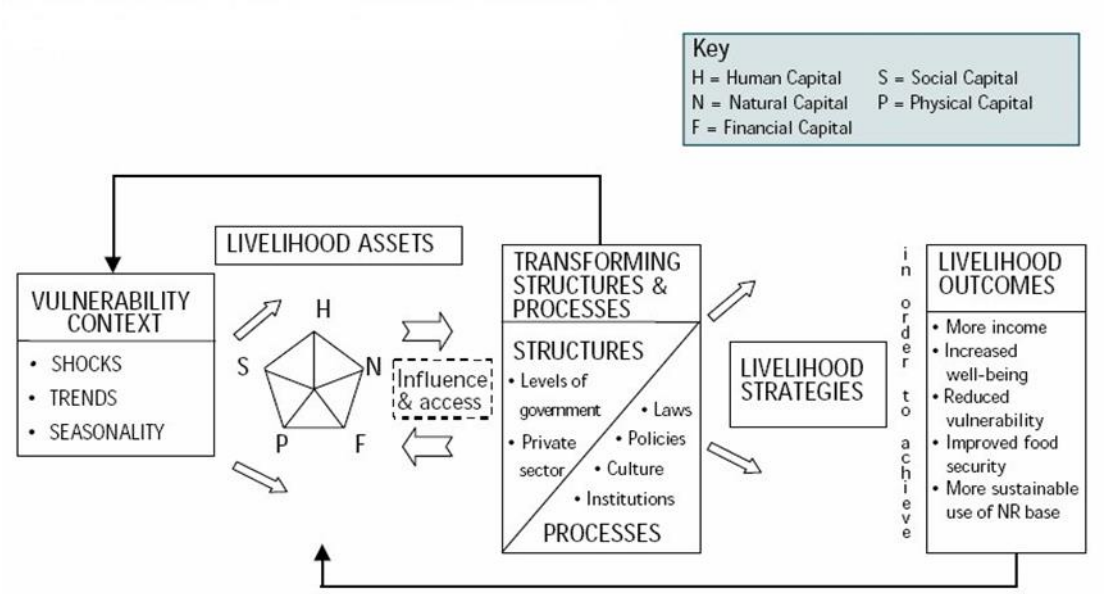
transferred across a generation. It generates flows of consumption, as well as additional stock" (Ford, 2004; Sparr and Moser, 2007, 7).

The five basic assets are: human, social, physical, financial and natural capital. According to Bebbington (1999, 2022) the assets are not considered as resources people use in building households, but as assets that give them the capability to be and to act. Having these forms of capital, even when one or two forms of capital are more dominant, assists the household. This means that, for example, having human capital as more dominant in the household leads to people producing more and more efficiently. In addition, it also gives the people the capability to engage more fruitfully and meaningfully with the world, and most importantly the capability to change their world (Bebbington, 1999, 2022). The livelihood assets, their use and access to them are influenced by external factors such as policies, organisations and relationships between individuals and organisations (Rakodi, 2002). Access to the different livelihood assets is what determines the ability of a household to effectively cope with stress and shocks. Policies, institutions and processes embody power and gender relations and have a significant impact on the access to all types of assets (Rakodi, 2002, 15).

Depending on the capabilities of the people and the social economic stance, they may also have opportunities to transform assets into other things or even save them to ensure reduced stress and increased survival of the household in the long-term. The livelihoods framework is fundamentally a tool that enables the research of urban poor populations, in the context of urban agriculture and food insecurity in Soweto to do the following:

i. Identify the main factors affecting livelihoods and the relationships between them (Rakodi, 2002)
ii. To help identify livelihood strategies and opportunities of the urban poor, and
iii. Formulate recommendations that will assist those concerned with supporting the livelihoods of poor people to understand and manage their complexity (Rakodi, 2002).

Figure 3.1: Livelihoods Framework



Source: Parkinson and Ramirez (2006, 119).

Table 3.1 Livelihood assets

	Livelihood Assets				
	Human Capital	**Social capital**	**Physical Capital**	**Financial Capital**	**Natural Capital**
Definition	The active individuals in the household who are able to engage in income-earning activities. Also refers to the levels of skills and eduction of the household members	The social resources on which people draw in pursuit of livelihoods	The basic infrastructure and the production equipment and means which enable people to pursue their livelihoods	All the financial resources available to people, which provide different livelihood options	The natural resource stocks from which resource flows useful to livelihoods are derived.
Examples	People in the household	Social networks, membership of groups, relationships of trust and reciprocity.	Transport, shelter, water, energy, communicatios	Savings, credit, remittances and pensions	Land, water, other environmental resources

Source:

Rakodi (2002, 11).

3.3 Livelihood strategies

In the urban context, the above mentioned problems related to food price hikes and responses by the affected parties in poor and developing countries are just some examples of how they have coped with the food price crisis. It has been shown that individuals and households make use of a "portfolio of assets". The portfolio of assets is a combination of "tangible" (stores of cash and food,

resources such as land, physical investment or skills) and “intangible” (claims on others and the government, and access to services) (Rakodi, 2002). Households, especially the household heads are able to make decisions on the best ways to make use of the portfolio during times of stress or shock. Decisions can be made to develop mutual support networks or make changes to diet (Rakodi, 2002). The portfolio of assets is linked to the livelihood assets i.e. human, social, physical, financial and natural capital.

It may not be clear what assets the household has, but those available are available in different quantities and depend on their location (country), economic status and political institutions. Livelihood assets are utilized by individuals in the household to create livelihood strategies. Livelihood strategies are a mix of activities related to market involvement, borrowing and investment, productive and reproductive activities (income, labour and asset pooling) and social networking (Rakodi, 2002). The activities may take place at the same time, only relevant activities are active according to the individuals’ circumstances (age, life-cycle, educational level) and the changing context in which they live (Rakodi, 2002). The individuals’ economic activities form the basis of the household strategy. Household strategies include migration movement, maintaining ties in rural areas, urban food production, decisions about access to services such as education, housing and participation in social networks (Rakodi, 2002). In addition, poor households are involved in multiple activities to ensure some success as it is risky to only invest in one type of economic activity (Rakodi, 2002).

For the households in the urban realm, coping with stresses and shocks is dealt with similarly regardless of their location. There are several ways in which individuals in the household respond to economic crisis and austerity (Beall, 2002). To follow are a number of ways families make means to sustain the money inflow, due to the fact that living in the city constitutes using cash to get all sorts of assets. For those already employed, they may work longer hours to earn more money (Beall, 2002). In a case where household members are involved in the informal trade of goods, children will be prompted to help out by selling goods in other areas as well, thus diversifying the target market. In addition it has been found that more women are found to be entering into the formal labour market (Beall, 2002). Strategies not related to the labour market include: changing expenditure patterns, changes to family diet, increased indebtedness and a rise in self-production of food, shelter, childcare and healthcare (Beall, 2002, 76). There have been reported instances related to households reducing expenditure on transport (walking instead of using public transport) and squatting rather than renting (Beall, 2002). In extreme situations, some household strategies are associated with reduced consumption of food, resulting in malnutrition, reduced use of social

services such as avoiding seeking medical treatment or keeping one or more children out of school (Beall, 2002). The above examples serve to show how households make use of various strategies to get themselves out of a stressful period or a crisis. The crisis or period of shock and stress leads to households making decisions that will govern their use of available livelihood assets to create strategies to last them in the long or short-term.

3.4 Crisis Model

One of the common strategies to cope with stress and shock is UA, as mentioned above. It has been observed in the cities of developing and developed countries (FAO, WFP and IFAD, 2011). UA emerges in cities and settlements adjacent to the city as a coping strategy undertaken by poor people due to economic crisis, food price hikes, difficult political situations and increased populations (Jacobi *et al,* 2000; Simatele, 2007). A combination of several conditions is responsible for inducing the emergency and adoption of UA (Jacobi *et al,* 2000; Simatele, 2007). In contrast to the above in the absence of one condition or their combination can adversely limit the development and adoption of UA activities into urban development (Simatele, 2007). The conditions being referred to here are: natural, economic, institutional, socio-cultural and physical infrastructure and services see (table 3.2) (Jacobi *et al,* 2000). These conditions are all crucial in determining the development and integration of UA in cities as a response to crisis by the affected poor people and institutions in power (Simatele, 2007).

Table 3.1: Essential conditions urban populations need during a crisis in the development and integration of UA.

Development and integration of UA in cities as a response to crisis relies on:				
Natural Conditions	**Physical infrastructure and services**	**Institutional Conditions**	**Socio-cultural Conditions**	**Economic conditions**
climatic conditions	availability of water	access to space	farming traditions	employment (incomes
rainfall	availability of space	access to water	food preferences	assets- land
temperature	availability of loans	urban planning	people's attitudes	
soil fertility	grass-root unions	urban governance		
	training /services	legal framework		
	agro inputs			

Source: Adapted from Jacobi *et al.* (2000); Simatele (2007)

The ways in which the conditions affect the development and integration of UA in cities will be briefly discussed. Firstly natural conditions refer to climatic attributes, rainfall patterns, temperature variability and soil fertility. For example, a city may be susceptible to low agricultural productivity

due to low or unreliable rainfall and poor soils. In the northern parts of SA, including Gauteng Province, rainfall is mainly during the summer months from October to March. Therefore the climatic variability is characterised by a high occurrence of UA because there is no major investment required. This is with particular reference to the rain-fed crops such as maize.

Secondly, Infrastructure and service provision are essential in development and integration of UA. UA requires land space, water and training service providers. Without the availability of land space and water it is noted that urban households cannot effectively respond to crisis by entering into urban food production (Jacobi *et al,* 2000; Mougeot, 2005). Inadequate training, lack of seed, fertiliser, loans and other inputs have a negative impact on agricultural productivity. There needs to be adequate access to the above inputs to ensure the success of urban famers in significantly improving their household and city economy. Therefore African cities need to address matters pertaining to the lack of support services and infrastructure (Simatele, 2007).

Thirdly, Institutional conditions are important elements in integration and development of UA into policy. Here there is a need for institutions to create enabling environments for UA to thrive. This can be achieved by not restricting access to facilities and services deemed necessary in the pursuit of UA (Simatele, 2007). The services include elements such as water, loans, extension services and the use of urban space for urban food production (Jacobi *et al,* 2000). Cheru (2002; 160) argues that "*at city and municipal government levels, a lack of resources and knowledge prevent people and institutions from solving problems and managing change".* As institutions are closely linked to the legal framework of the country or city, any weakness in the institutional framework can either spearhead or constrain the development of UA (Simatele, 2007). It can then be argued that the above is not applicable to Soweto. This is because in recent months the local municipality has been developing a plan to incorporate and expand the prevalence of UA in settlements adjacent to the city, including Soweto (COJ, 2013). A discussion on the role of governments below further delves into the issues raised here.

The fourth condition is the socio-cultural factors. They are considered as factors that can either facilitate or constrain development and integration of UA into policy. According to Mougeot (2005) socio-cultural conditions refer to the households farming traditions and food preferences as an entry point into practicing UA on one hand and integrating it into policy on the other. The food preferences are related to the specific types of food crops (Jacobi, *et al,* 2000). Therefore, as noted by Simatele (2007), when the urban population has a strong taste for locally produced foods not available and cannot be bought in conventional shops, there is a high likelihood for UA to be used as a mechanism to meeting the need.

The last condition is the economic factor. According to the economic factor, the emergence of UA in urban centres is considered as a response to the shortage of employment opportunities in the cities (Simatele, 2007). Due to the lack of employment opportunities in relation to the demand for employment people are forced to enter into informal jobs such as UA to gain income (Jacobi *et al,* 2000; Beall, 2002). There is a need for UA to also contribute to the city economy in order for the activity to be seen as a viable investment. The above conditions in the crisis model show that there needs to be some keen interest from local authorities to intensify UA. The conditions are inter-related in that for UA to occur, at least two or more conditions need to be operating simultaneously. Therefore it is essential for local authorities to move toward more inclusive approaches that will accommodate not only investment projects, but also informal activities like UA.

3.5 Role of government in food production and promoting urban farming

The growing prevalence of UA has broad social and political implications (Bryld, 2003; Richards and Taylor, 2012). In dealing with the increased rate of rural-urban migration the national and local governments in Africa need to also deal with the increasing poverty rates, unemployment rates and food insecurity. As a response, urban dwellers continue to practice UA in the city as a livelihood strategy despite the challenges mentioned (Steward *et al,* 2013; Richards and Taylor, 2012; Bryld, 2003, UNDP, 1996). There is a strong need for the activity to be given formal attention in policies relating to urban development, spatial planning and legalised where it is not legalised. In Zambia and Zimbabwe for instance UA is not legalised (Mbiba, 2001; Hampawaye, 2008). In South Africa UA is a common sight in the residential areas of the metropolitan cities and is not considered illegal, however using land not belonging to you is considered trespassing. Nonetheless there are provincial reports and speeches by city and municipal authorities and projects by the Gauteng Department of Agriculture and Rural Development (GDARD) which promote UA as a method towards alleviating poverty and improving the food security of the urban poor.

Due to the dependence on wage employment by urban dwellers, in the absence of income or even remittances to obtain nutritious and healthy food other livelihood strategies need to be pursued (Richards and Taylor, 2012). The availability of unused land leads to people using it to grow their own food for subsistence. Aid and support from government plays an important role in supporting the activity. The food prices have increased from the year 2000 (Headey and Fan, 2010) which has also made it difficult for urban dwellers to afford basic food in the city.

The involvement of local governments and national government in increasing urban farming is essential, as one of many actions to tackle urban poverty. UA may not be seen as a sole solution; however policy and governance intervention can assist. Looking at Harare in Zimbabwe and Lusaka

in Zambia, lack of support for UA resulted in people (mainly women) practicing UA experiencing various problems. The major ones are slashing of crops and theft (Bryld, 2003; Mbiba, 1995). This prompted urban farmers to change the type of crops grown, mainly low value, fast growing crops to minimise effects of slashing and theft (Bryld, 2003; Smith 1996; Mbiba, 1995). In Lusaka, Zambia, UA is a very important activity in the city despite local authorities not providing support services to urban cultivators (Hampawaye, 2008). This is contrary to historical views of UA in Zambia, where former president Mr. Kenneth Kaunda was supportive of self-sufficiency in agriculture. Members of his government were not of the same idea and accepted the World Banks' deterministic modernisation by industrialisation prescriptions (Thornton *et al,* 2010). UA was considered backward and rural, thus maize crops and backyard cultivation were discouraged. Despite slashing by municipal officials at present Zambian small towns and larger cities still practice UA (Hampawaye*,* 2009; Hampawaye *et al*, 2007). For UA to prosper there is a need for strong policy support. There are no formal or specific laws, by-laws or regulations that actively support agriculture; there are also none that prohibit it in Zambia (Thornton *et al,* 2010).

Governments are aware that UA has its advantages as it helps reduce food insecurity, has the potential to offer people an alternative small source of income (Hampawaye 2008; Crush *et al,* 2011), improves the environment through greening and nutrient re-cycling (Bryld, 2003) and is the most effective household survival strategy as shown throughout studies in Africa (Sheldon, 1999; Mbiba, 2001; Rakodi, 2002; Kiguli and Kiguli, 2004; Hovorka 2004; Crush *et al,* 2010). In South Africa the national and local spheres of Government in the major metros are aware of the trend and have taken note of it in some of their documents i.e. National Strategic Plan for Agriculture (2012/13-2017/18 and 'Food Security' by the Department of Agriculture, Forestry and Fisheries. The National Department of Agriculture has published guidelines for urban and peri-urban animal agriculture. The document 'is a guideline that links to a number of policies, norms and standards designed to support a range of aspects relating to animal agriculture-from environmental issues to animal improvement, production, processing and marketing" (Department of Agriculture, no year). The document also gives provincial contact details for livestock keepers to make use of. In addition the document stipulates that most municipalities have ordinances that apply to the keeping of animals. These ordinances are linked to animal health, public health and animal welfare legislation and differ from one local municipality to the next. According to the document, the City of Johannesburg municipality has such a document with regulations and guidelines for livestock keepers. This document is a clear indication that the national government has accepted that UA plays a major part in the lives of the urban poor and other who practice it.

With regard to urban cultivation, there is also support from the sphere of national government, though in some documents it is referred to as small holder agriculture. According to Richards and Taylor (2012, 10) there is a distinction between three types of UA. The first is subsistence oriented agriculture which refers to agriculture that primarily contribute to livelihood strategies aimed at supplying food to households and achieving household savings by reducing the food-purchasing share of the household budget. Surpluses can be sold to neighbours or vendors to generate a small income. Examples include home gardens, community gardening and institutional gardens as at schools, hospitals and open-field gardening. The second type is market-oriented UA which refers to agriculture that has a market-oriented focus. This is undertaken mainly as small-scale family ventures, as well as larger scale businesses, run by private businesses or producer associations. The third type of UA is ecological, which serves a different number of roles and purposes. This includes improving household food security and generating an income, contributing to the environmental management and providing a range of other services useful to urban residents such as composting, recycling of solid wastes and the use of waste water. Following the identification of the most prevalent type of agriculture in the city, the government (Provincial and Local) can come up with tailor made policy interventions that match the needs of the city and also the prevailing circumstance that exist in relation to UA. Therefore there can never be a one size fits all strategy towards implementation of UA and food security programs, they need to be tailor made to meet the needs of the affected people while taking care of the ecology of the area. Therefore city and spatial planning also play a role in policy formulation.

Some examples of some work and strategies from different levels of the South African government are notes below. The department of Water affairs and Forestry includes urban farming in their Urban Greening Strategy (Department of water affairs, 2000), launched in the year 2000 by then minister of Water Affairs Mr. Ronnie Kasrils. The urban greening includes components of urban forestry, urban agriculture or permaculture and agroforestry (Dept. of water Affairs, 2000); The National Strategic Plan for Agriculture (2012) (2012/13-2017/18) is a rural document; however it acknowledges the need to create an encompassing strategy on urban and peri-urban agriculture (National Strategic Plan for Agriculture, 2012). However, contrary to the Water Affairs a strategy research by the CSIR (2002) cited in Magidimisha *et al, (*2013, 02) indicated that:

- in South Africa's urban land use planning, agriculture is not considered an urban land use activity
- UA is practiced using unauthorised rain-fed water
- UA often shifts to give way to industrial and residential land use activities, and

- Limited attention is given to utilizing land with high agricultural potential in urban land use planning

However Magidimisha *et al* (2013) does acknowledge that at present the major metro's, Johannesburg and Cape Town, have been attempting to add UA and farming into local policies and development planning as it will assist in reducing food insecurity in the city. Then again, as indicated by (Richards and Taylor, 2012) it is the implementation of these plans and adequate resource allocation that is essential. Above the two government strategies were published almost ten years apart. Therefore the finding by the CSIR study were valid in 2002 but not entirely valid as many changes have occurred which is a clear indication of the changes occurring with regard to UA and Food Security Policy and provincial and local level.

In the recent 2014 GDARD Budget vote 11, the Gauteng MEC for Agriculture, Environment, Rural and Social development Ms. Faith N. Mazibuko gave speech that entailed various issues, but importantly a budget allocation to urban farming. The allocation of R122 million will go towards Farmer Support and Development. This money will go toward assistance, development and educating of smallholder and commercial farmers through sustainable development within agrarian reform initiatives in the province. As it is essential to consider the subsistence farmers and community projects in Gauteng, there is a five year plan where the department plans to will assist 400 smallholder farmers and provide infrastructure and production inputs to 730 farmers. Of importance and relevance to this study is the Food Security programme which is the Provincial Governments' mechanism to facilitate access to affordable and diverse food through the delivery of agricultural projects at communal and household level. The programme aims to facilitate access to affordable and diverse food by developing 60 000 homestead gardens, 325 school gardens, 325 community gardens and 10 food security awareness campaigns. Furthermore, the department aims to enhance food security through an Urban Agricultural Plan. The entire plan and budget allocation is a very significant step toward poverty alleviation through a self-help activity like urban farming. This shows that indeed UA is not an illegal or neglected activity and the provincial government has taken note of its potential. Contrary to planning issues raised by Magidimisha (2013), the Gauteng provincial government now plans to support UA needs and incorporate it into urban physical planning processes through the formal provision of land for urban farming (Mazibuko, 2014). As the speech was only delivered on the 22 July 2014 the government should be given time to put their ambitious plans and programmes to action. Then again, as a food security and urban agriculture researcher from the field, it is questionable how these plans and available funds will be filtered to the local municipalities who are given the mandate to begin these programmes. Secondly the geographical scope of the programmes

needs to be considered. Despite the challenges that may be present it is a very significant position that the provincial government has taken in line with the Millennium Development Goals toward eradicating hunger. Other issues related to UA and Food Security also needs to be considered, these will be delved into below.

3.6 Food Security

Food Security definitions differ from organisation to organisation, but their definitions all have a common element; "the ability of people to secure adequate food" (UN economic commission of Africa, 2012, 7). In light of the above and according to FAO (Trade Reforms and Food Security, 2003) *"food insecurity exists when people do not have adequate physical, social or economic access to food*". Food insecurity in Africa is a constant concern for African governments and the UN. It has been indicated that "*239 million (30% of Africa's total population)" of the total of the world's one billion undernourished people are in Africa"* (UN Economic Commission of Africa, 2012, 5).

Food security affects the vulnerable people in Africa. Vulnerable people are women, children, the elderly and the mentally and physically disabled people. Thus an examination of the main causes is essential. Food insecurity, generally arises when a) food production is constrained, b) there is insufficient production in a particular area to feed the number of dependent populations living there or c) when local food prices/imports are very high due to increasing fuel and transportation fees and people cannot afford to buy food (Lufumpa *et al,* 2012, 11). These are general causes and do not specifically look at individual country profiles. From an examination of literature, South Africa does not seem to be as highly food insecure as other African countries in the Southern region i.e. Lesotho, Swaziland, Zimbabwe, Mozambique (Lufumpa *et al*, 2012). These countries have experienced some form of food insecurity or shortages on a national scale and have been affected by the cereal price hikes and a natural phenomenon (cyclone in Mozambique) (Lufumpa *et al*, 2012). Nevertheless, people living in Africa and other developing countries are still recovering from the 2008 financial and food crisis. In addition, these crises are also linked to the high food prices. The next section will delve more into the causes and responses to the high food prices since 2008

3.7 The Increasing price of food and its impact on food security and access

Prior to and after recovering from the 1974-75 food crisis there was a relaxed attitude by government policy makers (Headey and Fan, 2010). This was because food prices were low, thus many African and European governments saw no need to invest in agriculture, but heavily rely on food imports to ensure food security (Headey and Fan, 2010). As food prices soared from 2006 and reached their peak in 2008 for major cereals, governments and policy makers began to be aware of

the effects of rising food prices (Headey and Fan, 2010). The people greatly affected by rising food prices are the poor populations who spend a substantial amount of their incomes on purchasing food (Zezza *et al*, 2008; Headey and Fan, 2010; Zezza and Tasciotti, 2010; Alemu and Ogundeji, 2010). The effects of constantly rising food prices or high food prices in general affects the rural as well as the urban poor populations (Headey and Fan, 2010). The food price hikes were caused by various factors occurring almost at the same time but over a number a years from 2002. The causes of the high food prices are discussed below to show how commodities related to food production affected the food prices. The responses and effects on the urban poor populations are discussed thereafter. The discussions aim to show how the fluctuating food prices affect the abilities of poor people to obtain enough food for their households.

3.7.1 Causes leading to food price hikes

Factors that led to the recent 2008 food price crisis are related to the supply and demand of commodities related to food production, transportation, energy and role of imports and exports. Rapid urbanization in developing countries has contributed to the dramatic increase of food prices (von Braun, 2008; Trostle, 2008; Alemu and Ogundeji, 2010; Charles and Godfrey, 2010). In countries such as China and India where economic growth is occurring rapidly, has resulted in a greater demand for foods of higher value i.e. dairy products, meat and poultry (von Braun, 2008; Trostle, 2008; Headey and Fan, 2010). Their need for diet diversification has put strain on supply of grains essential to feed livestock thus has affected the food price (Trostle, 2008; Charles and Godfrey, 2008). In addition there has been slow growth in agricultural production since 1990. This is due to the conversion of agricultural land to non-agricultural uses in major producing countries of grains and oilseed (Trostle, 2008).

Additional factors related to economic growth and urbanization in developing countries which affected the food price hike are the demand for energy (electricity and petroleum) and the devaluation of the US Dollar value (von Braun, 2008). From 2002 the crude oil price began escalating due to high demand. China's imports increased by more than 21% per year from 194 million barrels in 1996 to 137 billion barrels in 2006 (Trostle, 2008). The transportation of food was affected because higher crude oil prices lead to an increase of food commodities prices transported inland and those exported and imported (Headey and Fan, 2008; von Braun, 2008; Charles and Godfrey, 2010; Trostle, 2008). Demand for energy has led to the expansion of biofuel production since 2004. Land is now dedicated to growing feedstock and maize for biofuels, the incentive for farmers participating is a continued US Government subsidy, ultimately soybean and wheat are neglected (von Braun, 2008). For those farmers not involved in biofuel production in the major food producing

countries, they face problems pertaining to rising farm production costs including energy demand and increased crude oil prices, It has also become expensive to purchase fertilizer and pesticides, and mechanical cultivation is expensive and transport cost continue to rise (von Braun, 2008; Charles and Godfrey, 2010; Headey and Fan, 2010).

The devaluation of the US Dollar affected the markets because it's the main currency of trade. As the value decreased against a range of currencies, Euro, Pound and Japanese Yen, the price of commodities for these countries would be lesser and more favourable for them (Headey and Fan, 2010; Charles and Godfrey, 2008). Nonetheless the poorer countries were still affected by this factor. Put into perspective it meant that countries not affected were buying food commodities cheaper thus increased their buying and import capacity which affected availability of food, thus making it expensive for developing countries to buy food.

Lastly in 2008 agricultural production was low due to adverse weather shocks experienced in high production countries such as Australia, due to draught, the worlds' highest wheat producer leading to a cut in their wheat production and price increases worldwide (von Braun, 2008). All of the above factors have rippled across the world and the food price crisis tremendously affected the poorer populations. This raises concerns about where do these poorer populations turn to in times of hardship, as they cannot afford food. The following sections deals with this concern.

3.7.2 Counter effects on the poor and developing countries

The effects of the food price hikes are not uniform in countries and for different population groups (von Braun, 2008). Here attention is channelled to affected African countries. Importers in African countries are affected by price increases which decreases the potential of families to be food secure. As all African countries are net importers of cereals, they struggle to meet domestic food demands, and populations are net consumers which also makes it difficult for them to afford the food (von Braun, 2008; Trostle, 2008; Headey and Fan, 2010). In perspective, if a poor person lives on US$ 1 per day, during the price hikes, food went up to 50% higher which simply meant that now they could only afford half of the food on their budget, which may be less if cereals constitute most of their diet. At the household level, higher food prices lead to people limiting their food consumption and shifting to a less balanced diet with minimal diversification, as a response to the food shortage crisis (Bealle, 2002). In the long term it affects their health and wellbeing especially that of the vulnerable groups, women, children, the elderly and disabled people (Bealle, 2002, Charles and Godfrey, 2010)

In 2008, hunger and malnutrition were at their highest (Marcia *et al,* 2008). In Somalia, families who could not afford food tried to stay full by eating a soup made of mashed branches of thorn trees; in North Korea the price of rice rose by 186% between 2007 and 2008, while the overall food prices rose by 70%; lastly, in Burundi the price of the country's staple food, *farine noir*, a mixture of black flour and ground cassava root tripled (Marcia *et al*, 2008). These examples are just the tip of the ice berg of the challenges faced by impoverished people all over the world and sub-Saharan Africa especially.

In response to this, there has been civil unrest in the highly affected countries (Trostle, 2008; Headey and Fan, 2010). There have been a number of peaceful protests in number of countries i.e. Pakistan (wheat marketers) and in South Africa, members of the National labour Federation demonstrated against higher food and electricity prices (Trostle, 2008). In other countries, mainly of low-income and experiencing food deficits, Mozambique, Senegal, Burkina Faso, Egypt, Ethiopia, Bangladesh and Yemen, riots have occurred in protest of high food prices (Trostle, 2008).

During this difficult time the poor could not effectively access essential staple foods and diversified diets (FAO, 2009). Households were subjected to find effective coping mechanisms to sustain themselves and supplement their diets. In the urbanized parts of sub-Saharan Africa and other developing countries, people have resorted to producing their own food (Charles and Godfrey, 2010). This creates an era where food producers are competing for essential resources such as land, water and energy while the use of these resources has to be sustainable (Charles and Godfrey, 2010). It is in such instances that the poor populations will be affected in that the scarce resources that are being competed for affect the food prices as well as food security (Charles and Godfrey, 2010).

Since 2009 the price of food has decreased steadily, though relative to previous years it is still fairly high (Headey and Fan, 2010). There has been a tremendous shift from a reliance on imported food prior to 2008, to an increased effort into increasing investments in agricultural production and sustainability (Headey and Fan, 2010; Charles and Godfrey, 2010).

Competition for land and its use is a matter of concern as developers reserve vacant plots to transform them into residential blocks and commercial developments (Bryld, 2003; Frayne, 2009; Mkwambisi *et al,* 2011). Urban agriculture is thus affected by such issues pertaining to land secure rights especially for the poor and extends to the rural parts as well (Charles and Godfrey, 2010). In addition, UA is also plagued by gender issues in Africa. Despite these, UA has become a major

livelihood strategy for poor households in urbanizing African cities (Crush *et al*, 2010, Thornton *et al*, 2010; Zezza and Tasciotti, 2010). These issues are hereby delved into next.

3.8 Gender Roles in Urban Agriculture

Women play an essential role in the supply of food for their households in the rural and urban context (Sheldon, 1999; Mbiba, 2001; Rakodi, 2002; Kiguli and Kiguli, 2004). It has been documented by Mbiba, (2001); Kiguli and Kiguli, (2004); Obuobie, (2004), that the majority of urban farmers are females and not as many of their male counterparts are involved. The roles of men and women in UA tend to differ according to location. Men have been seen to be involved in large-scale UA for commercial trading while women concentrate on household food production and marketing and selling of the produce from their male counterparts (Kiguli and Kiguli, 2004). This section looks at the role gender plays in UA and how various issues such as land tenure, decision making and division of tasks affect the level of productivity by women in different countries. These issues also form the basis of the analytical framework to be used later in the discussion chapter. The theme in this section is also oriented toward the positive rather than negative spinoffs of UA at the household food security level (Wilbers *et al,* 2004).

3.8.1 Role of gender in UA in Africa

Gender in the realm of UA influences the roles, responsibilities and social status of the individuals at the forefront of the operation (Wilbers *et al,* 2004). Within the urban context, away from the rural areas, women constantly carry the responsibility of household sustenance and making sure that the wellbeing of all individuals in the household is maintained (Sheldon, 1999; Wilbers *et al*, 2004; de Olarte, 2005). Due to the role of women in household sustenance, it is difficult for them to enter the labour market due to the amount of responsibility they have in the household. In addition, many of the women practicing UA as a livelihood strategy have a low level of education (Maxwell, *et al,* 2000). The education factor favours their male counterparts who are able to enter into the skilled labour market and earn more money as they have higher levels of education than women (Hovorka, 2003; Maxwell *et al*, 2000, Obosu-Mensah, 1999, Obuobie *et al*, 2004). Due to this stark reality Botswana is a good example that shows how the government is empowering women involved in UA. The UA study in Botswana's capital city Gaborone by Hovorka 2004 reveals how such gendered dynamics are slowly changing. Key findings revealed that due to much assistance from the government Financial Assistance Policy, women have been empowered within the commercial UA system. Though challenges of a socio-economic nature are inherent, 47% of enterprises are female owned, 44% are male owned and 9% are male and female co-owned. Challenges faced by women

involved in UA in the major urban centres are common, these are i) access and control of resources including land; ii) Decision making and iii) Division of tasks. These will be discussed below.

3.8.2 Challenges encountered by women in UA

3.8.2.1 Access to land and control of resources

Historically women have always had problems in acquiring land for UA. In Africa access to land is fundamental in the success of woman producing food for their households or to potentially sell in local markets (Hovorka, 2005; Kiguli and Kiguli, 2004), yet land tenure remains to be a constant issue. In West Africa many of the women residing in the urban cities cannot access land easily; their access is determined by wealth, social class and close kinship (Kiguli and Kiguli, 2004; Zambia Church Alliance and Dan Church Aid, 2005). In addition, the use of the land is also determined by men and ethnicity, customs and taboos which may be broken depending on wealth. In Kampala, Uganda, women who own land cannot sell it as it belongs to the family, but they may use it to grow food of their choice (Kiguli and Kiguli, 2004).

In order for people to access land for the purpose of UA in Accra, they need to lobby. Most of the urban spaces that are cultivated are owned by the government, thus individuals already cultivating were good at lobbying and have some sort of relationship with the land owner or caretaker (Obuobie *et al*, 2004). For the poorer women without such connections or money, they access vacant land such as marshes, by either squatting or borrowing the unused land in the neighbourhood to grow food (Kiguli and Kiguli, 2004). In a South African study by Thornton (2008), he indicated how access to land for women and female interest groups in the Eastern Cape Province differs, as local municipalities have mandates that are aimed at empowering women and groups that will use the land to benefit the community. The land considered as commonage is owned by the municipality and its use must be sustainable while it benefits the community (Thornton, 2009). This process is similar to the lobbying in Accra, in that there has to be a good motivation, either financial or community enrichment, for the lobbyist/s to gain access to the vacant land. Contrary to this, women in Accra who do not have land rights and are using land illegally, their use of land is usually not sustainable and land is subject to degradation (Kiguli and Kiguli, 2004). Access to land is a key issue and livelihood asset for the success of people, women in particular, involved in UA. Access to land by poor women allows an improvement in the household food insecurity level.

3.8.2.2 Decision Making

The role of decision making is considered within the farm and household spectrum. In Ghana, where women use land inherited from close kin, they decide what they will grow and what is done with the surplus yield (Obuobie *et al*, 2004). However, in cases where the man own the land, only a small piece of land is allocated to the woman to grow food to feed the household, while the man concentrates his efforts on cultivating with the aim of selling the surplus yield for money (Kiguli and Kiguli, 2004). In some other cities of Ghana where water is a scarce resource, women are discouraged from participating as water carrying is strenuous. If they do participate, they are made to grow less profitable foods that don't require a lot of water (Obuobie *et al*, 2004) and mainly do wet season agriculture (Obuobie *et al*, 2004). In rural Zambia, women are limited in their decision making with regard to land-use, marketing and the use of proceeds from the sale of agricultural yields due to their limited education status and cultural laws (Zambia Church Alliance and Dan Church Aid, 2005). These examples are indicators as to how women are restricted from making their own. Women have limited freedom in selecting what to grow due to gender and social pressures from men and cultural rules.

3.8.2.3 Division of tasks

The division of tasks within UA across the African cities depends on the cultural group, socio-economic status of the households and the products being cultivated (Wilbers *et al*, 2004). Despite this, there are obvious similarities too in the division of tasks, most prevalent is men predominantly do the arduous work like land clearing and tilling the soil (Wilbers *et al*, 2004; Hovorka, 2005; Obuobie *et al*, 2004; Kiguli and Kiguli, 2004).

Women who are wealthy or can afford to hire men, migrant workers, like in Accra, Ghana, pay these men to clear the land and prepare it for planting (Kiguli and Kiguli, 2004; Obuobie *et al* ,2004). Women are also engaged in other activities related to UA, either marketing and selling, and taking care of smaller livestock. In parts of Ghana, women thrive in the business of marketing and selling surplus yields, while men work on the fields, this is because some women are only permitted to do their household responsibilities and add marketing which doesn't take up too much of their time fulfilling household responsibilities (Obuobie *et al*, 2004). In Lima, Peru, women have been empowered to take over take over community gardens as food providers for their families. Women under the Resources for Development Association, REDE work on the community food gardens. This initiative was not easily accepted by the men in the community, yet after much lobbying and determination by the women, their husbands and sons now assist the women when their help is needed (de Olarte, 2005).

3.9 Community Oriented Initiatives and Cooperatives

At the forefront of any UA activity is human and natural capital. Human capital is all the people involved in the activity who contribute their skills and energy, while the natural capital is the environment they are transforming and the ecosystems they deal with (Hancock, 1999). The interaction of these forms of capital including social capital, the *glue* that holds communities together, and economic capital, the means by which to achieve human goals and the ability to feed, clothe and have adequate sanitation and access to clean water all lead to successful initiatives (Hancock, 1999). All these forms of capital interact with human capital at the centre. With reference to community gardens and UA, social capital thrives in such cases (Phillips, 2002). People with similar interests work together to prosper economically, especially in their households and aim to ensure their families are fed daily. Such gardens depend on the cohesiveness of the social network to organize and manage the gardens (Hancock, 1999). Gardens in low income areas of the city help in reducing the cost of living by providing cheaper and alternative food sources (Hancock, 1999). They create a forum for people to share their cultural knowledge on food grown and exchange their skills and knowledge. In cases where these social networks prosper, there is a potential for economic growth and a chance to sell produce and use the money for other things like healthcare, school uniforms and books (Hancock, 1999). An African perspective and evidence of social networks follows.

The creation of localized associations and self-organized groups with the same or similar interests plays a big role in achieving common goals in Africa. People in communities facing similar problems of food insecurity, shortages and little or no income join forces to create change (Phillips, 2002). The size and make-up of the groups varies (Maconachie *et al*, 2012) though commonly enough all the people in the group come from poor socio-economic backgrounds with a majority never have been involved in any formal employment. This is seen in a study by Maconachie *et al* (2012), in Sierra Leone, Free-Town. The same can be said for the rest of Africa where similar associations have been formed, their formation circumstances, challenges and successes will be discussed.

Community based Urban Agriculture is commonly practiced on communal land and involves individuals from more than one household (UNDP, 1996; Thornton, 2009; Thornton *et al*, 2010). It allows for involvement of marginalized individuals, mainly women, children, the poor and the elderly into well-constructed food production activities (Smit and Bailkey, 2006). In community garden projects within the urban context, the participants all share a common goal: to provide fresh produce for households in the local community at a low cost (Thornton, 2009), thus providing an income and employment (Vagneron, 2007; Thornton, 2009). This farming system involves multi-

cropping horticulture (UNDP, 1996) as well as shared use of resources (equipment) to make farming more productive (UNDP, 1996). Other responsibilities such as upkeep of pathways, fences water supple, storage and security are the responsibility of all the main participants (UNDP, 1996). To follow are examples of successful community initiatives and cooperatives.

In Beira, Mozambique, women took a little longer than those in Maputo to work together and form cooperatives. Their formation enabled them to develop their leadership and decision-making activities, though their workload on the *machambas* did not decrease (Sheldon, 1999). Due to land tenure challenges women face in Kampala, Uganda, women have formed their own associations that can improve their involvement in UA and welfare in general. A group led by a female council leader, called the Ggaba Women's Development Association meet monthly. The money collected for membership fees assists in the purchase of agricultural inputs and enables them to access loans and pay them back gradually (Kiguli and Kiguli, 2004). All the factors that have been discussed here have an impact on the success of UA in the urban and peri-urban areas in African cities. On a South African scale and particularly in Soweto these issues will be delved into in the discussion chapter.

3.10 Conclusion

This chapter has shown how urban livelihoods can be analysed using two kinds of theoretical frameworks, the livelihoods framework and the crisis model. There are minor similarities in these frameworks in that they both look at the utilisation of assets by the urban poor populations. Both the frameworks are not a "once size fits all" as they look at the assets or conditions with different lenses. Nonetheless they both allow the researcher to be able to analyse a research population and try to explain why they do what they do and the external factors affecting their livelihood activities.

Urban agricultural activity is shown to be prevalent all over Africa. It is seen as a response by households to stresses and shocks. The cause of these stresses and shocks are: globalisation, increased urban populations and reduced employment opportunities, food price hikes, and sometimes volatile political situations. In addition, it has been shown that it is mainly women involved in urban agriculture for the main purpose of feeding their families. Although faced with issues pertaining to land ownership, decision making and division of tasks many women still continue with the activity. Lastly, by looking at the role the government plays in urban food production and hunger eradication this section shows that there is a strong need for institutional support for UA to be incorporated into urban planning, development planning and policy.

4 Chapter Four - Methodological Considerations

4.1 Introduction

This chapter is devoted to the methodological considerations and issues within the context of the study. This study falls within the social sciences where "*research encompasses the problem of inquiry purposes which lies in finding and selecting artefacts, then in analysing and interpreting them"* (Robson, 1993:187). In the case of this study, the artefacts are the selected respondents whom are actively involved in Urban Agriculture in Soweto.

This chapter will first look at the methodological issues faced by social scientist, followed by the fieldwork material of the study. This encompasses the geographical scale of the study, the sampling methods employed, a step by step sampling procedure and the data collection methods. Lastly the chapter looks at the data analysis techniques as well computer software used in process.

4.2 Methodological Consideration

4.2.1 Issues in Social Science research

In an attempt to conduct good research within the field of social science one needs to consider various factors. One of these is the methodological guidelines to be employed, to measure the multiple factors at play in any observed or investigated social activity or phenomena. The reason for this according to Anguelov, 1984: 263, is that "*social processes and phenomena are complex dynamic systems, their elements and priorities existing only in the organic framework of the whole".* Due to such a complexity, research indicates that the use of qualitative methods is more useful in the study of social phenomena. Morgan and Smircich, 1980:491 state that "*qualitative research is an approach rather than a particular set of techniques, and its appropriateness derives from the nature of the social phenomena to be explored'.*

The ways in which researchers seek to study their objects relies on an adequate methodological approach. Use of the multi-method approach is highly recommended for all research works. The reason for this is that "*similar patterns of findings from very different methods of gathering data increase confidence in their validity*" (Robson, 1993: 69). Qualitative and quantitative methods have their own strengths and weaknesses, thus when selecting methodology it is impeccable that the researcher seeks to match the strength of one to the weakness of another (Robson, 1993).

As qualitative methods are dominantly employed in social science research, another issue faced by researchers is their ability to remain objective. Objectivity is defined as "*the basic conviction that there is or must be some permanent ahistorical matrix or framework to which we can ultimately*

appeal in determining the nature of rationality, knowledge, truth, reality, goodness or rightness" (May, 2001:9), in simple terms this means *"the ability to consider or represent fact, information, etc., without being influenced by personal feeling or opinions; impartiality" (*Oxford English dictionary. 2013). However, it must be noted that the way in which researchers approach the fieldwork is influence by their personal experiences and will influence the way in which they perceive and interpret the social objects they seek to study (Robson, 1993; May, 2001), to further support this notion Johnston is of the view that "*all knowledge is ultimately based on an individual's subjective experience of the world, and comprises mental constructs and ideas. There is no 'real' world that can be known independently of the mind"* (Johnston 1997:187). Thus the personal experiences of researchers often, if not always, influence the way in which they perceive and interpret the social objects they seek to study.

4.3 The Fieldwork Material

4.3.1 Definition of Concepts/terms and geographical scales

Before the methodological instrumentation can be dealt with more in detail, it is essential to re-cap on the concepts utilized with this study. Urban Agriculture here refers to farming activity occurring within the built up areas of the city or peri-urban areas. It includes all food crop production and animal husbandry. As a great volume of the information was collected primarily from the local farmers living in the area, they are referred to as "urban cultivators" and "subsistence farmers", thus these terms are used inter-changeably to refer to individuals actively participating in UA to sustain the household bread-basket.

On a geographical scale, Soweto is a very large township, the largest in South Africa, which measures 106.44 km^2 (Ramchander, 2004). Within Soweto there are 34 suburbs of these only 5 locations were selected for data collection. Due to the size of Soweto, sites selected for data collection are all on the Eastern half of Soweto. These suburbs are; Meadowlands, Mzimhlophe, Chiawelo, Motswaledi and Nancefield Hostel. The suburbs were selected based on the fact that according to UNDP, (1996); Obosu-Mensah, (1999); Vagneron, (2007); Crush *et al*., (2010) and Thornton, (2008) Urban agriculture takes places on vacant land along the roadside, along river banks, streams and wetlands. All the sites are along main roads or railway lines and the main river system, Klipspruit River, where there are vast tracts of land used to grow vegetables, maize and for grazing.

All the areas represented have different residential patterns adjacent to the areas of study. Motswaledi (Pimville) is predominantly a squatter settlement, with shacks, no electricity and insufficient water pipes to service the whole community, communal taps are common and no proper

road infrastructure. The other settlements, Meadowlands, Chiawelo and Phiri have housing that was provided by the apartheid government and have water and electricity at each house. The study site in Meadowlands is on open land that is near the Roodepoort Main Road. The Chiawelo site is located along the railway lines, and opposite the Avalon cemetery. The Phiri site is an open tract of land near the taxi main road. Mzimhlophe and Nancefield are referred to as hostels; these were allocated to migrant men and women as temporary residential premises during apartheid, these are adjacent to the Kliprivier river, see Figure 4.1. Income levels in all areas range from low to middle income.

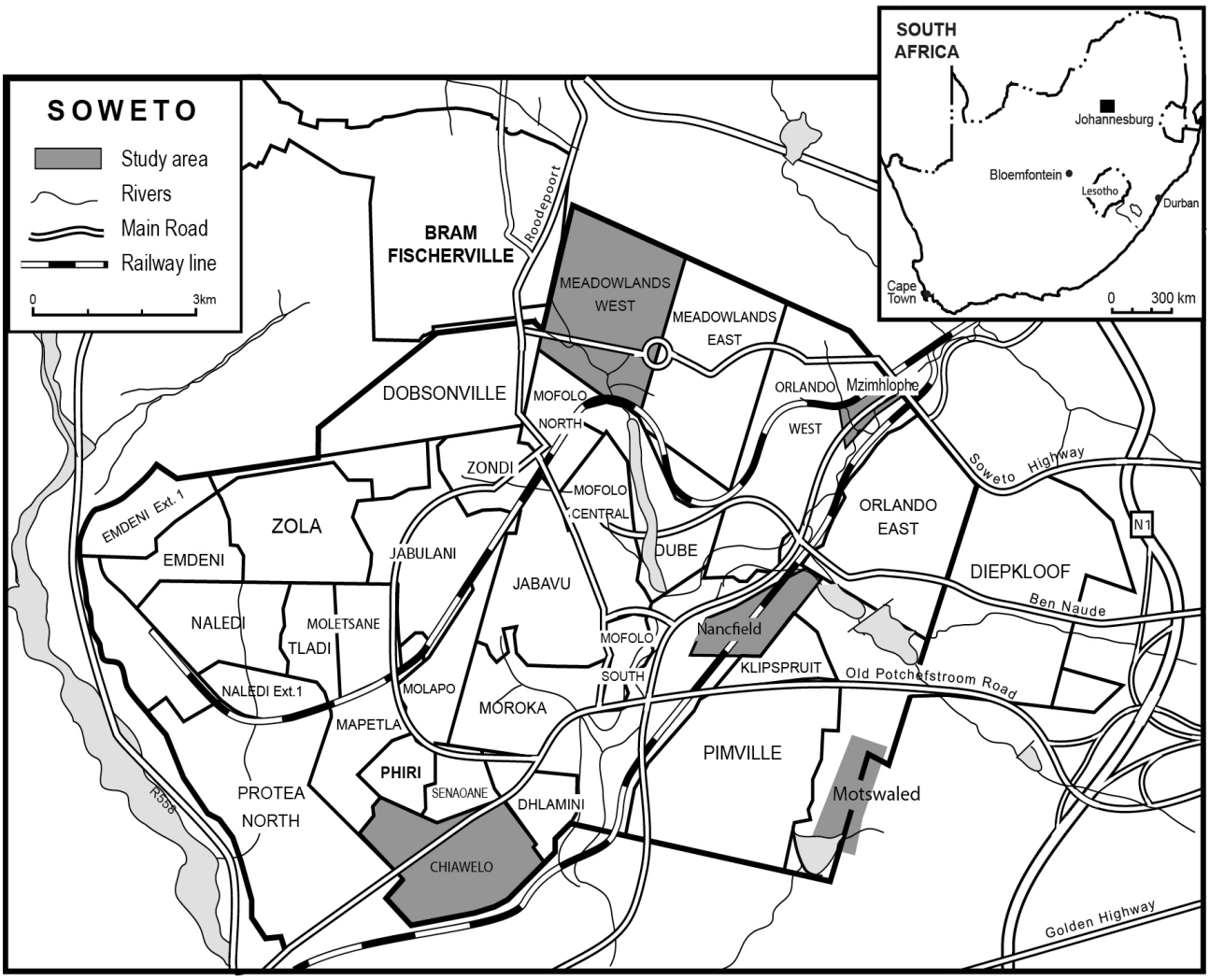
Community projects oriented around UA operating within schools were also considered. They are essential because they bring in the dimension of collective work vs. those of working individually on their plots of land. In addition, information was also collected from one professional foundation in Soweto. The Food Gardens Foundation is located in Kliptown, Soweto. Following the terms and geographical sites being defined, I will recap on the research aims and objectives of this study.

4.3.2 Research design: target population and sampling methods

Primary data was collected in the research area and an interview with Food Gardens Foundation was conducted to reflect on the role of urban agriculture at household level. To recap, the primary data was collected in townships on the eastern half of Soweto, Meadowlands, Mzimhlophe, Nancefield, Motswaledi (Pimville) and Chiawelo.

In all the study sites, selection of the research participants was on the non-probability sampling method. The non-probability sampling means that this method of sampling does not specify in advance the likelihood of selecting elements (individuals in the population who will participate in the study) (Schutte, 2008). Non-probability sampling is commonly used in qualitative studies (Schutte, 2008) like this study, where there is a focus on one setting, urban agriculture, and a small population where the researcher is able to analyse intensively the activities and actors in that particular setting. However, this method does limit the researchers' ability generalize (Robson, 1993 and Schutte, 2008).

Figure 4.1: Location of the five study sites in Soweto



Source: Wendy Phillips (2013), Wits Cartography Division

This method is suitable for this study because it looked at a small population of urban cultivators and livestock keepers in different parts of Soweto. Its use was influenced by its successful outcomes in a study by Hampwaye (2008) in his study of urban agriculture and local economic development in Zambia.

The non-probability sampling techniques used were the availability and purposive sampling. The availability technique states that elements in the sample population will be selected conveniently thus will have to be available to participate in the study when the researcher finds them working on their cultivation fields. The purposive sampling technique states that certain pre-conditioned characteristics of the element have been set, and the elements are knowledgeable of the subject matter they will be interviewed on (Robson, 1993; Schutte, 2008).

The reasons for using these sampling techniques is because there are no lists available or information about urban cultivators in Soweto, thus locating them physically was essential before the actual fieldwork could begin. Using two methods in this case increases the validity of the data collected and overcomes the shortfall of one of the techniques. This refers to the fact that 'selecting elements conveniently' is considered as the downfall of availability sampling (Schutte, 2008 and Robson, 1993). Therefore, any person who walks past the researcher can be interviewed. To overcome the problem, the purposive sampling technique was dually employed to select the most suitable elements to take part in the study, after they had agreed to do so. The target population was a limited group of individuals; urban cultivators and urban livestock keepers amounting to 40 individuals and 6 community projects. All the individuals are knowledgeable of the issues under investigation. All the individuals who agreed to participate were selected because they were found either working on their plots of land or the herders referred me to the owner of the livestock they were herding on the open fields.

In terms of selecting the community projects operating in Soweto, the non-probability sampling techniques were employed yet again. The schools selected had to be close to the areas where the individual urban cultivators were located. The reason for this was so that I could maintain a constant geographical location within the selected study sites. Nonetheless, in some cases this rule would not apply because there aren't a lot of community projects in those areas, thus the need to venture into other townships arose. This enabled me to collect more information on these community projects and have a good representative sample. The groups selected could be of any size and mixed gender, just as long as they actively engaged in urban agriculture and were a collective, with a leader in place.

4.3.3 Study sample and sampling procedure

From the six selected study sites, it must again be noted that there was no information on the number of cultivators or livestock keepers. Therefore, from the beginning of the study all people found to be working on vacant land, tilling soil, planting, weeding, watering or herding any livestock were selected. To follow is a detailed description on how the participants were selected for interviews and how a trusting relationship was formed. This enabled the participants to supply the information needed for the study.

The first task during fieldwork was to drive around the areas that had been identified as areas where UA took place. In the first two weeks, a pattern was identified where the majority of urban cultivators worked in the morning until midday on their plots. During the fieldwork, it was ensured that to appear neutral and not like a government or municipal employee, the relevant

documentation (participant information sheet) be presented to the participants. In addition, the vehicle had to be parked in places where there were other vehicles or in front of someone's house. This was to ensure that the cultivators viewed the researcher as a true student and not employed by any entity. It was also decided that a student card be visible at all times for the participants to see. Due to some of the vacant plots having tall grass and the general public using the plots as short-cuts to their desired destinations, these areas were deemed unsafe. Therefore fieldwork and travelling was done with a male counterpart for safety on the days interviews with respondents would be taking place in those areas.

Putting into perspective the sampling technique, availability sampling, the first person seen working on their farm was approached. It was decided that people who were not elderly approached as experience during the pilot study revealed a problem with the elderly' level of understanding due to the language barrier that existed. Many of the elderly, about 8, that were approached were impatient, therefore this prompted for a slight altering of the potential sample, so only people up until the age of 70 would be approached.

After approaching the respondents, they were greeted in the vernacular language common in the area and asked which language they preferred to use to communicate with. Many of the respondents were happy to speak in Setswana and isiZulu and would explain or translate some terms into English for recording purposes. The purpose of the study and of their participation in it was the explained. Upon agreeing to take part in the study, the respondents were asked to sign a participant consent form as stipulated by ethics, and the interview began.

At the hostels where UA was identified, the people were not easily located. Nonetheless, conversing with their neighbours was useful as they would relay information about where else the urban cultivator cultivated often and the likelihood they would be found at that location at certain times of the day, mainly in the morning. In the case of Motswaledi, the informal settlement, a key female informer who cultivates in the area and sells prepared food from her shack helped in locating cultivators in Motswaledi. After her interview, she personally guided the researcher to five shacks belonging to other cultivators, whom were then interviewed in their homes. In these cases additional evidence that they cultivated was observed in their backyards. Not only did they make use of vacant land across the road, but also used their backyards to grow other vegetables, while others kept live chickens.

Many of the cultivators know each other, thus during an interview they would call upon others cultivating in these same are to listen and take part in the study as well. This made it easier to

complete the surveys in a short space of time due to less walking, and offered more time to have discussions with the cultivators. Gender was not a criteria for approaching the cultivators, thus all the people were equally important in the sample.

After selecting the schools where UA was observed each school was visited on a different day or after interviewing individuals on vacant plots nearby. At each school permission was requested from the school principal or headmaster to conduct the research after explaining what it was about. All the principals were interested and gave permission. In some cases they would personally escort me to the fields where UA was taking place and introduce me to the group of people using the school property to grow food. After explaining what the study was about, the whole group was interviewed as a collective. This created a platform for discussions and for them to share their thoughts, ideas and information about their initiative at the school. Tours of the gardens at all the schools were done and given an opportunity to also buy vegetables that were grown was available. In the cases where the principals were involved, they were interviewed as well after the discussions with the groups outside.

The herders were quite difficult to locate as they usually sit under trees in the shade while the animals grazed. The herders were unable to give much information, thus they lead me to the owner of the livestock. Finding the owners was not as easy task either, so in some cases appointment to meet them would be made, though some would cancel before the interview.

The Food Gardens Foundation was approached after the pilot study was conducted. The director requested a presentation on the study first before making a decision on participating. Results from the pilot study were used in the presentation to motivate the importance of input from the Foundation. Upon agreeing to be a professional entity to interviewed, the Foundation Director requested that two more questions about ethnicity of cultivators and residential duration in Soweto be included in the survey. They wanted this information to assist in one of their projects.

4.3.4 Approaching the interviewees: data collection methods

A: Questionnaire surveys

A questionnaire survey was selected as the main method for data collection. The survey method was suitable as it allows one to look at relationships between and amongst different characteristics, sites and sub-categories (Secor, 2010). The main advantages of making use of a survey are that firstly it enables the researcher to summarise the basic characteristics of the sampled population and secondly it presents findings that are statistically valid and accurate for the sampled population (Secor, 2010).The questions were standardised but some of them were open ended and left room

for further explanation and elaboration by the respondents. Thus the questionnaire incorporated a small element of the interviewing method which probes certain issues more in depth and allows for the discovery of why people act and feel the way they do (McDowell, 2010).

The survey administered to the urban cultivators and the livestock farmers consisted of three sections. The first section dealt with the household socio-economic information where questions on the number of people in household, employed and unemployed people in the household, number of social grant recipients, total income and length of residence in Soweto were asked. The second section has questions on the urban agricultural production system with questions on types of crops, livestock, labour force, equipment and natural resource use, access to information and other resources, household consumption of crops and potential to save or generate an income from selling vegetables and livestock. The third section had two sub-sections which are both used as measure of food security. These were the Household Dietary Diversity Scale (HDDS) and the Household Food Insecurity Access Scale (HFIAS).Their origin and effective use will be explained below.

The HDDS indicates the number different food groups consumed over a given time period, 24 hours in this study, in the household, see table 4.1, (Swindale and Bilinsky, 2006; Crush *et al.,* 2010). Participants were asked about the food they had consumed in last 24 hours, where each type of food would fit into a food group, there is a maximum of 12 food groups, which make the maximum score 12. Therefore the more food groups consumed in the specified time will reflect a quantified measure of the dietary diversity and the household food access at that time. The HDDS is, according to Swindale and Bilinsky (2006) a good proxy indicator because firstly, a more diversified diet is associated with improved outcomes in birth weight, child anthropometric status and improved haemoglobin concentrations and secondly it's correlated with protein adequacy and household income.

Access is defined as "the ability to acquire sufficient quality and quantity of food to me*et al*l household members' nutritional requirement for productive lives" (Swindale and Bilinsky, 2006). Therefore in the Household Food Insecurity Access Scale (HFIAS) access to sufficient quantity and quality of food is measured, refer to table 4.2. To calculate the score, each household is considered individually, and the key respondent is asked nine questions, about 'frequency of occurrence'. In the case of this research six questions were asked. As the interviews were conducted in an African language there were a lot of similarities in the questions during translation, thus three questions were removed. Generally the questions look at how often in the past four weeks the household didn't have enough food for the whole family, and how often it occurred. Scores were given as follows, if it never occurred they score 0, if it occurred, the respondent needs to specify how often,

rarely: once or twice (1), sometimes: three to eight times (2) and often: more than eight times (3). The minimum score is 0 and the maximum is 18. Thus a higher score means more food insecurity is experienced at the household while a low score means less food insecurity is experiences (Coates *et al, 2007;* Frayne, 2010). The data collected using the HFIAS enables the monitoring of food assistance programs and to report on the national prevalence of household food insecurity. On a national scale this scale can enable governments to assess household food insecurity access for geographic targeting and detect changes in situations of the population over time. Nevertheless, it was decided to assess household food insecurity (access) at a more local scale, only for the sample in the study.

Table 4.1: HDDS table for foods consumed from the 12 food groups

Code	Food	Yes	No	Extra detail
A	Any bread, mabele, rice, noodles, biscuits, scones, fat-cakes, other food made from millet, sorghum, maize, wheat			
B	Any potatoes and sweet potatoes or any foods made from roots and tubers			
C	Any yellow or orange and Green vegetables			
D	Any Fruits			
E	Any beef, pork, lamb, mutton, chicken or other birds, liver, kidney, hearts and other organ meats			
F	Any Eggs			
G	Any fresh fish or dried fish			
H	Any foods made from beans, peas or lentils			
I	Any dairy products: milk, yogurt, cheese,			
J	Any foods contain fat, butter or oil			
K	Any sugar or honey			
L	Condiments: tea, coffee, sauces, cool drink, juice			
Total				

Source: Adapted from Swindale and Bilinsky, (2006).

Table 4.2: A Section of the HFIAS used during the interview process

No.	Question	Response Options	Code
1	In the past four weeks, was there ever no food to eat of any kind in your household because of resources to get food?	No=0 (skip to 2) Yes=1	
1a	How often did this happen?	1=rarely (once or twice in the past four weeks)2=sometimes (three to eight times in the past four weeks). 3=often (more than eight times in past four weeks)	
2	In the past four weeks, were you or any household member not able to eat the kinds of foods you preferred because of a lack of resources?	No=0 (skip to 3) Yes=1	

No.	Question	Response Options	Code
2a	How often did this happen?	1=rarely (once or twice in the past four weeks) 2=sometimes (three to eight times in the past four weeks). 3=often (more than eight times in past four weeks)	
3	In the past four weeks, did you or any household member have to eat a limited variety of foods due to a lack of resources?	No=0 (skip to 4) Yes=1	
3a	How often did this happen?	1=rarely (once or twice in the past four weeks) 2=sometimes (three to eight times in the past four weeks). 3=often (more than eight times in past four weeks)	

Source: Adapted from Coates *et al,* (2007).

B Interviews

The structured interview was selected as an appropriate method to get information from the community project respondents as well as the Food Gardens Foundation. According to Ekhol and Franson (1987:9-17), structured interviews are conducted either by help of a survey with open-ended questions or fixed alternative answers. The two interview guides were fairly short but contained open ended questions in order to get as much information as possible from respondents in the community projects. The first interview guide designed for the community projects basically probes questions related to the length of the project and how it was started, the number of people involved, problems they face, access to resources, their projects potential to generate money in the informal or formal market and lastly what their general concerns are on urban agriculture. The second interview guide for the Foundation asks questions related to the role of FGF in Soweto in terms of employing people in the area, the projects they initiate, their success stories and how they plan to incorporate people who do not know that the foundation exists in Soweto and is there to serve them.

4.4 Data analysis

Data analysis is dependent on the type of data collected, quantitative or qualitative (Robson, 1993). During the process of designing the questionnaire or data collection techniques, it's essential that the researcher also thinks about how the data will be captured ensuring it all makes sense and is analysable (Robson, 1993). With the above in mind the following procedure was followed during data collection and data capturing.

For this study a standardized survey questionnaire to interview individual involved in UA and an interview guide for the community projects were used. The data was mixed between statistical and

written comments and information from the open ended questions. For Section one (household and socio-economic information) and parts of Section two (Urban Agriculture information). The data was captured and analysed using IBM SPSS Statics Software. SPSS is commonly used and recommended for statistical analysis of data by various authors such as Robson, (1993); Paura and Arhipova, (2012). Computer software like SPSS is good because it does the analysis for you, thus eliminating the possibility of human error in the statistical results. The software is suitable to be used for any sample size and incorporates the use of a graphical user interface analysis, while remaining user friendly (Paura and Arhipova, 2012).

After all the data was collected, analysis began by capturing the data. The data was captured according to the same structural layout of the interview guides and questionnaires. This made if easy to follow on and to detect any potential errors and links in the data. To tabulate the data and create graphs the statistical outputs from SPSS (averages and frequency of assurances) were copied into Microsoft Excel. The tables were used to create easy to tables that are easy to interpret and used to create bar graphs and pie charts. In cases where explanations and comments had been recorded during the interview, the data was added in a Microsoft excel spread sheet. Each row represented one participant. Therefore, the same code on each questionnaire was recorded as an identifier on SPSS and Microsoft excel. By using Microsoft excel to capture the information from the open ended questions, assisted in identifying common perceptions and views expressed by participants. The views that occurred frequently and the odd ones were considered essential for the findings, and added in the findings chapter for their significance to be discussed later.

The data for Section C (Food Security) was analysed using Microsoft Excel because it was not desirable to use SPSS due to the subject matter and it was recommended by the authors of the Food Security scales that Microsoft excel be used or manual calculations.

Data on the interviews and open ended questions was captured in Microsoft word. Thereafter, comments that were common among participants were considered important for discussion. Other interesting notes were considered for use in the analysis due to their relevance in the study and their prevalence in the literature.

4.5 Methodological Reflections

During fieldwork, the researcher is exposed to a number of biases. These are: spatial biases, project biases, person biases, season biases, diplomatic biases and professional biases (Chambers, 1983; 13-23 in Simatele, 2007). These biases indicate an easy way out for the researcher. These includes going out in favourable weather conditions, not going far away, asking polite questions to avoid sensitive

issues, talking to people who speak the same language and visiting successful projects only. The above aspects ensure that researchers do not visit the wrong places. A research scenario applicable here was that during the fieldwork duration, on days when the weather was overcast, no fieldwork would take place due to fear of getting wet in case it rained. On one day fieldwork did take place, and it was found that more cultivators went out to their fields as the weather was cooler and favourable.

Other methodological issues were imminent during fieldwork. The sampling technique was good in theory, but led to the researcher spending more time than specified in the field. This would occur on days when not many cultivators went out to work on their fields, thus time would be wasted driving around looking for cultivators. On the other hand, on good mornings when more cultivators were out on their fields, it was a good opportunity to observe the different participants and talking to them was more exciting as they would refer their friends to have the interview as well. This permitted the fieldwork to flow faster as more questionnaires would be completed on those days.

The major problem encountered was with regard to interviewing the elderly and the language barrier at times. The older people, above 75 years of age were quite impatient and reluctant to participate. In addition, some were unable to speak the language (Setswana or isiZulu). A decision was then made to leave the elderly out of the sample even though they may have had the potential to add some valuable input for the study.

The fieldwork period was short, from July 2012 to January 2013. Data collection did not occur on a daily basis during this period and during December many of the cultivators were not available as they visit their homes in the rural areas. More time in the field would have allowed for participant observation to take place. It can be argued that if this had taken place, more data would have been collected to help in analysing the dynamics at play in the lives of the people involved in UA in Soweto. Spending more time with them was going to build a better relationship of understanding and of trust and an opportunity for them to provide more valued information. Nevertheless, if this study was to be taken forward or a different aspect in UA is researched in Soweto, like the roles of policy and importance of access to services, participant observation would be an essential part.

4.6 Conclusion

The methodological approach is merely a guide used to select the sampled population, collect data and analyse the data. The methodological instrumentation is vital in that it allows the researcher to collect quality data that will inform and answer the research questions referred to in chapter one. By using interview guides and questionnaire surveys it enables the researcher to engage with, listen to

and learn from the urban cultivators and livestock keepers. Their opinions and perspectives on UA have been recorded and are all equally important in the research.

5 Chapter Five - Empirical Findings

5.1 Introduction

This chapter is dedicated to the presentation of the empirical data collected between October 2012 and January 2013. The overall aims of this chapter are as follows: Firstly to highlight the presence of food insecurity among the urban cultivators with evidence from the Household Dietary Diversity Scale (HDDS) and the Household Food Insecurity Access Scale (HFIAS). Secondly the aim is to show the potential for urban cultivators to sell their produce on the informal market and how it enables them to save money in the household. Thirdly the chapter aims to highlight the views urban cultivators have toward UA and its role in their lives. Lastly, it aims to show the views community projects have toward the practice and its importance in terms of social capital. In addition, additional data from Food gardens Foundations is presented to highlight the potential people involved in UA have in growing into bigger and sustainable entities.

5.2 Socio-Economic features

Socio-economic features serve the purpose of painting a picture of the sampled population. It looks at their income levels and source, employment data and their province of origin in South Africa. The data for the sampled population, 40, indicates that on average, each household consisted of 6 people. One household had the highest number of people, being 12. The data has demonstrated that the employment rate within the sampled population is low. To support this, it was found that 1.2 women and 0.7 men are employed per household. The most common forms of employment are low income and examples are: security guards, cleaners, domestic and garden work (piece jobs) and retail store casual work. Due to the types of jobs the people in the household have, on average they get paid 165.87$[1] per month. In the case of piece jobs it can be even less. It is important to note that in some households the interviewees receive an extra income from renting out outside rooms, prices range from 45.96$ per room and 91.93$ for a double room.

In terms of other forms of income, the social grant from government was included in the socio-economic features. The respondents were asked if there was anybody in the household who received a social grant from the government. There was a positive response from many households as seen in table 5.1 below.

[1] Currency used is USD, ZAR to USD exchange rate as at 15 January 2014

Table 5.1: Number of households (hh) dependent on social grants

Government Social Grant	No. of hh	Total no. of grants	Amount per grant in Rands per month	Amount in USD
Child support	18	33	300	27.57
Pension	21	28	1220	112.115
Disability	5	5	1260	115.83

Source: Field based data, 2012

The above table indicates the number of households that were recorded as receiving one or more of the social grants. The second column shows the total number of households that receive one of the social grants. The third column show the number of grants received in total for each category, therefore it is found that in some households they may be receiving more than one of the same grants. This for example occurs where there may be two or more children each receiving a child support grant and living in the same household. The last two columns show the amount received by each social grant recipient. It must be noted that the parent of the child receiving the grant collects it with on behalf of the child to use for the basic needs of the child.

The majority of urban cultivators who were interviewed were from the Limpopo province which is north of the Gauteng Province, second was Kwa-Zulu Natal with, please refer to table 5.2. The table also shows the age ranges of the participants, as seen in column 4. The general consensus is that all the participants are over the age of 35. The last column gives a gender related breakdown of the participants from each province. In general there are more women involved in UA from each province with exception to Mpumalanga and the Eastern Cape.

5.3 Household Food In-security

The first measure of food insecurity was the use of the Household Food Insecurity Access Scale (HFIAS). The scale looks at the households' access to adequate food over a period specified by the researcher, in this case 4 weeks. As a recap from the methodology chapter, the average scale was calculated by adding all the scores from each of the households and averaging the total. Each household had to receive a score out of 18 which looked at their access to resources to buy or access food. Thus anything close to zero (0) was considered as not being food insecure and the closer to 18 meant that the respondents are considered food insecure. A section of the HFIAS is shown in Table 5.3. If a respondent answered yes in question 1, they would have to select 1, 2 or 3 in 1b, which looks at how often the event occurred. It is the score from the frequency section that is used. If the answer was no, then the score in 1b would be zero (0). There were 6 questions for the HFIAS. An example of how the answered were captured is also shown in table 5.3.

Table 5.2: General information on the province of origin of the urban cultivators and livestock keepers

Province of origin, ages and gender of respondents involved in UA, and types of UA								
	No. of respondents	Percentage of respondents	Age groups of respondents	Gender		Type of UA		
				Male	Female	Crop	Livestock	Both
Limpopo	19	47.5	>55	7	12	23 Females	3 Males	1 Female
Kwa-Zulu Natal	9	22.5	>38	3	6	13 Males		
Free State	5	12.5	>38	2	3			
Mpumalanga	3	7.5	>35	3	0			
Eastern cape	1	2.5	>35	1	0			
Northwest	1	2.5	>55	0	1			
Pretoria	1	2.5	40	0	1			
Soweto	1	2.5	60	0	1			
Total	40	100.0		16	24	36	3	1

Source: Field based data, 2012

Table 5.3: A section of the HFIAS used to calculate access to resources to get food.

No.	Question	Response Options	Code
1	In the past four weeks, was there ever no food to eat of any kind in your household because of resources to get food?	No=0 (skip to 2) Yes=1	1
1a	How often did this happen?	1=rarely (once or twice in the past four weeks) 2=sometimes (three to eight times in the past four weeks). 3=often (more than eight times in past four weeks)	1
2	In the past four weeks, were you or any household member not able to eat the kinds of foods you preferred because of a lack of resources?	No=0 (skip to 3) Yes=1	1
2a	How often did this happen?	1=rarely (once or twice in the past four weeks) 2=sometimes (three to eight times in the past four weeks). 3=often (more than eight times in past four weeks)	2

Source: Coates *et al,* 2007

From the HFIAS the average score was 5.5 out of 18. The calculation was done in the following way:

total score from all the households ÷ number of respondents=average HFIAS

220÷40=5.5

From this score it can be said that the respondents are not as food insecure as had previously anticipated. Respondents indicated that they never go to sleep hungry and always give priority to the younger children in the household. The Household Diversity Scale is a second measure of food insecurity. The results which follow support the score above that there is a very small percentage of food insecurity amongst the respondents. The Graphs that follow show the dietary diversity amongst the respondents and importantly the most commonly eaten food types within the sampled population see figure 5.1. The graphs were derived from data found in table 5.4.

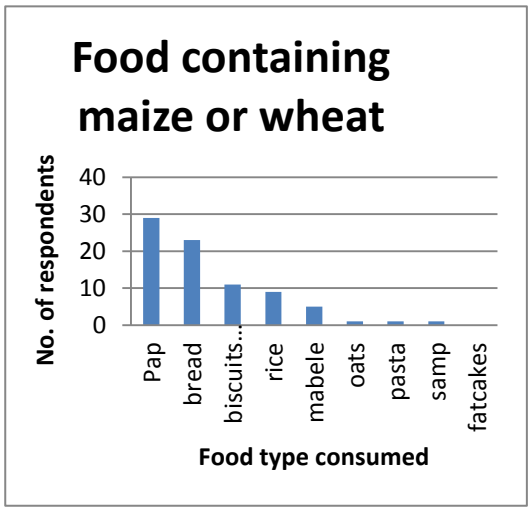
Table 5.4: Index of all the food consumed by respondents 24hours prior to interview

Food Groups	Food types	No. of respondents	Food Groups	Food types	No. of respondents
Grains	pap-made from maize meal	29	Foods containing fats butter or oil	fat	40
	bread	23		oil	40
	biscuits and cakes	11		butter	23
	rice	9	Sugar or Honey	sugar	38
	mabele	5	Condiments	tea	34
	pasta	1		peanut butter	3
	oats	1		Jam	2
	samp	1		Juice	2
	fat-cakes	0		coffee	0
Foods made from roots and tubers	potatoes	8		cool drink	0
	Fried Chips	1	Eggs	eggs	2
	sweet Potato	1	Fresh fish or dried fish or tin fish		0
	potato chips	1	Peas, beans, lentils	peas	1
Yellow, Orange or green Vegetables	spinach	9		beans	3
	cabbage	8		lentils	0
	carrots	3	Dairy products	Fresh milk	13
	morogo	3		Powder Milk	7
	beetroot	1		Condense milk	2
	pumpkin	1		Maas	2
	green pepper	1		Cheese	1
	china spinach	1		Yogurt	0
Fruits	avocado	1	Meat, poultry, organ meats	Chicken	13
	apples	3		beef	4
	banana	1		cow liver	2
	tomato	1		Chicken feet	1
	oranges	1		turkey	1
				polony	1
				chicken livers	1
				tripe	1
				soya mince	1

Source: Field data, 2012

Figure 5.1: Household diversity scale, the food groups and most common foods in the food groups, consumed by respondents 24hours prior to the interview; data based on the Household Dietary Diversity scale

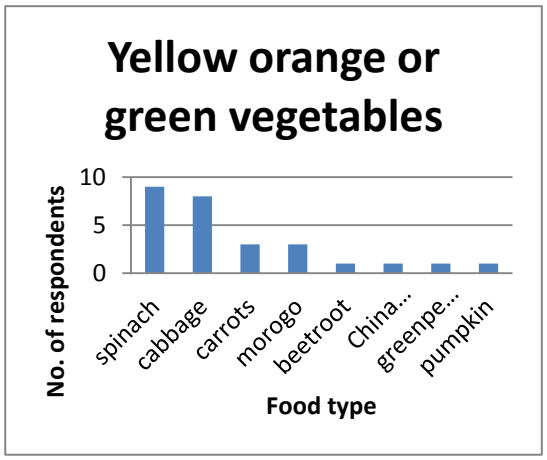
a) number of respondents who consumed food containing maize or wheat



There are a greater number of respondents who consumed pap (made from maize meal) and bread prior to the interview. Respondents noted that maize meal is the first priority and most important to buy when they have money as it can be consumed with anything and is able to keep them full for longer periods of time. Bread is consumed daily in the morning and afternoon.

Source: Field data, 2012

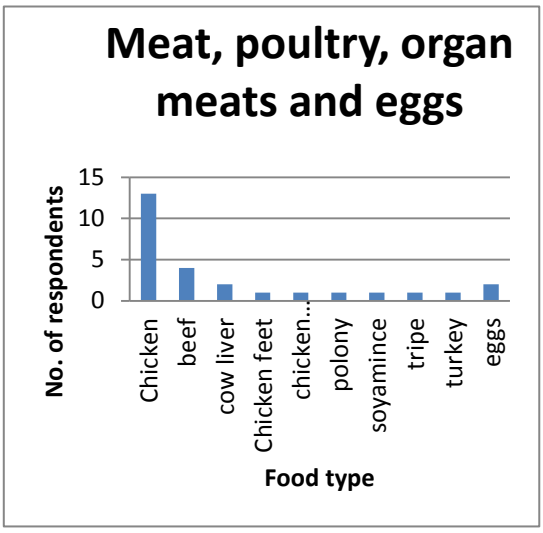
b) number of respondents who consumed yellow, orange or green vegetable



The commonly consumed vegetables were Spinach followed by cabbage. These vegetable are grown by most of the cultivators interviewed, in addition spinach is affordable and can be bought on the informal market, from vegetable hawkers on the streets. The same applies for the other vegetables in the graphs, but the ones commonly grown by the cultivators are spinach, morogo and china spinach

Source: Field data, 2012

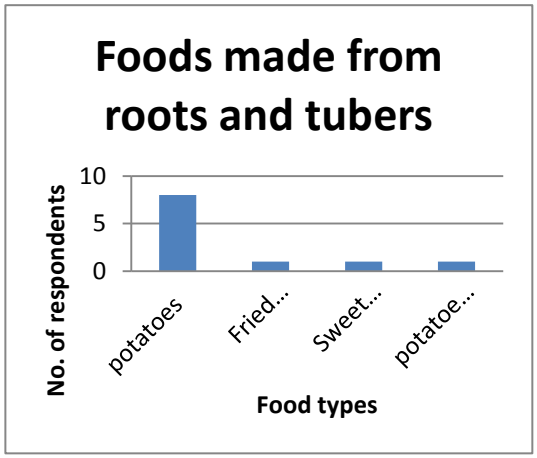
c) number of respondents who consumed meat, poultry, organ meats and eggs



Two food groups were merged here, meat, poultry and organ meats was merged with eggs. More people ate chicken followed by beef. The high beef consumption was because the respondents had eaten beef at a function the previous day, they noted that they don't eat beef often unless it's a special occasion. Chicken is said to be affordable by respondents and is consumed at least three times a week.

Source: Field data, 2012

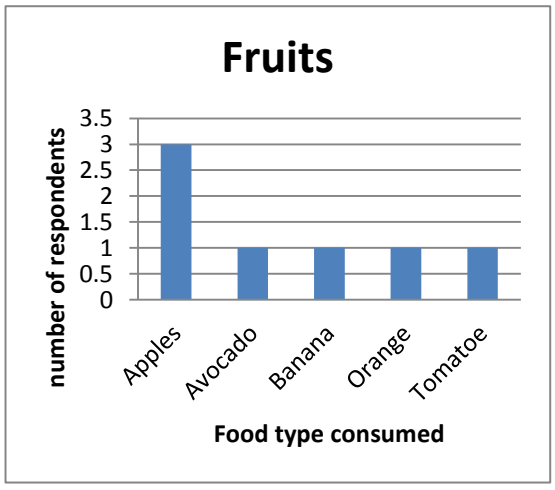
d) Number of respondents who had consumed foods made from roots and tubers



The respondents consumed more potatoes than any other root or tuber. Again it is due to their affordability and availability to be bought from street hawkers.

Source: Field data, 2012

e) number of respondents who consumed fruits



The most commonly consumed fruit was apple. If the number of respondents who ate fruits is summed up its 11, not even half the people interviewed in total ate a fruit.

Source: Field data, 2012

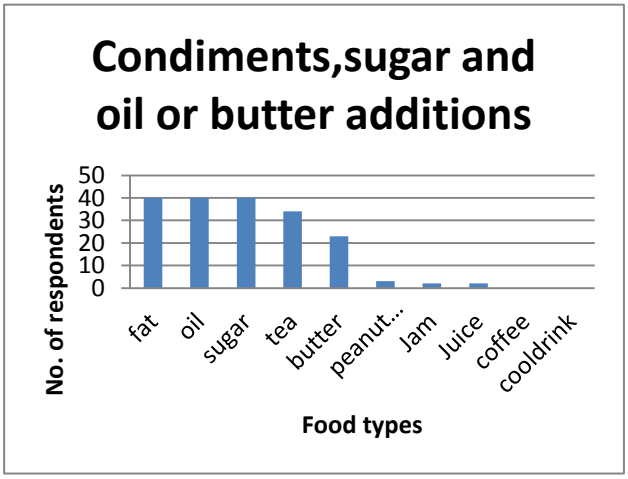
f) Number of respondents who consumed dairy products



Dairy products are consumed by the majority of respondents. Fresh milk and powder milk are the most preferred forms of dairy.

Source: Field data, 2012

g) number of respondents who consumed condiments, sugar, oil and butter additions



Condiments, fats and oils and sugar food groups were merged. Tea was the most consumed condiment, sugar and oil/fat and butter were also consumed by more than half the respondents.

Source: Field data, 2012

5.4 Urban Agriculture

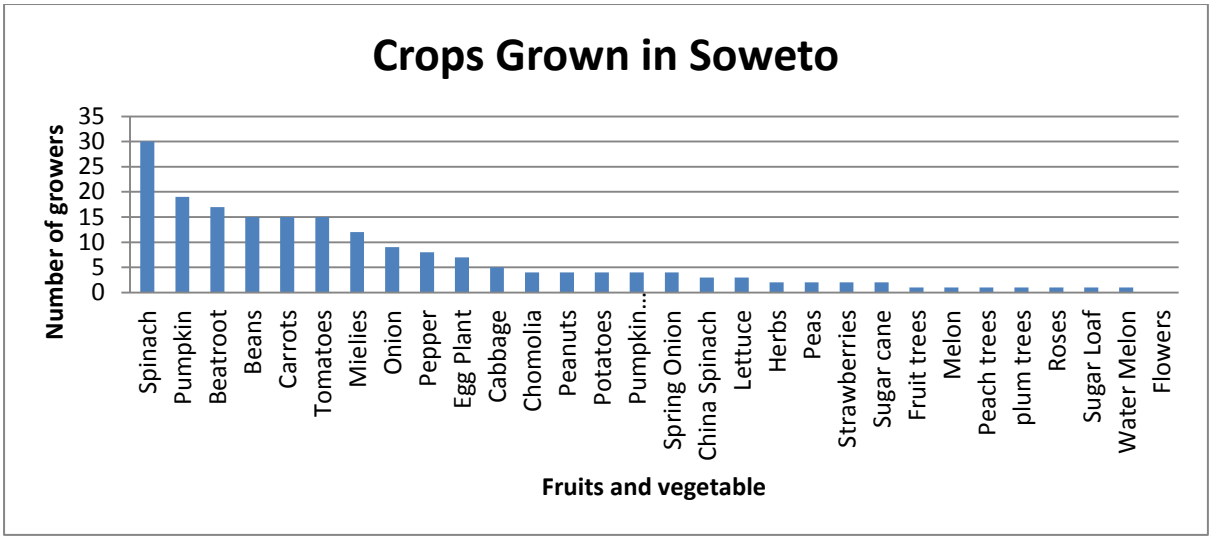
a. Urban Cultivation

The respondents were asked a range of questions to assess the extent of their cultivation. To establish the length of time the cultivators have been farming in Soweto, they were all asked how many years they have been cultivating Soweto. A respondent from Chiawelo said *"for 5 years"* another from Meadowlands said *"for 2 years"* and another from Motswaledi said *"for 6 years*". As the respondents have been cultivating for a long time all their durations were summed up and an average calculated. On average they have been farming for 5 years, the longest time was 18 years and the shortest time was a year. The respondents were then asked to list the vegetables they grew. Then from the list, they were asked to say which of those crops grew best and reliably and which

ones had difficulty growing. The results show that they grow a variety of crops, 31 to be exact, refer to figure 5.2. The crops that are reliable and those with difficulty growing are shown in figure 5.3 and 5.4 respectively. As seen in figure 5.2 there were 4 respondents who grow Chomolia, a vegetable grown in Zimbabwe. These respondents were asked why they grew Chomolia. One of the respondents said "*some of the Zimbabwean people who pass by my field daily after work asked me if I could grow Chomolia for them, they also brought me seeds which I shared with the others*". To follow up, they were asked how and where they sold the Chomolia to the Zimbabwean people. Their response was; "*vegetable hawkers from the nearby taxi terminals came often to buy the Chomolia from us in large quantities which they sell in smaller bunches to the people at the taxi terminals".*

The respondents were all asked if they received any help from their family members or employed people to do some of the work on the fields. Most of the cultivators said that they worked alone on their field, but if there was help, it came from three sources which were cited by the respondents and shown in table 5.5. One respondent said "*I only employ someone to till the soil as it is hard labour and I am old now".* Upon observation during the fieldwork it was found that there were no young people helping out on the fields. The respondents were asked their opinions on why they thought the youth were not involved. The reason most cited was that they youth are not interested in farming.

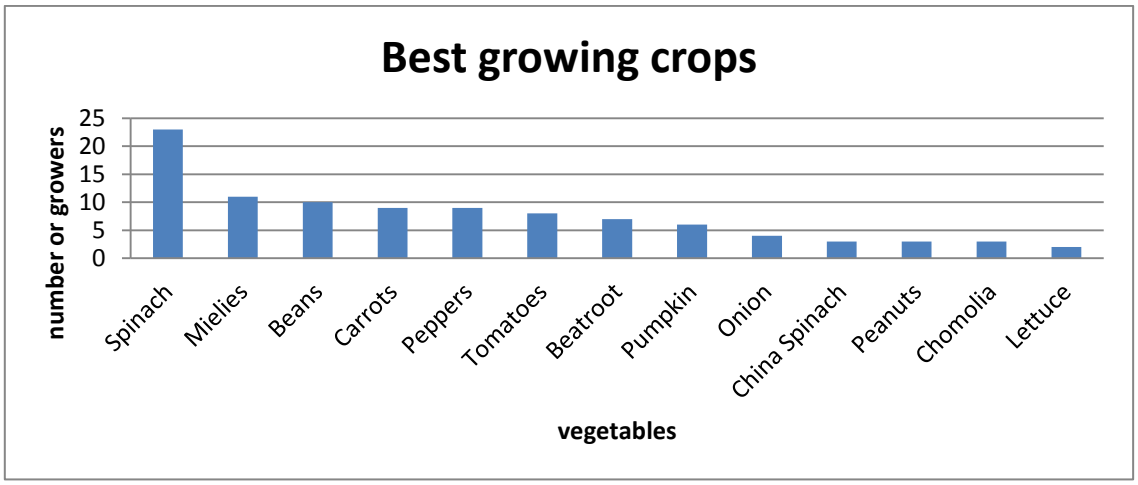
Figure 5.2: the crops most frequently grown in Soweto



Source: Field data (2012)

From figure 5.2 is can be seen that the top three commonly grown vegetables are spinach, pumpkin for its leaves and beetroot. Fruit trees and flowers are not common, though one respondent said they grew flowers to help other plants for pollination and to keep the garden looking pretty**.**

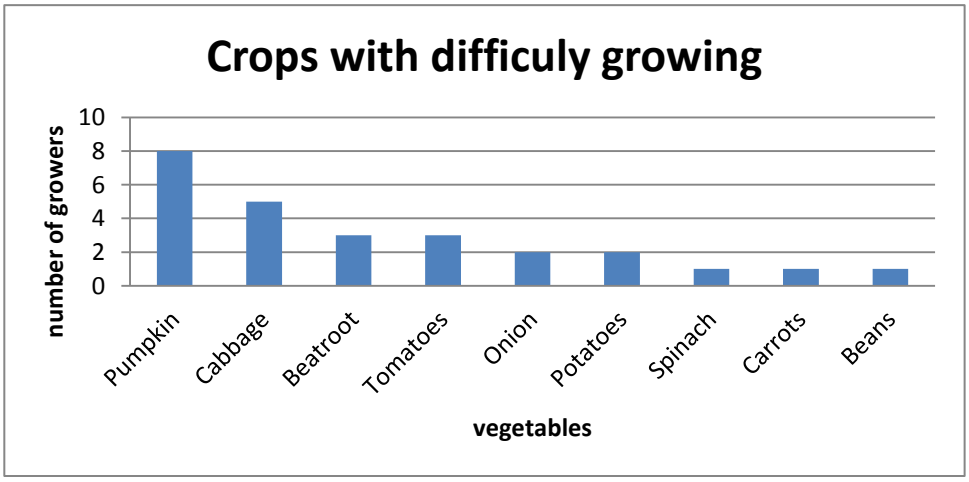
Figure 5.3: Crops that grow best and reliably each year



Source: Field data (2012)

The best growing crop shown in figure 5.3 above are Spinach and Mielies. Refer to figure 5.5 for a look at how some of the plots look.

Figure 5.4: Crops that have difficulty growing



Source: Field data (2012)

These vegetable in figure 5.4 were cited by respondents as those that have difficulty growing. Pumpkin and Cabbage are the top two. The respondents were asked why they thought this was the case. Those who cited pumpkin said the rats eat the pumpkin while it forms, thus they only harvest the leaves, which are called "*morogo*" in Setswana. Those who cited cabbage were unable to explain why it didn't grow well, just that it could not form a head.

Table 5.5: Respondents who received any assistance while cultivating

	Employed someone to help	Never receives help	Received help from household members
No. of respondents	4	21	11

Source: field data (2012)

Figure 5.5: A field during the summer months of planting, pumpkin leaves (Morogo) can be seen as well as maize/mielies, in Meadowlands.



Source: Photo taken in Meadowlands, 2012, by O. Molelu

The respondents were also asked about how often they consumed their vegetables when they were ready to be harvested. The respondents had to choose from four categories: daily, three days a week, twice a week or once a week. Their responses show that 15 respondents consumed their produce daily, 13 consumed it 3 days per week, 10 consumed it 2 days per week and only 2 consumed it once a week. One of the respondents who ate food from the garden once a week said it was because *"there are other people in the yard who help take care of the garden when I am at work, so each family living in the yard gets one turn to pick food from the vegetable garden".* The respondents were then asked about the types of problems they experience that affect the quality and quantity of their yield. The most cited problems experienced by the urban cultivators are: rodents, theft and the cutworm, please refer to table 5.6

Table 5.6: Problems experienced by cultivators and the potential for gardens to save or generate extra money

	Problems experienced by Cultivators			**UA Saves or generates extra money**		
	Rodents	**Theft**	**Cutworm**	**Saves**	**Generate**	**Both**
Number of cultivators	19	10	5	29	4	4

Source: field data (2012)

By observing the sizes of their plots and the quantity of vegetable growing, the respondents were asked about the value of their crops. This was to establish if they were able to generate an extra income from sales or save money that would have been spent of food. Table 5.6 above shows the views of the respondents with regard to the question above. For those whom the garden generates some money, the amount was not significant as selling was only by chance, not daily and the only reliable people to buy are their neighbours. The cultivators who responded that the gardens saved them money or that selling livestock generated an income were not able to quantify the exact amount they saved on a weekly or a monthly basis, as one respondent elaborates: "*I cannot say how much we save because I am unemployed, the money made each day is used to buy whatever is needed in the house at that point in time, some chickens are sold, prices range from R50 to R100 each. Before the rat problem, used to sell more chickens, but not anymore".* Furthermore, one of the respondents who not keen on selling said "*we would rather share what we grow with our neighbours who do not money to food towards the end of the month, because they too are able to help us with other as well, so sharing is better than selling".*

Access to certain resources in urban agriculture is important as it also determines the success and quality of yield. The respondents were asked about their access to five resources: water, seeds, manure, pesticides and gardening advice. They had to select their level access to the resources from three categories: easily obtained, inconsistent and no access. Here inconsistent refers to not obtaining the resource due to no money to buy it when it needed, water cuts and low rainfall. In table 5.7, the respondents' access to resources is shown, note that there were 37 urban cultivators and 3 people strictly doing animal husbandry, thus table 5.7 is based on the cultivators only. From the 37 urban cultivators, the table shows that 28 (76%) responded that they easily accessed seeds, while the remaining 9 (24%) respondents did not have consistent access to seeds. Note that the table shows that for each resource the number of responses is calculated from the 37 respondents separately.

Table 5.7: Access to resources by urban cultivators, divided into three categories of accessibility

	Easily Obtained	%	Inconsistent	%	None	%	Total respon-dents	%
Seeds	28	76%	9	24.00%	0	0	37	100%
Water	22	59%	15	41.00%	0	0	37	100%
Garden advice/information	9	24.30%	5	13.50%	23	62.20	37	100%
Manure/compost	8	21.60%	7	19.00%	22	59.4	37	100%
Pesticides	8	21.60%	3	8.20%	26	70.2	37	100%

Source: field data (2012)

In Table 5.7 above it can be seen that the cultivators do not have equal access to certain resources either due to little or no money to buy them or of infrastructure.

As access to water and seeds are important in UA, those who felt that their access to them was inconsistent were further asked why they felt this way. The respondents cited the following reasons for water: the mielies/maize farmers relied on rain for irrigation, carry water from the yard was strenuous and having pre-paid water meters made them use less water for irrigation. The reasons for easy access to seeds are: buying them from local supermarkets, saving the seeds from each harvest, and even having extra to donate to friends and fellow cultivators.

The respondents who felt that their access to the other three resources (manure, pesticides and garden advice) was inconsistent or none existent were asked why they felt this way. Looking back at table 5.7, for manure and pesticides 59.4% and 70.2% respectively said they had no access. The reason most cited was that these products are expensive to buy. However, those who said the products were easy to obtain or inconsistent said that they made their own manure at home and saved money over a period of time to be able to buy cheap manure and pesticides. Garden advice seems scarce as many of the participants do not know of an organisation that offers this service in Soweto. Only 2 out of the 37 participants had heard of an organisation that offers this service. All the participants were still asked where they would go for help if their plots were not growing well. Many said they would ask their friends whom they garden with while others said its knowledge they received when they still lived in the former homelands of South Africa. One respondent showed his passion for UA by saying: "*I am from Limpopo and farming is my life, I also have a farm in Venda, but my wife takes care of it, even here in the city I work for money as a security guard, and farm on my days off work, to grow more chomolia and sell it",* another respondent said "*I have always loved nature study, I did very well in it at school, that is where I learnt about growing my food".*

b. Urban animal husbandry

There were only 4 respondents who are involved in keeping livestock, below in table 5.8 is a summary the findings. The three respondents who were involved in animal husbandry were asked if they employed herders. The livestock owners do employ herders to look after their livestock and take them to fields nearby. The female respondent only rears chickens, she does not require extra help although she also cultivates. From observation the common livestock kept by the respondents' ranges from sheep, goats cattle, chicken, ducks and pigs. The most common animals that appeared more than once are sheep, chickens and cattle. The respondents were asked about their thoughts on the safety of their livestock and where they kept the animals at night. They responded that safety of livestock in Soweto is important due to the number of thefts they had experienced. One of the livestock keepers sadly said: "*about five years ago all my sheep and goats were stolen one night, about 40 them, it has been difficult to survive at the time but my pension helped me, now I have slowly accumulated more animals and hired a shepherd to guard them at night as well".* The animals are kept in kraals next to the homes of the owner or the herder. These are on open plots of land that the owner has taken over.

The respondents were asked about the grazing patterns of their livestock and what difficulty they experience in getting grass for their animals. The herders and livestock owners said that grazing takes place within a 5km radius of the kraal. Though in one case the herder complained that when the grass is burnt annually it affects grazing as the animals need to travel further for grazing or the owner has to buy grass cut elsewhere and get it delivered to their location. In keeping with the health and wellbeing of animals, the respondents were asked if they utilized any veterinarian services in Soweto. All 4 of them complained about limited access to information and veterinarian when their animals are sick, and some of them cannot afford it to go to the local Society SPCA (Society for the Prevention of Cruelty to Animals). In addition some are scared to go ask for help from the SPCA for fear that the animals may be all taken or killed, one livestock keeper said: *"when the animals are sick I get very worried, I am scared to go to SPCA because they might say all of them are sick and must be killed. This is my livelihood, I cannot lose it".* The woman who rears chickens said, "*I lost about 30 chickens a few years ago because they had a virus that we did know about, when I asked the people at the SPCA, they came and checked and said the chickens had to be put down and that eating them would make people sick".* The livestock keepers generally keep these animals to sell to residents of Soweto. The residents buy these animals when they need to slaughter for sacred rituals, funerals and events such as weddings. As this is a good business, another livestock keeper said: "*I have a van; on the sides it has printed advertising for my livestock business, so*

wherever I go I advertise, outside the Kraal by the main road there is also a board to tell people that sheep and goat are available for sale", refer to figure 5.6

Figure 5.6: Advertising for selling of livestock in Meadowlands, along a main road.



Source: Photo taken in Meadowlands, 2012, by O. Molelu

Table 5.8: Summary of findings for livestock keepers in Soweto

No. of livestock keepers	Animals	Place Kept at night	Problems with keeping livestock	Require support from SPCA
4	Cattle	Special kraal near hostels	Theft	Yes
	Goats	Special kraal near hostels	Excessive rain	Require information
	Sheep	Special kraal near hostels	Disease	
	Chickens	Locked cages in backyard	Rats eat chickens	
	Ducks	Special kraal for ducks	limited space for kraals	
	Pigs	Special kraal for pigs	Winter fires reduce grass coverage for grazing animals	

Source: field data (2012)

In table 5.8 above is a summary of the key findings from interviewing people who keep livestock and chickens.

5.5 Community projects

Community based organizations generally operate from schools in Soweto. The schools have available land that is not being utilized, thus this gives an opportunity for such programs to be carried out. Of the available organizations, 10 of them were approached and 6 agreed to be interviewed. The age ranges of the participants are all similar, all the people involved are over 50

years old, the only difference is in one project where the co-ordinator is a university graduate unable to get employment, the people he works with are young and old. In 4 projects there are less than 5 people actively involved in the project, in the last project there are up to 10 people involved. The project co-ordinators and group members, referred to as respondents from here onwards, were asked why their groups had a few people involved in them. The key reasons cited by the respondents for having less people is as follows; firstly people who had joined before perceived the project as one to make lots of money in a short space of time, forgetting that growing vegetables takes time and patience. A respondent commented saying, "people like quick fixes and shortcuts getting rich without working hard". The people then left the project. Secondly there are problems related to power dynamics and how responsibilities are shared in terms of those who do their work and those who underperform yet expect to be paid an equal share of money generated from sales. One of the old group members from Mzimhlophe gardening for the elderly said: "*some people only want to come when they know it's time for harvesting, but they are never there during the hard work".* Lastly, people drop out of the project because there is no stable income.

The projects have all been started at different times, 2 projects have been operating for just under 2 years, 2 projects have been operating for 5 years and 2 have been operating for 8 years. The projects were mainly started by the school principals; in two cases the project co-ordinators approached the schools with the idea of starting these projects. At each of the schools the principals were asked why they had permitted these initiatives to start in their schools. All the principals said that due to the non-use of school sports grounds they proposed the idea to parents in the school. In one case the food garden was started because the primary school was entering into a competition, the principal elaborates "*we were excited to hear about the competition and because some of the school grounds are not used it was decided to enter the competition and transform the unused area into a food and flower garden and the competition looks at beautifying schools*". The school won the competition and the main competition sponsors donated a hydroponic tent and provided training and start up kits for growing vegetables. The same company has been involved in 3 other school projects providing training and start up kits for the hydroponic tent. The co-ordinators complain that these are difficult to maintain due to limited funds available and there is usually no follow training or assessment down the line after inception. The co-ordinator at Phiri elaborated that "*our hydroponics were burnt down by criminals who wanted to steal the metal structures, now it's expensive to replace them"* while the co-ordinator at Mofolo says "*the structures are good and protect the plants but the chemicals are expensive, so is maintaining the special irrigation system"*. This has led to changes occurring where full hydroponic garden does not occur, the projects plant as they normally

would but use the shelter to protect their vegetables from rats, excessive heat, rain, hail and cold weather conditions. For a summary on characteristics of the groups see table 5.8 below.

The respondents were asked about the types of problems they experienced, these were divided into two categories: environmental and social. The environmental problems were cited as follows: the soils in some places are difficult to work on as they are rocky and infertile. Rectifying infertility is a problem as they cannot afford compost, but try to make their own. In one case the hydroponic tents were allegedly burnt by people who use drugs and wanted to steal the metal structures to sell them and get money to buy more drugs. There are rats that have made holes in the tents and come in at night to eat the vegetables. Lastly in one case where chickens are being reared the participants said "we enjoy rearing chickens but we need protective clothes to wear inside the chicken house, as well as a face mask for the bad smell at times". The social problems are as follows; there tends to be a lack of communication between people working together in projects; there tends to be conflict at times when money has to be shared among project participants and lastly they are over worked sometimes.

The respondents were then asked to say what they felt were the advantages of having their projects in the schools, the community and in their personal lives. They all feel that having these projects at school gives them a sense of purpose, especially the elderly people. The group co-ordinator at Mzimhlophe Gardening for the Elderly said "*too many old people are sitting at home doing nothing. This project has given us a chance to keep active by gardening and look forward to meeting each other 3 times weekly at the school"*. The old people said that it is a form of exercise for them, rather than sitting at home all day. They have a sense of community and cohesiveness and enjoy spending time with people who have a common goal. By having the projects at schools they feel safe throughout the day. Their vegetables are also safe and will not be stolen by passers-by, unlike in the case of people making use of open tracts of land. The co-ordinators said "*having the garden at school has helped in contributing some vegetables to the school feeding schemes that cook meals daily for children who are from very poor households"*. The training that they have received has taught them a lot and they are able to pass on this knowledge to people who want to join them and in some cases in teaching children who are interested in growing vegetables. In 2 cases the vegetables have been donated to a children's home nearby. The respondents also feel that working in a legitimate organization at a school helps them when applying for funding or donation from corporations like Johannesburg City Parks which can provide extra training, equipment and compost. Refer to

The respondents were asked what else they did with the produce, apart from donating it to the school feeding schemes and to some children's homes. They all said that their projects aim to sell a lot of their produce, but the problem is in maintaining a good target market. At the moment all the projects sell their produce to people who pass by and buy, to staff members at the school and to their neighbours. In one case, Phiri Primary school, the school is down the road from a supermarket. They had proposed an idea to provide spinach to the supermarket which would be resold to the community. However the co-ordinator said that due to logistical problems the project did not occur. According to him, these problems were; "*there was no constant supply of spinach and in some cases the quality of the spinach was not consistent*". The project co-ordinator acknowledged these and said he aims to overcome these in future and build a new relationship with the supermarket manager.

Table 5.9: Summary of basic information for each community group and what they do.

Group Name	Length of organization	Whose idea to start the garden	Reason for starting the project	What is grown and what other activities take place
Inkanyezi Stimulation Centre	2008, city parks came to upgrade the park	City parks and Standard Bank, funded too, provided labour and major upgrade	The organisations the provided funding for the project felt a need to have the gardens started.	Spinach, onion, carrots, beetroot. Only growing of vegetables takes place to help in the school feeding scheme and some vegetables are sold to parents and teachers as a form of fundraising for the school
Phiri Primary school	1 year 2 months	Director general	Identified land used on the school premises thus asked the principal.	Spinach is the main cash crop because it's very reliable and sold easily. The spinach is sold to parents and teachers. The group also sells on the streets when yields are high.
Mofolo FET College	1 year	Organisation from abroad was visiting they proposed the idea and funded it as well	There was unused land which the International organisation saw as a good opportunity for the community	Spinach and beetroot because it's in a hydroponic structure. They also breed chickens which are sold to public and to informal traders who sell chickens at their stalls.
Mofolo, near clinic	7 years	The school principal and project funded by ADCORP	Aim to help alleviate poverty, unemployment, supplement school feeding scheme and finally make use of unused school property.	Spinach and cabbage are grown in large quantities. 30% is donated to the schools feeding scheme and the rest is sold to people or taken or home by people working on the gardens. Have won one competition, Bontle ke Buthu
Tshumbedzo Primary	8 years	Started as entry into a competition, but won it.	Competition was for greening schools, Bontle ke Buthu	Tomatoes, China spinach and spinach are grown. They sell to parents and staff members. Enter competitions to get extra money and exposure, and won twice Bontle ke Buthu
Mzimhlophe Gardening for the Elderly	5 Years	The present leader approached the school principal whom gave them permission to start the project	The leader noticed a problem with there being too many elderly people at home not doing anything. He wanted to also help those struggling with food to have a place to grow and get vegetables	Spinach, spring onion, parsley, rosemary, thyme, pumpkin, onion. Usually share the produce, bit priority is given to selling the vegetable to be able to also buy tools and manure. Support group for the elderly after farming activity.

5.6 Food Gardens Foundation

To get a professional perspective on UA agriculture in Soweto, the CEO of Food Gardens Foundation (FGF) was interviewed. The foundation moved their offices to Soweto in 2011 from Parkhurst. Nonetheless, for the 36 years the foundation has been working in Soweto. The organisation employs people from the Soweto, the Eastrand also known as Ekurhuleni, and other parts south of Johannesburg.

The CEO was asked about the kind services the foundation offers to the general public, and what kind of services are requested by people who go there for the first time. The CEO said that when many people come to the foundation, they come seeking for membership. She elaborates; "*membership entitles individuals to discounted prices of seeds, seedlings and constant access to information. Some of the cultivators come looking technical advice as they do not have enough knowledge on gardening and are probably having problems growing vegetables*". The other people who come looking for help from the foundation are those who have recently acquired land and need assistance in beginning their farming business. She further went on to elaborate on the services they provide. They provide training and support for smallholder farmers in the Gauteng area. She is excited about the new courses for 2014 saying; "*FGF will be offering accredited courses and modules at national certificate level for interested people and the youth in particular*". Lastly, the foundation also offers information and training on poultry and livestock farming.

The CEO was then asked if she felt that for the time they have been working in Soweto they have helped the local community in dealing with their food needs and how have they assisted. She responded by saying that the people who have membership have been able to successfully sustain their vegetable gardens. She is also of the view that the older people that had been trained were able to pass on some of this knowledge to their children and grandchildren whom lived with them, thus ensuring a continued tradition of gardening even in the event of the trained person passing away. She also feels that the foundation has helped many people "*to get out of the cycle of being food insecure".*

The CEO was then asked about the foundation channels of advertising. She responded by saying that they highly depend on word of mouth for advertising. However, in recent months she has gone on the local television station that broadcasts in Soweto and on 2 radio stations to talk about the foundation and how people who join it will benefit from the services offered. She further went on to talk about how publishing some of their success stories in the local Soweto newspapers have increased their membership numbers. Lastly she emphasised that "*for the interested youth, we offer training and learnerships for the very dedicated ones to learn more and make agriculture a career".*

With regard to the community projects in Soweto, the CEO was asked about the tools the foundation employs to help projects involved in urban agriculture. She said that there is training offered, though it's not for free. They offer training on basic business skill and ways to record yields and the sold products, basic accounting training. In some cases, she even gives the project coordinators contacts of organisations like food bank and mass mart that may be able to fund them and do business with them. In terms of projects that are new she feels that they first need training to "give them a mind-set change". This training is designed to show them that Agriculture is not a "money market" it requires lots of work, patience, passion and cohesiveness before money can be made.

The last question posed to the CEO was with regard to one of her projects that have been sustainable and successful over the years. She said that her best project is in Welkom. For this project she gathered a group of youths in the area to work on a plot of land. Her approach was to first do the mind-set change training, which had never been done before. According to her *"this prepared them for the long road ahead, and taught them that money is not everything in agriculture".* It also included skills development. Because it was a pre-requisite for each member to have a food garden at their homes, it meant that all the money accumulated from sales made on the farm would be equally shared. Having a food garden at each person's home ensured that none of the participants ever went to the farm to ask for food because they had to use the skills acquired to grow their own food at home. This also ensured that the group never quarrelled over the yield on the farm. In general the group is successful because of the basic principles she instilled at training and because the same skills are used at household level to grow food.

5.7 Conclusion

It is clear from the findings that majority of the urban cultivators included in the study are female while the minority are male, refer to table 5.2. There is a greater percentage of participants, 90% who are strictly involved in vegetable growing, 7.5% who strictly do livestock and 2.5% do both, refer to table 5.2. For all of the people involved UA, the activity is their main livelihood, especially the livestock farmers and the participants who grow Chomolia and are able generate incomes from the activity. Nonetheless, the overall reason that people cited for being involved in UA is due to the high unemployment rate in their households and their social grants not being enough to buy food for the household. It is clear that there is a strong cohesiveness in the community groups, even though problems within the group exist. The findings have also shown that there is a high potential for community groups to grow quality vegetables that can be sold in the formal and informal market. In general the findings have shown the importance of UA in Soweto.

6 Chapter Six - Analysis

6.1 Introduction

In light of the empirical findings in the previous chapter, this chapter will discuss what the findings mean in the context of this research. The findings have indicated a myriad of issues which are affecting the success of the community groups as well as the individuals involved in UA. The main reason as to why the community groups formed and why individuals are cultivating in the urban environment is basically that they are doing it to supplement their diets and have something to fall back on when there is no money to buy food. The motivation for individuals to cultivate is not driven by the need to make extra money but to supplement their diets and that of the household; however the motivation of those involved in community projects seems to strongly be to make quick money from growing and selling the vegetables. Those who have a monetary motivation are the ones who have not remained very long in the business of growing food. Growing food needs all individuals to be patient and driven by a passion to be self-sustaining. These and other issues and links are discussed below in much more detail.

To ensure that there is a clear understanding of the key issues and how they are linked the discussion is structured in a way that will answer the research questions as mentioned in the first chapter which will be informed by the literature. In each section, each research question will be referred to before discussing it. The research questions deal with three major themes of the research; food insecurity amongst urban cultivators and livestock keepers, the extent of UA and its role in generating incomes and saving money, and lastly, evaluating the potential for community projects to be economically successful and sustainable enterprises. During the discussions there will be times when the reader needs to refer back to the findings.

6.2 Food insecurity among urban cultivators and livestock keepers

The field data from the HDDS and HFIAS from the empirical chapter, section 5.3, suggests that the people involved in UA are somewhat not food insecure. Before delving into the food insecurity issue, attention must be given to other matters that influenced the HDDS and HFIAS. The socio-economic features are essential in helping to analyse the food insecurity of the participants.

The findings show that there is a high unemployment rate within the households of the research participants, see chapter 5, section 5.2. The majority of households (29) received one or more social grants from the government. This indicates a high reliance on the grants, as indicated in Thornton, *et al,* 2010, in their study on UA in the Eastern Cape Province of South Africa. The income in the households affects the households' ability to purchase certain foods to meet their daily dietary

needs and nutritional quantities. According to Swindale and Bilinsky, (2006), in poor households, an increase in food expenditure resulting from additional income is associated with increased quantity and quality of the diet. This may be true, yet in the context of this research the statements may not be as accurate. The average score from the HDDS for the 40 households was 6 out of 12 food groups. This indicates that the households are somewhat food secure. However, analysing the exact food types consumed from the 12 food groups tells a different story. Due to the low incomes and dependence on government social grants, household heads or people responsible for buying food, buy staples such as maize meal and rice in large quantities i.e. 12.5kg maize meal and 10kg rice. These foods are bought because they easily fill the stomachs of household members. The staple foods for the households are: pap, bread, rice, spinach, cabbage and chicken. Extras that are considered essential for day to day consumption are teabags, sugar, oil and margarine. This pattern of only buying certain foods due to a lack of resources to buy a variety is a common livelihood strategy identified by Beall (2002). This eating pattern has also been identified by van de Merwe (2011) where he found that the majority of urban African residents in South Africa consumed diets high in carbohydrates and fats; in addition they also consumed high quantities of tea. Until there is a financial transition in the household, the same diet will be followed. The diet patterns change due to the changing economic stance of the household. This means that there isn't enough money in the household to buy enough food due to increasing food prices, low incomes and the high unemployment rate at household level in the urban context.

Pap made from maize meal and bread is eaten on a daily basis, spinach and cabbage are easily accessed and purchased on the informal market while some cultivators eat the spinach and morogo they grow. In addition, cultivators eat other variants of spinach on a weekly basis. These range from China spinach and morogo (pumpkin leaves). All these grow well and are conveniently accessed when there is nothing else to eat with the pap. This evidence supports that of Crush *et al,* (2010) and Richards and Taylor (2012) that urban food production is motivated by household survival rather than commercial income-generation opportunities. The latter will be discussed in the next section.

The evidence in chapter 5 on the HDDS, HFIAS and socio- economic features indicates that the urban cultivators and livestock keepers are able to survive with the resources available to them and make it a priority to always have staple foods in their households. They may not be consuming the recommended amount of protein and vitamin enriched foods from at least 9 food groups, yet they are getting the needed calorific quantities from the pap, rice and bread consumed to do daily activities. However, it can be said that the population under scrutiny is nutrition insecure and not food insecure based on evidence again from the HDDS.

6.3 Generating or saving money from UA

The ability for urban cultivators and livestock keepers to generate an income from the activity is based on the size of their assets. According to the livelihoods framework, it is possible for some assets to outweigh others and for success to occur in the absence of one of the assets, Rakodi, (2002). The findings indicate that urban food production is a supplemental food source, refer to section 5.4. This is with exception to livestock keepers. The reason they keep livestock is because there is a platform that lets them sell individual animals to people who want to buy them. Their largest market consists of people who slaughter chickens, cows, sheep and goats for cultural rituals, weddings and funerals to connect with ancestors, which was also previously practiced during the Iron Age. These cultural rituals have remained within the Bantu language speakers' culture. The slaughter of different animals has different meanings within each Bantu language group; hence it is only done on special occasions. The livestock keepers never slaughter their livestock for household consumption due to its value when sold. Similarly, in the study by Thornton (2008) in the Eastern Cape Province, firstly the people who kept livestock kept it close to their households as a source of eggs and milk and for security purposes, and secondly due to its value commercially, traditionally and culturally. Historically during the Early Iron Age the Central cattle Pattern ensured the safety of the livestock as they were very valuable (Mitchell, 2006). In terms of tradition and culture, they only slaughtered the animals for special occasions or to sell to people who need to slaughter them for their occasions. This follows the practices of the people at Mapungubwe who kept their cattle as a source of wealth, communicating (through sacrifice) and for establishing kinship ties with other groups through brides wealth (*lobola)* Mitchell (2006). The keeping of livestock at a subsistence level has continued for centuries till present day, especially within the rural realm and now in the urban areas.

The above does not apply to those participants who have chickens. Chickens are cheaper and can be slaughtered for household consumption once in a while and others can still be sold. The livestock keepers have a greater platform due to the value placed on their animals to generate money from sales. The evidence to support this can be found in chapter 5, section b. In cases where theft is a major problem, see chapter 5 section 5.5, the livestock owners lose their main livelihood asset much easily which becomes detrimental in the near future. This also affects the livelihoods of the herders too. Theft is a problem that has been mentioned in other studies (see chapter 3) however that was in the case of cultivated crops. In the African studies reviewed livestock was not looked at in too much detail. Theft of cultivated crops and in the case of Soweto, theft of livestock creates a period of stress for both parties (livestock owners and herders), as they do not have another asset or investment to fall back on. However this does not fully apply to urban cultivators. The reasons as to

why urban cultivators cannot or find it difficult to generate an income from selling their produce follow below.

The urban cultivators in Soweto all come from different backgrounds and parts of South Africa, Either their parents migrated to Johannesburg in search of work or the cultivators are the ones who migrated to Johannesburg in search of work and a better life. This form of rural urban migration has formed an integral part of our history following the Land Act of 1913. The evidence in chapter 5, section 5.2 supports the statement above. Historically and presently it is in these rural areas where farming is the dominant way of life, and there are many commercial farms in these provinces too. In Limpopo farming activities are related to fruits, tobacco and cattle. In Kwa-Zulu Natal farming activities are related to cattle, fruit and grain (Clark, 1997). Historically people in these areas, the former homelands of South Africa, grew up surrounded by agricultural activity (crap farming, herding livestock) which was considered a normal way of life to survive in the homelands while one of their parents worked in city. The urban cultivators in Soweto have carried their skills and knowledge from the homelands to the city and are using them as a livelihood strategy, when they do not have resources to purchase food. The evidence in chapter 5, table 5.2, shows that the majority of urban cultivators are over the age of 50, and are using the skills and knowledge received while living in the former homelands to survive in city. The views expressed by the urban cultivators show that for them it is an activity they are passionate about. However, it is a matter of concern to not have observed the unemployed youth helping their grandparents.

According to Thornton, (2008) there is a negative stigma attached to UA amongst the youth. The activity is considered “not modern” by the youth in case studies of the Eastern Cape thus making them “not interested”. It can then be deduced that the same reason above is applicable to Soweto. Food production has become the responsibility of the elderly women. Because they do not get help from household members and due to their limited ability, they employ other people to help them in tilling the soil. This is a way of investing in a quality soil through added labour. Employing other people to prepare the field is common and has been found in the literature, where wealthy women in Ghana hire migrant workers to clear land and prepare the soil (Kiguli and Kiguli, 2004; Obuobie *et al,* 2004). For those who cannot afford this luxury, their yields may be limited as they may not have put in as much labour during the growing season to ensure a surplus and quality yield good enough to sell on the informal market or to neighbours. Analysing this through the lens of the livelihood framework it can then be deduced that certain assets, financial (paying for labour) and social (reciprocity) are key factors here. They have been manipulated to ensure a bigger and quality yield. Without access to financial capital, those poor women depend only on their human capital asset

(themselves) to ensure the natural asset (plot of land) is prepared in time for planting season They have less of an advantage to covering more space especially if they are physically not fit to do so, which will affect the size of their yield at harvesting time. However through sharing of seeds and tools they are able to help each other.

The land available to urban cultivators belongs to the City of Johannesburg municipality and in some cases it was not known who the land belonged to. All the urban cultivators do not own the land on which they cultivate on. This has made it difficult for some to prosper in the past as the municipal authorities would relocate farms to other areas (field notes, 2012). In Chiawelo, the farms used to be inside the Avalon Cemetery along the fence, but due to cemetery expansion the cultivators were allocated land on the other side of the railway tracks that form a boundary between the cemetery and the vacant land. The institution (Johannesburg City Parks) in charge of maintenance and expansion of the cemetery can be considered as one who supports UA. Even after moving the cultivators, land was still allocated to them to continue cultivating outside the cemetery grounds. It can then be argued that not all institutions are driven by development and selfish money making projects, they still consider the poorer people attempting to make livelihoods. There is still a need for more developers to see land use through the eyes of an urban cultivator who feeds their family with food from that piece of land. Land does not only offer monetary value, but an essential livelihood in the lives of urban dwellers that cannot find employment and rely on social grants of others in the household to survive.

Similarly in West Africa women who cultivate in urban areas cannot own the land, though permission to cultivate on the land is determined by their wealth, kinship and social class (Kiguli and Kiguli, 2004; Zambia, 2005). In Uganda women do not have equal access to land as landowners and landlords prefer having men cultivate as they benefit more. Rent is paid in the form of a share of the produce, thus men are preferred land users as they are able to cultivate a bigger land space than women (Obuobie, *et al,* 2004). In Soweto the opposite is occurring where the urban cultivators do not pay any rent for the land they use. Not paying rent means that they do not need to worry about pressures of selling their produce or even using their yield as a form of rent. Not having the pressure to sell produce has also increased the level of reciprocity among the urban cultivators in Soweto; refer to chapter 5 section 5.4. During periods of stress they are able to share with neighbours and fellow cultivators, thus building a stronger bond within their social network.

Not having the pressure to pay rent works to the advantage of the women involved in UA in Soweto. Women carry the responsibility of household sustenance and ensure that all individuals in the household are healthy and well fed. The fact that more women are involved in UA in Soweto, refer

to chapter 5, table 5.2, supports other research findings as indicated in the literature that more women are involved in UA than men (Shledon, 1999; Mbiba, 2001; Hovorka, 2003; Wilber *et al,* 2004). As women are considered vulnerable, especially those who are poor, being involved in UA for them is a key livelihood strategy to remain resilient. This is despite UA being a seasonal activity in Soweto. The fact that in Soweto no rent is paid for land use enables the women to maximise land capacity and use the yield as they please. In addition, the women interviewed were found not to be involved in UA for money, but for providing alternative food in the household especially when they do not have money to buy other types of foods, and because they consider it an activity that keeps them busy during the day. Selling is only considered a bonus for them as they and the men involved in UA prefer to share their produce with neighbours and barter with fellow cultivators.

Selling produce therefore is not a priority because the urban cultivators' yields are not uniform every season and due to the problems related to weather variability, access to water, manure and pesticides quality varies. The weather variability is a minor crisis that affects the yields of urban cultivators all over. When there has been a lot of rain and an increased number of thunder storms, the vegetables are affected by hail which decreases vegetable yields, in addition heat also damages some of the vegetables. This means that only people passing by buy the vegetables, mainly spinach, morogo and china spinach. The soil quality also deteriorates after continues use without the use of manure or compost. The urban cultivators had little no access to manure, therefore it is expected that in the near future their yield will be less and of inferior quality as soil is rarely nourished. Water is a key need for cultivators, especially for those using vacant land which are far from water sources, thus they depend on rain irrigation. Lastly access to gardening advice or information was very low among the sample. This is a clear indicator that the people do not know of any organisations that offer this service and that they have never come across any projects initiated by the local municipality. This is a significant finding as the provincial government plans on establishing some learning centres for people to go to for information in different parts of Soweto. They urban farmers in Soweto depend on their own knowledge and help from other cultivators. This leads to limited growth in the urban farming sector as they cannot have opportunities to grow and make use of new technological implements that can be offered by the local municipality and stakeholders. The last issue raised by cultivators is that of theft and rodents and its negative impact on cultivation in the open fields. The female cultivators have resorted to growing vegetables that grow quickly i.e. spinach and morogo, refer to figure 5.2. These help in the diet supplementation and ensuring there is constantly food in the household therefore decreasing the food insecurity of the household.

The cultivators whom have the potential to sell their produce are those growing Chomolia. Chomolia is not indigenous to South Africa. It is mainly grown in Zimbabwe. The 10% of urban cultivators have established a lucrative market for themselves. By growing Chomolia on their plots of land they have invested great deal of their money, time and energy. They have managed to maximise the potential of their land and constant access to water to generate a seasonal income for them, even though Chomolia grows all year round. The market related growing of Chomolia also assists those individuals in the informal trade sector to expand from not just selling the usual vegetables but to also selling to immigrants residing in Soweto. The informal sector forms a vital part of the micro-economy of Soweto. Not only do the chomolia cultivators' households benefit, but so too do the households of the men and women linked to them in selling the product at the taxi terminals.

6.4 Community Food Garden Projects

The last question looks into the potential of community projects to grow into micro-economically successful enterprises. In the context of this study, a micro-economically successful enterprise is one that is sustainable and consistently grows quality vegetables and fruits that are sold to the public and in some cases supply local retailers. In order for community projects to be effective projects in their communities, the key assets that must be invested in are human, social, natural and financial. It has been argued by Hancock (1999) that the interaction of these assets or forms of capital is essential while social capital forms the glue to keep the people involved together in achieving positive livelihood outcomes. In addition, their common goal to alleviate poverty and provide cheaper and alternative food sources in the community is the driving force behind their success. The same goal is also shared with the City of Johannesburg mayoral council, refer to chapter 3. The community projects in Soweto all aim for the same goal, refer to chapter 5, section 5.5. As a proven testament to Hancock's' (1999) argument on the importance of providing cheaper food sources, two groups, Phiri Primary School and Mofolo FET college have been successful in doing so, see section 5.5.

The CEO of FGF argues that community projects can do better and achieve more. Her argument is correct, yet it is essential that the portfolios of assets the community projects have are assessed. In addition, the external forces affecting their success should also be assessed. It must be noted that in Soweto agriculture is a seasonal activity, with high productivity in the summer rainfall months, therefore in winter there is little or no yield. Involvement of private sector co-operations such as ADCORP and local government (COJ), refer to section 5.5, chapter 5, is short term. However, their short term involvement is an essential kick-start required by these projects to achieve improved food insecurity, reduced vulnerability and increased wellbeing. Furthermore, continuous training is

recommended by the FGF CEO. It has been a matter of concern that many projects that receive cash injections from winning competitions cannot adequately budget, invest in training and additional tools, leading to misuse of funds. This is why the CEO of FGF has designed training modules that are designed to give business and accounting skills, and essentially lead to a mind-set change, see section 5.6, chapter 5.

I argued that communication is vital in this respect. It has been noted by most of the groups that without communication the group project does not operate adequately. The argument again goes back to financial matters; sharing or saving profits, as well as how workload is divided between the people in the group. Leadership is essential in this regard. Leaders need to be able to be fair at all times and rotate the tasks allocated to individuals. This will also ensure that all the people in the group have a myriad of skills that they can use in their own food gardens at home.

The mere fact that some of these groups are able to win national and local competitions means that they have the potential to supply local retailers and restaurants operating from homes. Transport costs affect the price of food; therefore it is argued that having community projects supply small retailers and people selling prepared food from their homes will have a positive effect on the price of those vegetables in those areas and retail stores. The price of these vegetables is expected to be slightly lower than that of food bought further away. In addition the groups will have a fixed market to supply which will pressurize them to maintain a certain level of quality and maintain supply for demands. This will also help them toward becoming micro-economically sustainable enterprises.

Despite the key elements mentioned above, that affect the community groups, the fact remains that these initiatives are helping those involved. When they win competitions it boosts their morale and encourages them to work harder as a unit. This is because winning entails receiving a large sum of money, it is essential that the business skills training and communication skills are utilized to ensure appropriate use of the funds. This simply means investing the money and only sharing a small percentage, using it to improve their work space, purchase tools, repair their hydroponic structures and undergo available advanced training provided by organisations such as FGF. In terms of morale, the people involved have a better sense of belonging and community. They have people they can rely on at all times and have a place to receive extra money and some vegetables to help supplement their diets. It also gives them a platform to share their thoughts and ideas to improve their gardening skills and to ensure that they win more competitions in future.

7 Chapter Seven - Conclusion and Recommendations

7.1 Introduction

This chapter aims to bring together the key findings and the keys lessons learnt about UA in Soweto. This section is divided into three sections. First it presents an overview of the extent of UA and how it helps in preventing the people of Soweto practicing it from being food insecure. The second section is an overview of the role community projects play in their UA activities and in helping the local community while encouraging social cohesiveness. Lastly the third section is a consideration of recommendations for further research and some initiatives that can be implemented with assistance from FGF, other interested stakeholders and the COJ local municipality.

7.2 Conclusion

Urban agriculture is occurring quite extensively in Soweto, with the dominant activity being urban cultivation. The people involved are not as food insecure as previously anticipated; however it was found that they are nutrition insecure. The availability of and access to government social grants has had a tremendous positive effect for the breadbaskets of the poor and the elderly people actively participating in UA. The money enables them to buy basic food supplies while vegetable harvested assist in supplementing their daily dietary needs during the month. For the individuals in UA, there is a social network in which they are a part of where sharing harvests, seeds and information forms the basis of their relationships and ability to survive during periods of shock and stress. The Livelihood framework was effective in guiding the analysis of the activities, comments and perspectives of the urban cultivators and livestock keepers. It has been shown that their major livelihood assets which they value in the order of importance are: social grants, cultivated plots and their friends whom are involved in UA as well. It is also clear that they have not had any institutional support ever since they began cultivating or keeping livestock, as none of them made reference to it. Nonetheless, even if the local municipality may be aware of the situation, it is argued that it is not an illegal activity as none of the participants ever complained about being removed or prohibited from practicing UA in Soweto. The livelihood framework has assisted in understanding the dynamics of UA and the livelihoods of the individuals participating in it in Soweto.

The community projects in Soweto are faced with problems pertaining to a shortage of continuous training programs. In addition there is also a shortage of resources and access to information that will enable them to enter into the formal market and connect with small retailers in the area. As highlighted before by the FGF and the research findings, the community projects have the potential to prosper into micro-economically successful enterprises. The community projects need the

continuous training and guidance necessary to be successful. Nonetheless, the community projects have benefited the lives of those involved. Winning competitions, receiving donations and being a part of a tight knit social network has helped reduce their level of poverty. It has also managed to boost the morale of many of the participants. The pensioners involved still feel important in the community as they are still credited for contributing to the school feeding schemes at the schools they operate from.

The social network in which the people in community groups function is essential in their personal lives. The major feature of community groups is the reliance the people have on the social community in which they exist. Working in a group builds a social investment for the individuals and allows them to rely on each other when things are not going well in their lives. In addition, for the elderly people, it gives them a strong sense of purpose. There are vital institutions that can be lured into the realm of UA through such legitimate units, as organisations and companies prefer to work with bigger groups with the knowledge of helping more people not just one. However there is a need for continued support to ensure sustainability of these units which in the long term enables the people to also have positive livelihood outcomes through UA.

7.3 Recommendations

As noted in Chapter 3, there has been planning taking place at the COJ to try reducing the level of poverty in the city. One of the priority areas is food security. The aim is to reduce food insecurity among urban dwellers through the introduction and proper formalisation of UA into urban policy and development. In addition the Provincial Budget speech of 2014 by Gauteng MEC of Agriculture, Environment, Rural and Social Development re-iterates the importance of reducing food insecurity in the city through urban farming. Money has been allocated to the development of the activity and the involvement external stakeholders such as FGF and those who have funded previous projects and erected hydroponics at some schools in Soweto. From the existing projects that have failed due to lack of ongoing training and development especially in hydroponics lessons need to be learnt and better mechanisms formulated for successful long term projects in the future. It seems that there may be a problem in resource allocation at municipal level following budget allocation by the provincial government, especially considering the sphere of projects in Gauteng. Similar problems to those in Soweto have been experienced in Orange Farm, further south of Gauteng. However, in this area there have been previous interventions from GDARD to give people training and starter packs for urban farming, but no follow up training occurred and some people have stopped farming (Richards and Taylor, 2012). The local government also needs to establish training centres or

facilities for people to go there and ask for assistant. Assistance can be in the form of information, group training, funding and equipment.

As the urban farmers are also stakeholders, before projects are initiated in Soweto there should be communication with the local government officers in Soweto, the urban farmers and the groups operating from schools. It would be helpful if the urban farmers would also form associations. Having formal associations and groups enables the municipal officials to communicate efficiently with the urban farmers and it makes it easier to introduce external stakeholders and land developers into the process. The associations can then communicate their needs to the people willing to offer funding, training and tools to help the urban farmers grow and increase their scope of farming. In essence it is better for the urban farmers to express their needs and the problems they face rather than the decision makers in government assuming what is needed by the people without even communicating with them. Thus it is essential for the local government do their research and find the people who need assistance and then begin strategizing with them (farmers associations).

It is also recommended that FGF attempt to expand their advertising threshold. This can be done by having pamphlets available at supermarkets where cultivators are assumed to buy their seeds. The pamphlets can be strategically placed in the isle where seeds are found. Secondly the subject matter of the pamphlet should inform cultivators about FGF and invite them to join the organisation. It should refer to the benefits of membership to FGF as well. This will assist individuals to expand their social network and get an opportunity to undergo other essential training with regard to UA.

The local councillors in the suburbs of Soweto should also be involved in the promotion of UA. This should also entail them dealing with issues pertaining to the urban cultivators and livestock keepers' resource needs. The resource needs include: adequate water supply infrastructure and access to information and veterinarians for the livestock keepers. Information is vital, as indicated previously, many of the livestock keepers were not aware of any help offered and if it was available some could not afford to go to DPSA or SPCA. The document on livestock keeping in urban areas should be made available in the communities in a shorter format so that the livestock keepers can make use of the services available.

7.4 Future Research Focus

UA in Soweto and in the rest of South Africa is a topic that has not received enough attention from researchers. Studies have been done in parts of the country, including Gauteng, while certain government reports have not been published but have looked into UA. Though recognised as an

essential livelihood strategy to curving the present of food insecurity in the urban areas, more research can be done to discover more of the dynamics at play in the lives of those practicing UA.

I. Firstly research can be conducted to assess the relevance and potential effectiveness of the proposed Agriculture and Food Security Integrated Development Plan (IDP) by the COJ.

II. Secondly, research can be done with the aim of quantifying the number of people involved in UA. Then spatially assess the extent of UA in Gauteng as well as the distribution of the people involved in UA. This would require some GIS work to be able to map out the extent of the activity in Gauteng.

8 Chapter Eight - References

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9 Appendix

9.1 Appendix 1: Sample Participant Information Sheet and Participant consent form.



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Questionnaire Survey to establish the link between urban agriculture and food security in Soweto

Dear Sir/ Madam

I (Obakeng Molelu) am a masters student at the University of the Witwatersrand currently engaged in research on the link between urban agriculture and food security and it role in community development, in Soweto. The aim of this research is determining if the households practicing urban agriculture are food insecure and secondly to determine if urban agriculture can be used as a community development tool. Therefore I need to interview people in Soweto who are actively involved in any form of urban agriculture. After completing the questionnaire surveys, a report will be written documenting the findings and possible recommendations.

I have selected you, as you have a food garden and/or are herding livestock here in Soweto. Your name will not be mentioned in my reports, and your responses will not cause you any disadvantage.

In view of the above, I would appreciate it if you took part in this research by answering the questionnaire I have. Your Participation in this research is voluntary and you are not forced to participate. You are welcome to discontinue at any time during the interview, and this will not be held against you.

Please do not be shy or worried about who might hear your opinions, I will keep your identity confidential, so feel free to be as honest as you can.

The interview should not take more than 20 minutes.

Do you understand what I have said and are you willing to answer these questions now?

Thank You

Obakeng Molelu



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Archaeology TEL: +27 11 717 6503 FAX: +27

Title: Exploring the link between urban agriculture, food security and the role of community development: a case study of Soweto, South Africa

In signing this consent form, the participant volunteering to take part in this study and has read the participant information sheet and fully understands the importance of the study and how valuable their involvement is, and that no remuneration will be given.

The participant is free to withdraw at any point during the interview, and this decision will not be held against them.

Participant Name:_____

Participant Signature:_____

Interviewee Name:_____

Interviewee Signature_____

9.2 Appendix 2: Questionnaire Survey for Urban Cultivators and Livestock Keepers

Date: Start time: End Time: Interview Code:

Section A

1. How many people live in the household?

	No. in HH	**Age of each**			
Males					
Females					
Youth Males 14-21					
Youth Females 14-21					
Children under 13 yrs.					
Elderly above 60 yrs.					

2. How many adults in the household are employed?

	Formally employed	**Casual Work, incl. peace jobs**
Males		
Females		

3. What is the average household monthly total income:

Tick appropriate box			
R0-499		R1500-R1999	
R500-R999		R2000-R2499	
R1000-R1499		R2500<	

4. Is there anyone in the household who receives a social grant from government?

   Yes: 0 No: 1

	Score
Child Grant	
Pension	
Disability	

4. How long have you lived in Soweto? If less than 10 years
    a. Where are you originally from

Section B

1.1 Who owns the garden
    a. How big is it?
    b. What is primarily grown on it?
    c. How long have you been gardening here?
    d. What crops grow best and which crops have difficulty growing?
    e. Who in the household works in the garden?
    f. What tools do you use during gardening?

1.2 Do you own any livestock? If no skip to 2, if yes continue with 1.2
    a. Which animals do you have?
    b. Can you give me a rough estimate of how many you have, of each animal?
    c. Where do you keep them at night?
    d. Where do you usually take them to graze and how often?
    e. Do you experience any problems in associated with keeping animals, especially in the city, and how do you deal with these problems?
    f. Would you like to get any support from govt. or the SPCA, please elaborate

2. How often to you eat food from the garden?
    a. Daily, once a week, more than once a week, but less than daily, a few time a month
    b. In the case of livestock, do you ever slaughter an animal to consume in the household? How often and why?

3. Does the garden save you or generate you extra money? If yes, approximately how much per month?
4. Do you sell what you grow to neighbors or to people on the streets?
5. In the case of Livestock, Does your livestock generate you or save you money, if yes, how much per month?
6. Do you experience any losses due to:

(Pests, floods, drought/water shortage, frost, heat, theft)

7. How is your access to

	water	seed	manure	pesticides	Garden advice
Easily obtained					
inconsistent					
none					

8. Do you know of any Organization in Soweto that offers special services to people who are involved in Urban Agriculture?
    a. If yes, who?
    b. Do you make use of those services offered?
    c. Where are they based

Section C

Household Dietary Diversity Scale

Now I would like to ask you about the types of foods that you and anyone else in the household ate yesterday during the day and at night.

Yes: 1 No:0

Code	Food	Yes	No	Extra detail
A	Any bread, mabele, rice, noodles, biscuits, scones, fatcakes, other food made from millet, sorghum, maize, wheat			
B	Any potatoes and sweet potatoes or any foods made from roots and tubers			
C	Any yellow or orange and Green vegetables			
D	Any Fruits			
E	Any beef, pork, lamb, mutton, chicken or other birds, liver, kidney, hearts and other organ meats			
F	Any Eggs			
G	Any fresh fish or dried fish			
H	Any foods made from beans, peas or lentils			
I	Any dairy products: milk, yogurt, cheese,			
J	Any foods contain fat, butter or oil			
K	Any sugar or honey			
L	Condiments: tea, coffee, sauces, cool drink, juice			

Household Food Insecurity Access Scale

Now I will ask you about your access to food over the period of the last four weeks (the previous month), and how often you may have encountered problems with getting food.

No.	Question	Response Options	Code
1	In the past four weeks, was there ever no food to eat of any kind in your household because of resources to get food?	No=0 (skip to 2) Yes=1	
1a	How often did this happen?	1=rarely (once or twice in the past four weeks)2=sometimes (three to eight times in the past four weeks). 3=often (more than eight times in past four weeks)	
2	In the past four weeks, were you or any household member not able to eat the kinds of foods you preferred because of a lack of resources ?	No=0 (skip to 3) Yes=1	
2a	How often did this happen?	1=rarely(once or twice in the past four weeks)2=sometimes (three to eight times in the past four weeks). 3=often (more than eight times in past four weeks)	
3	In the past four weeks, did you or any household member have to eat a limited variety of foods due to a lack or resources?	No=0 (skip to 4) Yes=1	
3a	How often did this happen?	1=rarely (once or twice in the past four weeks)2=sometimes (three to eight times in the past four weeks). 3=often (more than eight times in past four weeks)	
4	In the past four weeks did you or any household member have not to eat a smaller meal than you felt you needed because there was not enough food?	No=0 (skip to 6) Yes=1	
4a	How often did this happen?	1=rarely(once or twice in the past four weeks) 2=sometimes (three to eight times in the past four weeks). 3=often (more than eight times in past four weeks)	
5	In the past four weeks, did you or any other household member have to eat fewer meals in a day because there was not enough food?	No=0 (skip to 7) Yes=1	
5a	How often did this happen?	1=rarely(once or twice in the past four weeks) 2= sometimes (three to eight times in the past four weeks). 3=often (more than eight times in	

No.	Question	Response Options	Code
		past four weeks)	
6	In the past four weeks did you or any household member go to sleep at night hungry because there was not enough food?	No=0 (skip to 8) Yes=1	
6a	How often did this happen?	1=rarely (once or twice in the past four weeks) 2=sometimes (three to eight times in the past four weeks). 3=often (more than eight times in past four weeks)	

9.3 Appendix 3: Interview guide for Community Projects

Date: **Start time:** **End time:** **Group code:**

Questionnaire for food gardens/UA in schools and clinics

1. How long has the garden been around?
2. Whose idea was it to have this community garden? And why?
3. Do you involve any of the school children in this project?
4. How many people work on the garden? Males and females separately and age range if possible
5. What sort of problems are you faced with
    a. Socially
    b. Environmentally
6. What are the advantages of having the food garden at this school/clinic
7. What is grown in the garden?
    a. What grows best
    b. What has trouble growing
8. What do you do with the harvest, esp. when yields are high, and what happens during a bad growing season?
9. comments

9.4 Appendix 4: Interview Guide for FGF CEO

1. How long has FGF had offices in Soweto
2. Do you employ any people from Soweto and how many
3. When new people come to the offices to seek for help, what are the common requests? Why do you think this is so?
4. Considering the length of time this foundation has been in operation, do you think it has helped the local community in dealing with their food needs? In what ways has it assisted the community?
5. Are there ways in which you advertise to target urban cultivators who do not know about the foundation, is this effective?
6. Are tools that are employed by the foundation to encourage community development through food gardens? Please elaborate.
7. Can you please tell us of any success stories and those that were not so successful and why this was so?

9.5 Appendix 5: Transcripts

Date: 11/11/2012

Location: Meadowlands Zone 9

Interviewer: Obakeng

Interviewee no. 01

Q: How long have you been gardening here?

A: 3 years. I was taught how to garden at home in Bushbuckridge by my granny. I feel that the children in Soweto should be more active, I want to offer Saturday classes for agriculture at a school nearby

Date: 11/11/2012

Location: Meadowlands Zone 4

Interviewer: Obakeng

Interviewee no. 02

Q: Do you sell what you grow to neighbours or to people on the streets?

A: Yes, people from the mini-markets and taxi ranks come buy the chomolia in bulk from me. I started when some of the Zimbabwean people who pass by my field daily after work asked me if I could grow Chomolia for them; they also brought me seeds which I shared with the others".

Q: Do you know of any organisation in Soweto that offers special services to people involved in UA?

A: No. but once there were people who came here to offer help and ask questions, I don't remember from where, and they never came back.

Date: 11/11/2012

Location: Meadowlands Zone 4

Interviewer: Obakeng

Interviewee no. 03

Q: Do you sell what you grow to neighbours or to people on the streets?

A: Yes, I sell to vendors who stock here. Their market is the Zimbabwean people, people like sugar loaf spinach too.

Date: 25/01/2013

Location: Meadowlands zone 10

Interviewer: Obakeng

Interviewee no. 22 (livestock owner)

Q: Where do you usually take the animals to graze?

A: take them nearby, not more than 10km away from home

Q: Do you experience any problems associated with keeping animals, especially in the city, how do you deal with these problems?

A: Theft, 60 of my sheep and goats were stolen. Now I am working toward growth and adding more animals and selling to paying the herder boys. Another problem, when it rains too much I get worried for the animals.

Q: Would you like to get any support from the government or the SPCA, please elaborate

A: animals get sick, but get injections. Yes I would like help. Sometimes I go to the DPSA, but it's too expensive. They used to bring us food, but not anymore

Q: Do you slaughter an animal to consume in the household? If yes, how often?

A: No, Only sell to people, also need to pay the herders

Date: 12/11/2012

Location: Nancefield (inside SPCA property)

Interviewer: Obakeng

Interviewee no. 24

Q: What tools do you use?

A: Use a spade, fork, hose, hoe. I borrow all of them from the SPCA

Q: Does the garden save or generate you money?

A: Not really, people buy a little when they walk past

Q: Do you sell what you grow to neighbours and people o the street?

A: sometimes, only when asked.

Date: 29/08/2012

Location: Phiri

Interviewer: Obakeng

Interviewee no. 25

Q: what tools do you use?

A: hose, spade, fork, how, watering can. The school donated the tools to us

Q: Do you sell what you grow to neighbours or people on the streets?

Yes, people come directly, mostly to buy spinach. Other times I will share with neighbours or friends.

Date: 25/11/2012

Location: Meadowlands zone 9 (Kelekitso Secondary School) school grounds used by individuals

Interviewer: Obakeng

Interviewee no. 29

Q: How long have you been gardening here?

A: Since 1998. I learnt gardening at school when I was growing up

Q: Who in the household helps you?

A: no-one. I sometimes hire someone to till the soil

Q: Do you sell what you grow to neighbours or people on the street?

A: yes, sell to neighbours, for a full plastic bag of spinach its R5

Q: does the garden save or generate an income:

A: Saves a bit

Q: Do you experience any losses due to: pests, floods, water shortage, frost, heat and theft?

A: Yes. Cabbage and spinach are eaten by golden beetles and the rabbits that we found here. For the cut worm, I use sunlight dishwasher in water to spray the vegetable to reduce them.

Date: 12/09/2012

Location: Chiawelo Station

Interviewer: Obakeng

Interviewee no. 04

Q: How is your access to water, seeds, manure, pesticides and gardening advice?

A: We use a hosepipe to get water (piece of land across the road from house), but we do not waste because prepaid water is a problem. For garden advice use own knowledge and ask other friends who help to cultivate.

Date: 30/08/2012

Location: Chiawelo Station

Interviewer: Obakeng

Interviewee no. 06 and 13

Q: What is the average household monthly total income?

A: R1000-R1499, renting outside rooms, that where I get my income

Date: 30/08/2012

Location: Chiawelo Station

Interviewer: Obakeng

Interviewee no. 15

Q: Do you experience any losses due to pests, floods, drought, water shortage, frost, heat and theft

A: Yes. Rats eat most of the mealies, before I used to get 2 big bags of mealies, last year only got half a bag. People who walk through the fields for a short cut steal the mealies as well.

The places where mealies are taken (mill) are now far away, the one in Kliptown is closed. So now we need to pay more money for buses to transport the dried mealies to Limpopo for the mealies to be milled manually.

Date: 30/08/2012

Location: Chiawelo Station

Interviewer: Obakeng

Interviewee no. 19

Q: Does the garden save or generate you extra money? If yes, approximately how much per month?

A: Saves money, it supplements diet during growing season

Date: 30/08/2012

Location: Chiawelo Station

Interviewer: Obakeng

Interviewee no. 20

Q: Do you sell what you grow to neighbours or to people on the streets?

A: I don’t sell because my family eats everything grown here

Date: 16/10/2012

Location: Phiri

Interviewer: Obakeng

Interviewee no. 21

Q: Does the garden save you or generate you extra money? If yes approximately how much per month?

A: sell spinach R6 a bunch. People come directly to buy at the garden. It save money

Q: Do you experience any problems?

A: rats, cut worms inside the soil.

Date: 09/07/2012

Location: Motswaledi

Interviewer: Obakeng

Interviewee no. 32

Q: Who in the household works or helps in the garden?

A: Everyone who lives in the yard helps out, but mostly my father. The we take turns picking food from the garden.

Q: Does the garden save you or generate you extra money? If yes approximately how much per month?

A: yes, saves money. When there are mealies we can eat it all the time without any other meals.

Q: Do you sell what you grow to neighbours or people on the street?

A: Sell morogo for R5, don't sell mealies

Date: 09/07/2012

Location: Motswaledi

Interviewer: Obakeng

Interviewee no. 33 (food garden and keeps chicken)

Q: How long have you been gardening here?

A: Long since 1999, because we used to farm so carried on then we moved to Soweto from the Eastern Cape.

Q: who in the household works in the garden?

A: me and their father. My daughter doesn't like working

Q: Which animals do you have?

A: Chickens, I protect them a lot especially from rats. Traditional chicken take a long time to grow, so I want white chickens so that I can breed them and sell them.

Q: can you give a rough estimate of how many you have?

A: We used to have 45 chickens, but they all dies due to a disease, now only have 6 chickens.

Q: where do you keep them at night?

A: in yard, inside a cage

Q: Do you experience any problems associated with keeping animals, especially in the city, and how do you deal with these problems?

A: Diseases, there is no help. The rats also eat the chicks. Before the rat problem, used to sell more chickens, but not anymore

Q: Would you like to get any support from government or the SPCA, please elaborate?

A: Yes. There is a place in Diepkloof zone 5 where I can go for help. But I do not go cos I do not have money, then the chickens died.

Q: Do you ever slaughter chickens for household consumption?

A: Yes, during the time of the disease, the chickens that were not sick were eaten to avoid them being contaminated and waste

Q: Does the garden and chicken business save or generate money?

A: I cannot say how much we save because I am unemployed, the money made each day is used to buy whatever is needed in the house at that point in time, some chickens are sold, prices range from R50 to R100 each.

Q: do you sell what you grow to neighbours or to people on the streets?

A: No, I exchange with neighbours who grow different things during harvesting. We would rather share what we grow with our neighbours who do not money to food towards the end of the month, because they too are able to help us with other as well, so sharing is better than selling.

Date: 09/07/2012

Location: Motswaledi

Interviewer: Obakeng

Interviewee no. 34

Q: Do you sell what you grow to neighbours or to people on the streets?

A: I only sell when there is a surplus and I also give to neighbours.

Date: 09/07/2012

Location: Motswaledi

Interviewer: Obakeng

Interviewee no. 36

Q: Do you sell what you grow to neighbours or to people on the streets?

A: No, I give those who ask, I sell fat-cakes in the mornings rather.