



**The breadbasket of Cape Town:
Exploring the links between urban agriculture, land use and food security in the
Philippi Horticultural Area (PHA)**

By

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DECLARATION

“I declare that “The breadbasket of Cape Town: Exploring the links between urban agriculture, land use and food security in the Philippi Horticultural Area (PHA)” is my own work, that it has not been submitted for any degree or examination in any other university, and that all the sources I have used or quoted have been indicated and acknowledged by means of complete reference”.

14th December 2018

.....

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ABSTRACT

The breadbasket of Cape Town: Exploring the links between urban agriculture, land use, and, food security in the Philippi Horticultural Area (PHA)

Hunger is more than just a feeling, it is the lack of access to safe nutritious food, which in turn may result in anger towards government, low performance, sadness and a limited will to survive. Urban agriculture has been identified as a source of livelihood for many urban residents and could fundamentally change food insecure cities like Cape Town.

The Philippi Horticultural Area (PHA) is one such place with an enormous amount of potential to assist the City of Cape Town (CCT) to overcome food insecurity challenges. The PHA is the focus of this thesis that aims to determine the impacts that housing and industrial developments in the PHA have had, and might have in the future, on food security in the Greater Cape Town Area (GCTA).

The specific objectives of the study are as follows: (1) To investigate the urban agricultural distribution of the PHA; (2) to investigate agricultural facilitation, people empowerment and the use of land for agricultural purposes; (3) To determine the level of access to food for people within and around the PHA; and (4) To examine the links between the urban agricultural food sector and food production.

Mixed method research was employed, hinging on the Sustainable Livelihoods Approach (SLA) as the conceptual framework. Snowball sampling was used to select 68 participants who were interviewed.

One key finding of the study showed that the PHA had a significant value to the participants, many of whom called the place 'home'. Another finding is that urban agriculture provides fresh food produce to many local residents. In-depth discussions with officials and farmers, both commercial and small-scale farmers in the PHA, revealed that the PHA is a valuable portion of farmland, and contributes significantly towards food security in and around the PHA. With the use of the SLA as the conceptual framework, the study contributes towards other livelihood outcomes dependant on urban agriculture to improve access, availability and stability of food security within the PHA. Although urban agriculture is a minimal contributor to food security in the PHA, there are other benefits enjoyed by low-income communities such as food aid given by farmers to assist low-income housing communities, educational opportunities to enhance small growers in the PHA, small-scale community garden outreach and employment.

Keywords: *Urban food security, Philippi Horticultural Area (PHA), Cape Town, urban agriculture, low-income housing communities, access, availability and stability.*



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Better a small serving of vegetables with love, than a fattened calf with hatred”

Proverbs 15:17 (NIV)

***“Now he who supplies seed to the sower and bread for food will also supply and increase
your store of seed and will enlarge the harvest of your righteousness”***

2 Corinthians 9:10 (NIV)



ACRONYMS

- AFSUN African Food Security Urban Network
- ASDS Agricultural Sector Development Strategy
- CCT City of Cape Town
- CFA Cape Flats Aquifer
- CFS Community Food Security
- CIFSRF the Canadian International Food Security Research Fund
- CSIR Council for Scientific Industrial Research
- CTM Cape Town Market
- DAFF Department of Agriculture Forestry and Fisheries
- DEAT Department of Environmental and Tourism
- DFID Department for International Development
- EIA Environmental Impact Assessment
- FAO Food and Agricultural Organisation
- FDI Foreign Direct Investments
- FFP Fresh Food Produce
- GCP Good Commercial Practices
- GCTA Greater Cape Town Area
- GFSI the Global Food Security Index
- IFPRI International Food Policy Research Institute
- IRF Irrigation Return Flow
- MAYCO Mayoral Committee
- MDG Millennium Development Goals
- NEMA National Environmental Management Act
- NGO Non-Government Organisation
- NPC National Planning Commission
- NSDP National Spatial Development Perspective
- PHA Philippi Horticultural Area
- RUAF Resource Centre for Urban Agriculture & Forestry
- SADC Southern African Development Community
- SAHRC the South African Human Rights Commission
- SASSA South African Social Service Authority
- SAWIP South Africa Washington International Programme

- SDG Sustainable Development Goals
- SFSA Seasonal Food Security Assessment
- SIWI Stockholm International Water Institute
- SLA Sustainable Livelihoods Approach
- SPFS Special Programme for Food Security
- SSA Sub-Saharan Africa
- STATSSA Statistics South Africa
- UA Urban Agriculture
- UK United Kingdom
- UN United Nations
- USA United States of America
- USDA United States Department of Agriculture
- UWC University of the Western Cape
- WFS World Food Security
- WHO World Health Organisation
- WMA Water Management Area
- WPF World Food Programme
- WWII World War 2



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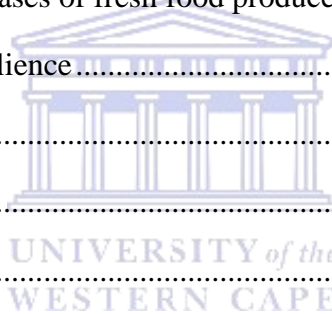
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CHAPTER 1

INTRODUCTION AND BACKGROUND OF THE STUDY

“There are people in the world so hungry, that God cannot appear to them except in the form of bread”

(Mahatma Gandhi, 1869 - 1948)

1.1 INTRODUCTION

City farming is recognised as a financial sector that contributes considerably to alleviating poverty, through repeated agricultural practices. Kelly and Schulschenk (2011) argue that the native nutrition economy involves home-grown food resourcefulness, such as urban agricultural productivity in aid of food security. Furthermore, “urban farms and entrepreneurial gardens are projects that go beyond home consumption and grows produce for the market” (Golden, 2013:6). Therefore, to achieve adequate access, stability and utilisation of food sources to all, an adequate effort needs to be incorporated into the production, processing, marketing and distribution of produce to the urban environment where these urban agricultural areas are situated. These outlined activities are met with several challenges, which cause lessening in over-all achievements. In addition, there are also the challenges of rapid urbanisation and the pressure of access to food sources for all. According to Baharoglu and Kessides (2001), well-organised inner-city expansion can play a key part in contesting nation-wide poverty. This includes, but not limited to, the chance at a better life and even more importantly, a chance at providing a market where diverse businesses and services become the engines of thriving national income growth. “Pressure of urban development is further compounded by a lack of current and accessible information about the viability, sustainability or potential of urban agricultural areas” (Battersby-Lennard & Haysom, 2012:20).

The Philippi Horticultural Area (PHA), described by PHA activists as ‘drought proof’ in appreciation to the temperate climate and easy access to groundwater sources in the PHA, is the most productive horticultural area per hectare in the country. The PHA produces over 50 different vegetables types on approximately 3300 ha of urban farmland, being utilised by both small-scale and commercial farmers in the PHA. “Due to the nature of production and complex links between

the PHA and the food system of the City of Cape Town, the challenge of the PHA is of importance to more than the Philippi stakeholders, but to a far broader group” (Battersby-Lennard & Haysom, 2012: 7). Therefore, the challenges of urbanisation is on the increase in the PHA especially “formal and informal housing development which are competing land demands, pose a threat to the future of urban agriculture within such developments as the PHA” (Report to Economic, Environment and Spatial Planning Committee, 2012:3). However, if properly managed, the PHA can provide entrepreneurial opportunities that could assist in alleviating poverty and accessibility to food, and create a food and water secure environment in the CCT.

1.2 BACKGROUND AND RATIONALE TO THE STUDY AREA

The PHA is approximately 3,300 hectares of farmland situated in the Cape Flats in the City of Cape Town. It is surrounded by concrete structures, mixed land use opportunities and increasing housing development, which are all current pressures on this fertile urban agricultural ground. Golden (2013) indicates that “City farming is not new or geographically isolated, it is crucial in addressing the challenge of city food security”. Urban food security has become a growing challenge and concern that needs constant attention. “It is widely recognised that although natural growth in the population plays an influential role, rural to urban migration is also a significant contributor towards urbanisation” (Masika *et al.*, 1997:6).

Generally, “urbanisation and urban poverty can, to some extent, reflect active rural–urban migration (...) because cities offer better opportunities for individuals to improve their welfare” (Baharoglu & Kessides 2001:7). In the inner-city environment, “poverty and vulnerability refer to the risk of falling into poverty and can be related to commoditisation or the reliance on a cash economy” (Baharoglu & Kessides 2001:7). Therefore, “urban poverty is strongly linked to purchasing power” (Lekganayne-Maleka, 2013:3) and social security. In many urban cities, as with the PHA, much of the open spaces are currently being used for development, leaving less room for urban agricultural opportunities.

Consequently, more people are potentially left unemployed, which increases the risk of urban poverty and a lack of access to safe nutritious food. This process of urban development can slowly create a decline in purchasing power to the urban poor. A recent study of the PHA conducted under the direction of the African Food Security Urban Network (AFSUN) (Battersby-Lennard & Haysom 2012:10) endeavoured to link the information by developing a reference point for food

insecure families in nine municipalities in South Africa. The result of the AFSUN study included a bigger understanding of how food was accessed, pro-actively involving small-scale and commercial urban agricultural farmers, and underlining the importance of small-scale and commercial farmers and their valuable contribution to food security in the built-up environment. The PHA is currently sandwiched between city and suburb. “In addition, housing developments are currently earmarked for the PHA” (www.futurecapetown.com, 2017), and there already exist some business expansions and distribution centres within the PHA. Industrialised development has the potential to shrink the urban agricultural landscape of the PHA by minimising urban agricultural land value and expanding industrialised and housing development on fertile agricultural soil.

The principle reason for the success of the PHA as an agricultural achievement is the underground water source or Cape Town Aquifer (CFA). The aquifer makes the PHA irrigation completely free and natural and builds resilience to any drought conditions. Crops grown in the PHA are sold predominantly at the Cape Town Market, spaza shops, local shopping centres and street corners. Crops grown in the area stabilise food prices in Cape Town, with 1/3 of the vegetable market coming from the PHA, and with a 5-time annual harvest (www.futurecapetown.com, 2017). “Urban agricultural productivity of the PHA have been assisting in alleviating poverty, food security, and managing urban agricultural land use and has been noted to have significant management challenges and urbanisation pressures, most notably competing land demands for housing” (Report to Economic, Environment and Spatial Planning Committee, 2012:3). The PHA is currently sandwiched between city and suburb. Further pressures on the PHA are linked to the current housing developments earmarked for the PHA in the near future, and the already existing business developments and distribution centres in the PHA.

The process of urbanisation of the PHA is slowly creating a decline in purchasing power to the urban poor. The most recent study of the PHA was conducted under the direction of the AFSUN. It attempted to bridge the knowledge gaps in developing a baseline for food insecure households in nine cities in South Africa. The AFSUN study was done to lessen the food access gap and to pro-actively involve small-scale and commercial urban agricultural farmers to capture the importance of urban agriculture in the PHA. The AFSUN study also showed the significance of small-scale and commercial farmers and their valued role to food security in this urbanised and trade location. Development has the probability to shrink the inner-city agrarian landscape of the

PHA by minimising the urban agricultural land, taking up valuable fertile agricultural soil, urban agricultural productivity of the PHA and has contributed to alleviating poverty, food insecurity, and allowing farmer's to manage urban agricultural land use in the PHA (under the National Environmental Management Act of South Africa). The urban population in areas such as the Greater Cape Town Area (GCTA) of the Western Cape have enormous challenges in accessing safe, nutritious and affordable food.

Battersby and Haysom (2012) note that evaluating the worth of the Philippi Horticultural Area not just as a food production perception raises two key questions: how valuable is the PHA to the over-all food system of Cape Town? and who are the beneficiaries of this portion of city farming? Industries such as urban agricultural trade, formal and informal trade in the PHA can actively improve access to food for the urban poor around the PHA, predominantly those situated within walking distance of the PHA such as Manenberg, Hanover Park, Ottery and Mitchell's Plain. This simply implies that industry related intervention would play an active role in contributing to the reduction of urban poverty and urban food insecurity in the PHA. However, the value of urban agriculture as a key role player in urban food security and urban food production in Cape Town should be fostered by building relationships through sustainable practices. The PHA has been earmarked for rezoning since the public and socially constructed demands by farmers and activist on saving the PHA in 2013. The response by the Mayoral Committee (MAYCO) noted during their meeting held in November 2012 that "MAYCO considered and turned down an application for an amendment to the then recently approved Cape Town Spatial Development Framework to alter the urban edge line and permit a change of designation from 'agriculture areas of significant value' to 'urban development' for an area of 281 hectares in the south-west quadrant of the PHA" (Future Cape Town, 2013).

The concern persists that most of the development around the urban edge contributes to heavy traffic. This includes supply chain express through and around the PHA, the newly developed MyCiti bus route along the recent housing development off Stranfontein Road and the creation of two new shopping malls. One of these shopping malls is operated and managed by Pick n Pay and is less than 2.5km apart from the other mall operated and managed by Shoprite (Lansdowne Corner). This clearly shows the lack of interaction between the informal and formal business sector. "Despite the fact that 60% of the fresh produce produced in the PHA sold at these supermarkets is grown in the PHA, the calls for urban development increases the pressure on this

urban agricultural production” (Battersby-Lennard & Haysom, 2012:20). Although housing development in the PHA has been brought to a halt, other so called ‘minor’ developments pose a definite threat to the PHA, since these ‘minor’ developments are on one of the PHA’s biggest farms commercially owned and fresh food produce market, Dew Fresh. “Continuous debates in the media, a Facebook poll, and constant public participatory meetings have brought attention to the issues around the future of the PHA. In response, a formal study was conducted which underpinned the importance of the PHA as a fundamental part of the food market sector” (Battersby-Lennard & Haysom, 2012:20). Furthermore, the study led to the need for assessing the main inputs of the PHA as a fully operated fresh food produce sector that could in turn become part of the over-all food system of Cape Town. With these two perspectives in mind and the development of the Mycity bus route into the area as well as ongoing informal settlements within and around the PHA, it has become important to look at this development sector as an issue and view it holistically rather than section by section. Although arguments around the PHA and its importance have brought some significant attention to the problem of, and debates around further development of the PHA, the research gap that this study aims to bridge is the opposed perspectives of development or design.

On the one hand, the PHA is under continual pressure from CONSOL Glass for the very fertile soil for the manufacturing of glass and glassware products. On the other hand, the fertile soil in the PHA is required for agricultural purposes as it plays a significant role in the greater food system of Cape Town and possibly South Africa. A counter argument for the demand to continue development is that the PHA forms a major part of the informal food economy in Cape Town. In case a decision is made that this portion of land should no longer produce fresh food, the formal economy would suffer a deficit of their normal productivity since the informal sector forms a very important part of the food sector (AFSUN 2016:9).

According to the AFSUN (2016) [report], while formal agri-business has come to dominate the production, processing, retailing and marketing of food, the informal food retail economy has shown considerable resilience. This thesis, therefore; seeks to contribute towards current academic conversation about the PHA and its fundamental role as an agricultural community. An increased visible pressure, through constant debates, compound the need for bridging the gap of knowledge over land issues and the status given to the land. “Making hasty decisions on the future of the PHA has far greater implication than just the lessening of land, in land value, but more so on the

food system dependent on the output at market level, with both formal and informal trading. Most people living around the PHA have access to food through informal markets” (Battersby, *et al.*, 2014). However, it should be considered whether the complete removal or change in use of land within the PHA would affect access to food and economic viability of the local population. . Strategically capitalised land has been a major part of conflicting perspectives throughout the PHA due to the need for additional information in conjunction with the already existing evaluating factors around the PHA.

1.3 PROBLEM STATEMENT

A housing development was constructed on agricultural land adjacent to PHA in 2013, with plans to extend the housing development further, along with the industrialisation of certain areas within the PHA. Over time, the agricultural industry expanded into sensitive natural ecosystems, making use of water and soil in an unsustainable manner. “Despite the use of advanced technology for agricultural production, the current food systems have failed to ensure food security for the growing global population” (Foley *et al.*, 2011:337).

Another fundamental concern is the rapid growth of shopping centres around the PHA, and their contribution towards making food safer, accessible and available. The concerns are related to the fact that this development will lead to considerably lower agricultural productivity, and higher food prices for the growing population. The question therefore arises as to what impact development on the PHA has had and might have on the future of urban agriculture, and food production and distribution within the GCTA.

Although previous studies have not specifically taken on the food security concept to enhance or broaden the notion of the PHA as a place that could lessen food-scapes in the Western Cape, it has become extremely important to place a greater emphasis on the concept alongside current studies that has been completed on food security in the GCTA.

The overarching idea is that more road development will allow better access to mainstream agricultural areas within industrialised zones. This does not necessarily place the emphasis on environmental management since food production has been the primary role of the area. On the contrary, although better roads and infrastructure are much needed, development may also

remove the vitality and productivity of an area. Fundamental “transformation is required, specifically within the agricultural industry, to ensure that this destruction will cease” (Van Vuuren, 2016:16).

1.4 RESEARCH OBJECTIVES

The main aim of this study is to determine the impacts that housing and industrial developments in the PHA have had, and might have in the future, on food security in the GCTA. It also aims to investigate and examines the following:

- the urban agricultural distribution of the Philippi Horticultural Area (PHA);
- agricultural facilitation, people empowerment and the use of land for agricultural purposes;
- the level of access to food for people within and around the PHA; and
- the links between the urban agricultural food sector and food production.

1.5 RESEARCH DESIGN AND METHODOLOGY

A social research approach was followed in this study using the conceptual framework of Sustainable Livelihoods Approach (SLA). “SLA evolved within the context of the International Development Approach by which development practitioners were seeking ways to maximise the effectiveness of their interventions to help the disadvantaged” (Morse *et al.*, 2013:5). SLA is a diagnostic tool where a conceptual framework is provided to accumulate concrete analyses and suggestions for interventions.

Thus, relying on a social research approach will allow the use of both methodical and diagrammatical research tools. Principles guiding the research questions are interviews and participants’ observations. The complexities surrounding poverty, and access to resources and food will be considered. SLA is predominantly a people-centred approach that follows multiple strategies across sectors and emphasises the notion of sustainability. As cited in Morse *et al.*, (2013), “The livelihood approach is an important actor-orientated perspective in development studies, including geography of development, which strongly influenced development-orientated research and development practice” (De Haan, 2012:347).

The interviews were conducted with:

- 10 small-scale and 10 commercial farmers in the PHA;
- 68 participants from informal settlements in the PHA;
- One official from the City of Cape Town (CCT) and one from the Department of Agriculture Forestry and Fisheries (DAFF);
- One representative of the Epping Fresh Food Produce Market, one representative from Spar and one from the Pick 'n Pay Distribution Centre, representing the food distribution industry;
- Key role players and stakeholders within the PHA, such as Civic Association members and PHA activists.

A mixed method research approach was employed in the data collection process. This approach was used as a lens to better understand the surroundings and the people within the PHA as well as to view the study from several different perspectives.

1.6 ETHICAL CONSIDERATIONS

For the period of this study, the research followed the University of the Western Cape's Procedures and principles regarding ethical considerations of the study which considered predominantly during the interview processes.

Orb *et al.*, (2001) noted that moral subjects are present in any kind of research. This study considered the situation and recognized the sensitivity of research participants. This is because many of them might have been previously unemployed, have experienced extreme hunger and the feeling of not being able to earn enough income to care for their families. Therefore, it was essential to consider the vulnerability of the participants and ensure their ethical anonymity.

The following ethical considerations guided this process.

- Participation was voluntary meaning that participants were not being coerced to take part in the research. .
- Anonymity and informed consent were applied during the data collection process with all participants.
- No embarrassment, harm or risk would be caused to the participants during the research phase.

(Adapted from: Guidelines for Research Ethics in the Social Sciences, Law and the Humanities, 2006).

1.7 CONCEPTUAL FRAMEWORK AND LITERATURE REVIEW

The conceptual framework is described and a review of relevant literature is provided in Chapter 2. While most literature focuses on agriculture in urban and rural environments, much of the limitation to urban agriculture is by far the significant scarcity of plots and land availability. “City planning generally leads to the development of unused spaces that are ineffectively managed” (Woolley, 2003:51). With both possessing a common interest in practice, urban development is hampering the long-term existence of urban agriculture in the urban area. Although urban agricultural production feeds into the commercial sector such as formal and informal markets as well as supermarkets and fresh food produce markets, purchasing power to the poor is lost which leaves a legacy of lack of access and poverty. “While poverty was conceived as a lack of sufficient income needed to buy a bundle of goods to guarantee the survival (or minimum standard of living) of a person, food insecurity is implicitly assumed to be a sub-category of poverty (often referred to as food poverty) such as a lack of sufficient income to buy the amount of food required for survival at the required condition” (Burchi & De Muro, 2016:11). This makes it difficult for the poor to afford food at affordable prices, especially those dependants on the South African Social Service Agency (SASSA). According to FAO (2013), “interest in food security began to take shape during the Hot Springs Conference on Urban Food Security by the Food and Agricultural Organisation” in the United States of America in 1934 (Weingärtner, 2004). The culmination of debates gave rise and recognition to the human right to food. “Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control” (Article 25) Human Rights Declaration.

1.7.1 Conceptual framework

The conceptual framework for this social study hinged on the Sustainable Livelihoods Approach (SLA) of Shelton and Cohen (1998). The methodology applied in SLA is to seek intervention to

assist the disadvantaged (urban/rural poor) to comprehend their situation, rather than finding ways to evoke the current situation through rigid ideologies.

To achieve balance between researcher and researched, there are methodical steps to follow rather than just authenticating statistics gathered. According to the Handbook on Guidelines for Research Ethics in the Social Sciences, Law and the Humanities (2006), SLA is a guided theory that focuses on building theories that are testable, seeks to explain phenomena, and allows prediction to be made that can later provide abstract tools that will subsequently inform the research. These will then allow the accumulated information to build into previous research. This approach will also facilitate an assessment of the level of poverty in the PHA and ascribes the relevant tools needed for the reduction of poverty and inaccessibility to food. Morse *et al.*, (2001) argues that in spite of the failure of households, probably through a lack of chance, to better their conditions over time or to sustain themselves through challenging times, the need to understand the livelihood strategies of the poor or low-income housing communities will be better understood with the SLA.

Although many changes have occurred in South Africa since 1994, poverty is still rife and many households struggle to obtain the bare minimum to sustain themselves. With urban populations increasing, many cities cannot keep up with providing enough resources for the population growth. This results in “a decrease in urban shelter and security of tenure, backlog of delivery of basic services, increasing inequality and segregation, degradation of the urban environment, and increase in poverty, malnutrition and food insecurity” (van Veenhuizen & Dason, 2007:12). Therefore, it has become captivating that development in the PHA has not taken the poor who live in the PHA into account. According to Krantz (2001), the SLA is complex and often misunderstood. However, it is invaluable in informing development and project planning at different scales and in strengthening and monitoring the effectiveness of development initiatives, especially in communities at risk. SLA is also a form of conceptualisation of putting theory into practice. It is also regarded as a relevant tool for evaluating and monitoring situations and/or areas like the PHA.

1.7.2 Urban agriculture and urban poverty

Burchi and De Muro (2016) state that “food is a basic need, probably the most basic need of all”, and to some the very definition of a “basic right” (Burchi & De Muro, 2016: 12). “The challenges

between rural and urban centres vary, thus the potential solutions required will also differ” (Crush & Frayne, 2010:10). Agricultural operations came under the spotlight considering events that may impede the growth or continual existence thereof “unregulated urban farming leads to discretionary treatment and use of waste by farmers” (Smit *et al.*, 2001:26). Developing urban agriculture is a resource by which poverty-stricken communities can be uplifted.

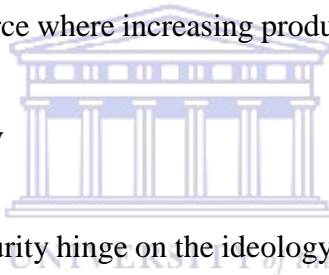
Food security is not just an access issue but also a place to grow food to gain access issue. According to Crush and Frayne (2010), “urban agriculture is increasingly celebrated as playing a significant role in promoting food security, income opportunities and economic growth in developing countries”. Frayne *et al.*, (2014) suggest that there are many different economic constraints that create the push and pull factors for food security and managing a city’s directives towards food security. Whereas Battersby (2016) remains constant in arguing that local food economies can construct better ways forward in competing factors for food security. There is a significant effort put into developing the economy including the smallholder farmers in the greater economy for the country’s economic good (Battersby:2016). “However, reports that efforts to incorporate smallholders into supermarket supply chains have been largely unsuccessful” (Van der Heijden & Vink, 2013:70). There has also been increased vertical integration within the food system, with large companies (both supermarkets and large processors) controlling all aspects of the food value chain. This has left the urban poor deficient in gaining market access to sell their products. This, in turn, has led to a proliferation of debates on issues of access to urban food. “While recent government policies and programmes such as the Department of Trade and Industry’s Industrial Policy Action Plan and the Department of Agriculture’s Agro-Processing Strategy have sought to increase the participation of small and medium agro-processors in agro-food value chains, there is little evidence to suggest that they will be successful in the absence of stronger regulation of the system as a whole” (Battersby, 2016).

“The far-reaching liberalisation of food insecurity has not yielded the desired policy outcomes, in that the agricultural value chain appears to be still largely characterised by anti-competitive outcomes, including high concentration, high barriers to entry, concentration of ownership, vertical integration, as well as anti-competitive behaviour in the pricing of food. These have profound consequences for the welfare of the poorest households given the importance of key staple foodstuffs in South Africa. Further, the highly concentrated and vertically integrated market structures of the industry may

ultimately hinder constructive responses to a more developmental state approach including increasing participation in the sector”

(Competition Commission 2008: 4).

“The urban poor are often income and food insecure, and urban poverty is a distinct problem caused by rapid expansion/population growth, of which heavy strain has been placed for the economy, as well as employment opportunities” (Matsila *et al.*, 2013 & Maxwell & Zziwa, 1992). Causes of food insecurity are driven by a multitude of complexities, which in turn disturb the accessibility, availability and use of foodstuff to the urban population. World food security is largely concerned with world food inflation. Matsila *et al.*, (2013) argue that there is a need for the right balance between food prices (farmers’ incentives) and food access for the poor. The PHA has equally been placed under pressure over the last decade, as development has been an encroaching instability towards the future production of food produce in the area. “Although existing underperforming agricultural landscapes are addressed, urban landscapes are also currently an underdeveloped resource where increasing productivity is seen” (Woolley, 2003:51).



1.7.3 Food security and poverty

Previous investigation on food security hinge on the ideology that food security and poverty are a rural phenomenon, with urban food security largely unnoticed and little attention given to urban centres. World food day on 16 October 2015 highlights that although there is still a great need to recognise that all people always still need to gain physical and economical access to food, in most regions of the world, hunger and poverty rates were halved between the years 1990 and 2010. In addition, the Millennium Development Goals (MDG) indicate that by fulfilling one of the goals outlined, hunger could be eradicated or minimised within a stipulated timeframe.

Poverty is not just a rural condition. Urban settings are equally affected when much of the rural population flock to urban centres in search of employment, better housing, access to food and better healthcare. Sen (1999) argues that the cause of food deprivation is not a shortage of food, but the uneven distribution of access to food. The use of agricultural land delivers good prospects of agricultural production alongside ecosystem services, which in turn serves as a benefit for both. An agricultural ecosystem has the potential to provide forage and bio-energy which are resources needed for human well-being. “Traditionally, agro-ecosystems have been considered primarily as

sources of provisioning services, but more recently their contributions to other types of ecosystem services have been recognised” (Power, 2010:2561). (Figure 1.1).

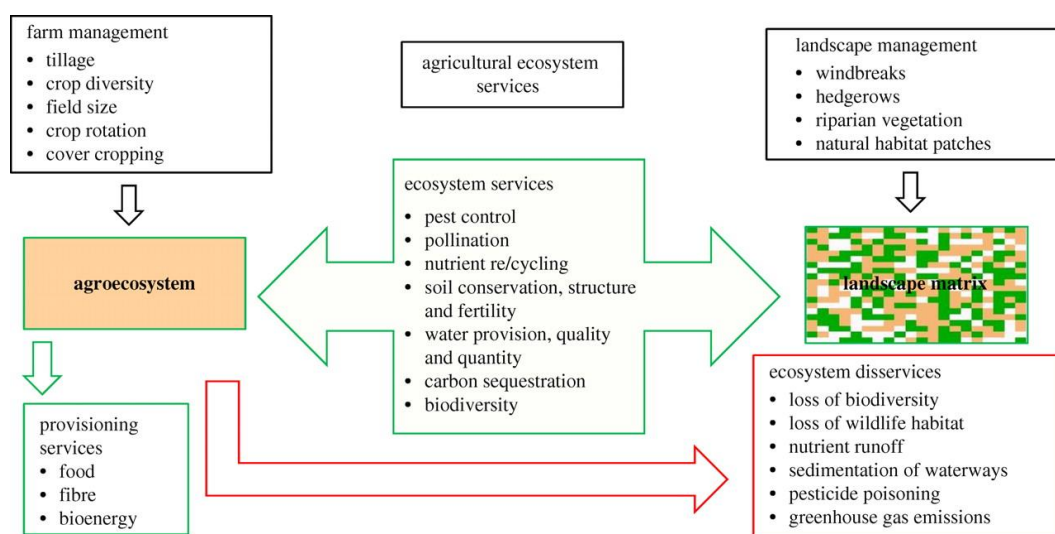


Figure 1.1: Ecosystems service and agricultural trade-offs and synergies (typologies).

While this trade-off is taking place in trying to balance the agro-ecosystem, other more prevalent real-time threats are taking place in the shape of development, such as roads, housing or the ever-dominant industrialisation of agricultural plots. “Agro-ecosystems can provide a range of other regulating and cultural services to human communities, in addition to provisioning services and services in support of provisioning” (Power, 2010:29/59).

South Africa’s primary source of access to food availability, such as fresh food produce, remains predominantly a cash crop produce, with price hikes affecting both the urban and rural dweller. Despite the fact that the urban poor spend the vast of their earnings on food, supermarkets are not making it easy to gain access to food. To the policy-makers and the select of the humanity, “urban commercial marketing systems are beyond the reach of most of the poor” (Leybourne & Grant, 1999:110).

Improving access to food globally would have the top down effect that ultimately will change the perspective for the less privileged or for those who are food insecure. The Food and Agriculture Organisation of the United Nations (FAO, 2013) indicates that The State of food insecurity in the world presents updated estimates of undernourishment and progress towards the Millennium Development Goals (MDG) and World Food Summit (WFS) and hunger targets., All this amidst the existing food security challenges of developing countries. However, food security will not be

possible unless more attention is given to the fact that agriculture is one of the biggest contributors to ensuring that these targets are met. The FAO (2013:6) also suggests that “despite progress, however, the number of hungry people in the world is still unacceptably high: at least 805 million people, or one in nine, worldwide do not have enough to eat” (FAO, 2013:3). Global trends in hunger reduction mask disparities within and amongst regions.

1.7.4 International food debates

Population food security needs to be viewed holistically. To do so, “it is necessary to comprehensively analyse the four dimensions of food security” (FAO, 2013:6). Internationally, sub-Saharan Africa remains in the spotlight with regards lack of progress to alleviating poverty, lethargic economic income growth, and infrastructural deficits hampering distributional channels. The Canadian International Food Security Research Fund (CIFSRF) is a programme of Canada's International Development Research Centre which supports research into the food security challenges facing communities in Africa, Asia, Latin America and the Caribbean” (African Green Revolution Forum, 2014). The research involves collaborative efforts between researchers from Canada and developing countries. “Africa's population is expected to rise to 2.4 billion by 2050 and agricultural production will have to increase by 26%” (African Green Revolution Forum, 2014).



Food aid has had very harmful effects towards the poor although it is viewed as a much-needed resource. The fight in securing food resources has become somewhat of a deficit to the recipients and to some extent has made dependents on food aid vulnerable (Ahmad, 1991:2). This interaction between developed and developing countries appears simply as efforts in aiding the poor, however; it has become somewhat of an underscore (discussed later). Most African countries have been dependent on agriculture as their formal source of income. For instance, in Zambia about 97.4% of rural households are engaged in agriculture” (Agricultural Sector Development Strategy, ASDS, 2010). Most African countries fall short of meeting their food security targets. Equally, food security for most African countries has taken on an urgent plea on a global scale, therefore; the gap between urban and rural needs to be closed. Of the countries defined as low-income and food-deficient by the FAO, 43 are in Africa. The reaffirmation by the WFS held in Rome in 1996 re-iterated that everyone has the right to safe and nutritious food, however; chronic hunger is still a widespread phenomenon. Hinging on what seems to be the main source for the lack of access

are the misguided anomalies on policies upon which developing countries depend for their well-being and crop outputs.” Food needs vary, and levels of food security in any given region and amongst countries change dramatically” (Ahmad, 1991:4).

1.8 STRUCTURE OF THE STUDY

Chapter one: Introduction

This Chapter outlines the research strategy. It also introduces the research gap which is to highlight debates and diametrically opposed perspectives of urban agriculture in the PHA and its food access challenges that could alternatively have a bigger effect on the GCTA. The aim, objectives and importance of the study are clearly stated and articulated in this chapter.

Chapter two: Literature review and conceptual framework

This Chapter shows the conceptual framework of the study, with the aim of underpinning the various viewpoints of food insecurity, environmental management and agricultural practices.

Chapter three: Contextualisation of the Philippi Horticultural Area (PHA)

This Chapter discusses the PHA in context of the situation of the PHA, urban agriculture, land use, water sources and land use changes.

Chapter four: Research methodology

This Chapter discusses the methodology followed during the data collection phase. It is primarily based on surveys given to farmers (small-scale and commercial farmers) distribution centre management, government officials and people in and around the PHA.

Chapter five: Analysis and presentation of results

The presentation and findings for quantitative and qualitative data are presented, discussed and analysed. Analyses are primarily based on the Sustainable Livelihoods Approach (SLA).

Chapter six: Conclusions and recommendations

Key findings are summarised, conclusions drawn, and recommendations made for both food security prospects of the PHA and future research.

CHAPTER 2
LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

“The plants we've chosen will collect and cycle Earth's minerals, water, and air; shade the soil and renew it with leafy mulch; and yield fruits and greens for people and wildlife.”

- Toby Hemenway

2 INTRODUCTION

As stated in Chapter one , this study investigates and provides a platform to articulate the aim of development on the urban agricultural zone known as the Philippi Horticultural Area (PHA) - and its contribution towards urban food security. It also examines the impacts and challenges of the current activities in the PHA concerning urban agriculture, food security, development and land use practices in the PHA. Therefore, this chapter provides a review of literature in relation to urban agriculture, land use at both international and South African scale and food security. Basic concepts and definitions of urban agriculture, land use practices, and food security will be discussed in this chapter. It will also highlight certain themes related to urban food security such as urban food insecurity and provisioning of food resources, access to food, the informal sector, Sustainable Livelihood Approaches (SLA) and the current national policy actions to urban food security and urban food gardens. From this literature review, it becomes clear that urban food security is a systemic issue embedded in a myriad of socio-economic and spatial disparities.

As a primary concern Goodman (2009:20) states that “alternative food networks clearly are reconfiguring an expanding subset of production-consumption relations, and nature is being commoditised in different, hopefully, more sustainable, ways”.

Broader tension around food insecurities is based on talks of overcoming predominantly poverty and inequalities, in poverty-stricken urban farming regions and communities such as the PHA. According to Von Braun (2007), the world food state is quickly being redefined through new and fresh dynamic powers. However, variations in food availability, rising product prices and new producer-consumer connections all cause chaos on the lives of the poor and food insecure people of the world. He/she also states that soon after the full significances of Von Braun’s, food classification forewarning became apparent, food talks came under the attention of many poverty

conferences across the world. According to the Carnegie III Conference (2012) “The warning foretold of the food crisis that emerged in 2008, when food prices escalated rapidly resulting in the highest costs of food insecurity experienced in a 20-year period, with the 2008 food price index being 29 percent higher than in a 20-year average” (Kapande, 2015: 12). Thus, it is important to ask relevant questions such as is our food system sustainable?, if so, what are the environmental issues around sustainability and sustainable agriculture?, and, who will benefit from our urban agricultural system like the PHA?. Other prompted concerns are based on whether urban agriculture will become part of mainstream agricultural production and whether it will be inclusive of all members of society. “Although intensive farming moved to rural areas” (Viljoen & Wiskerke, 2012:6), “food production in and around cities has never totally disappeared” (De Haan 2015:16).

The food crises, which Swilling and Annecke (2012:4) refer to as the “poly-crisis”, “are also part of a broader set of converging and mutually reinforcing sustainability challenges” The “poly-crisis here refers to an amalgamation of imperative encounters the world faces, this, according to the South Africa Washington International Programme (SAWIP, 2018). SAWIP (2018) reports that “global warming, oil peaks, physical flows, climate variations, urban poverty, food security and ecological unit dilapidation” trigger these encounters. “Solutions to the global poly-crisis challenges are complex and can never be easy to formulate, and overcoming them will require cooperation between governments, private sectors, and most importantly, the civil society” (SAWIP, 2018:2). In addition, SAWIP (2018) states that “no country on earth is immune to the global poly-crisis problems” (SAWIP, 2018:2) and a fundamental shift in food security is access, utilisation and stability in food for low-income housing communities much like the PHA. Currently, the population of Philippi and the PHA according to the 2011 census data indicates that the growing concern for the food security crisis in the Western Cape is the constant growth and rapid urbanisation of urban areas and having access to food and water. Furthermore, Viljoen and Bohn, (2005:12) highlight the importance of food production in inner-city areas, while “food production is listed as a foundation for a healthy prolific city” (Viljoen & Bohn, 2005:12).

While a variety of productivity in conjunction with the PHA exists, inclusive of areas in and around the PHA such as Mitchells Plain, Manenberg and Hanover Park have embarked on other means to provide fresh food produce to secure their social well-being. Despite their challenges, the PHA still continues to produce active farmers in the area through community garden projects.

.. Such projects and their input in securing food have provided fundamental assistance by ensuring household food security, job creation and greening of urban open/un-used spaces and their physical well-being. However, amidst the various urban garden, urban agricultural projects, programmes and initiatives, food insecurity is still prevalent in many South African cities, specifically the CCT. Vuuren, (2016), observes that the impression of a prolific city backdrop recognises the fact that urban towns will not reach a full resourcefulness. Instead, a productive urban landscape is mainly based on urban food production and local food ingestion. “Urban food security motivates the drive towards alternative solutions, especially within developing nations, to improve household nutrition” (Smit et al., 2001:26).

One aspect that should be considered is that food uncertainty is not just a statistics concern, but also much rather a collective concern for all who affected by food insecurity. In some parts of the CCT much has been invested into civic gardens as a method of urban gardening and revenues to overcome the hurdle of inaccessibility to food and nutrition sources. Around the Cape Flats and CCT urban areas, urban garden trendsetters such as Central Methodist Community Gardens, Masikhanye Food Garden, Moya We Khaya Peace Garden, Oranjezicht City Farm, Soil for Life, Upper Liesbeek River Gardens, Woodstock Peace Gardens and Abalimi Bezekhaya community gardens, all form part of a bigger initiative, securing food for local communities, while creating jobs and adding to the livelihoods of local communities. Reinforcing a sustainable livelihood practices seek to secure future access to food sources. According to Santo *et al.*, (2016), many urban farms established themselves as social enterprises devoted to social missions than to profits. Social upliftment is vital in managing the environment sustainably while creating sustainable lifestyles in order to reach a common goal; making food accessible to all at all times.

Literature suggests that community food gardens and urban agriculture can assist communities with access to fresh food produce, reduce household food insecurity, create jobs and assist in sustainable environmental practices. All of which are a great concern for the CCT with specific interest in the PHA. “Community gardens enhance the social capital of communities through increasing the social bonds and networks amongst neighbours, amongst people from more diverse backgrounds, and amongst those in various positions of power” (Santo, *et al.*, 2016:5).

The first part of this chapter reviewed the literature of the concepts and definitions of city farming and urban food security. It also identified the livelihood strategies of urban agriculture, the urban food insecure as well as the linkages between food, people and urban land uses especially in and

around the PHA, in the City of Cape Town. In general, it provided a literature review from a global perspective of food insecurity, followed by a discussion on food insecurity in the national and local context, conceptualising the relationships between urban agriculture, food security and their linkages. This review of the literature was informed by the Sustainable Livelihoods Approach (SLA) which bases the conceptual framework for this research study.

2.1 CONCEPTS AND DEFINITIONS OF URBAN FOOD SECURITY

“Urban agriculture (UA) is an alternative farming system based on small-scale local food production in an urban or peri-urban setting, and which often, but not necessarily, uses organic techniques and the principles of environmental sustainability” (Aerts *et al.*, 2016:4). As Aerts *et al.*, (2016) state, “there is a general agreement that stipulates UA is important for local food production, especially in the south and that UA has a role in regulating green and blue water flows, organic waste flows and pollination; and that UA has important socio-cultural values, including an improved quality of city life and increased local community capacity”. The findings drawn from Aerts *et al.*, (2016) study prove that there is confirmation that UA may also increase social well-being issues based on dietary changes in certain societal classes. Whereas Joshi *et al.* study proposes that “smallholder agriculturalists could become part of a greater public initiative to increase international supply, through private initiatives” (Joshi *et al.*, 2017:86).

It is interesting to note the complexities of urban agriculture and urban development in South Africa. “Several decades of research on ‘urban agriculture’ have led to markedly different conclusions about the actual and potential role of household food production in African cities” (Crush *et al.*, 2011: 385). “By 2030, over half of Africa’s population will reside in urban areas and rapid urbanisation has produced an ‘invisible crisis’ of urban food security” (Crush & Frayne 2010, as cited in Crush, *et al.*, 2011:286). The international agricultural economy has entrenched in their discussions about the existing universal food predicament. “When food security received intercontinental consideration, subsequently the focus on hunger at the 1996 World Food Summit (WFS) held in Rome” (Crush & Frayne, 2010:8) sparked new “interest as a large-scale and nationwide growing concern” (Crush & Frayne, 2010:8). The FAO (1996:2) then, established food security as “all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life”. Urban agriculture is defined as “the developing, processing, and supply of food and other

products through an intensive plant and animal husbandry in and around cities” (Tornahgi, 2017:784). One of the most significant and current discussions in food security is presented by Tornahgi (2017) and contends that “many of these discussions are also exemplary practices openly addressing urban food provision and food rights, individual and common health, urban and peri-urban environmental quality and socio-environmental justice”. “In the urban context, accessibility is the key to food security” (Crush *et al.*, 2011:292).

Although the interpretation to date remains highly contested, for this research, the FAO (1996) definition becomes the foundation for discussion. The 2015 FAO report on “*The State of Food Insecurity in the World*” classified that “795 million people in the world were undernourished” (Haug, 2018:8). Therefore, it is vital to understand that hunger is inclusive of all cultures, making no community, state or nation immune to this phenomenon. Food security is a broad and flexible concept encompassing issues related to nature, quality, access, causes and coping strategies of food shortfalls” (Mulugeta, 2010:75). In addition, Mulugeta (2010: 75) confirms that “food security as a concept originated only in the mid-1970s in the discussions of international food problems at a time of global food crises.” Food insecurity and hunger can affect any person at any time, irrespective of race age or gender. As confirmed by Mulugeta (2010) “this is because (...) increasing food production, supply and sufficiency at broader levels do not necessarily ensure that each and every individual is food secure” (Mulugeta, 2010:76). “Urban agriculture can contribute significantly in combating urban hunger and malnutrition by providing increased and more consistent access to fresh, nutritional food at lower cost than market purchases” (Crush *et.al.*, 2011:786). The International Food Policy Research Institute (IFPRI) describes this as “a feeling of deprivation; a distress call associated with an absence of access to satisfactory food” (FAO, 2003:2). According to Januwadi (2012), food security was “identified as a global developmental challenge despite that food security was recognised as food availability, the absence of access to food can spur the distress call of feelings of hunger as indicated by the” (FAO, 2003:3).

When one or more of the above aspects is present, it is considered that people are food insecure. From the characterisation provided by the FAO (2003), four central measurements of food security were recommended with a combination of the first two dimensions. The first dimension of access refers to both “economic access to food, and the physical presence of food, and does not result or provide the surety of food security” (FAO 2008:1). Secondly, the “physical availability of food refers to the ‘supply’ of food and food production” (FAO, 2008:1). Mulugeta (2010: 76)

defines availability and access as supply-side and the capacity of a household to acquire food respectively. The third dimension of food security as proposed by the FAO is “utilisation of food” (FAO, 2008:1). This aspect refers to the “nutritional value of the food which is physically and economically accessible and available” (FAO, 2008:1). Furthermore, Mulugeta (2010) states that “utilisation refers to the way the food ought to be consumed”. It includes such aspects of food consumption as nutritional balance, cultural/religious acceptance, hygienic preparation and preservation of food, as well as access to potable water” (Mulugeta, 2010:76). The final dimension of food security is the concept of “stability within the first three dimensions” (FAO, 2008:1). “While a person or household may be food secure on a specific day, they may still be food insecure as the consistency of food security over a period is what will ultimately result in over-all food security” (FAO, 2008:1).

The world’s rural-urban tipping point was reached in 2007, marking the first time in the history of the planet that more people lived in urban centres than in rural areas. As the global population continues to grow towards a mid-century estimate of 9-10 billion (UN World Urbanisation Prospects, 2001), most of this demographic increase will be in cities; and 95% of that growth will be concentrated in the cities of developing countries (UN-HABITAT, 2001: 4). Although South Africa is in the process of establishing a national poverty line, “what is clear from the ongoing discussion and analysis within government is that at least half of all South Africans live in absolute poverty” (STATSSA, 2014 & National Treasury, 2007). STATSSA (2014) indicates that, “Poverty is on the increase in South Africa”, and urban agriculture can contribute towards securing daily access to food.

According to Fan *et al.*, (2017) “urbanisation is linked with dietary changes to more energy-dense diets, and the triple burden of malnutrition is increasing, particularly in rapidly urbanising developing countries”. “While this reality has been long anticipated, the pattern of urban growth is now changing” (Lerner & Eakin, 2010: 311). Rural-urban linkages are key to improving food security and nutrition in both rural and urban areas, and traditional agricultural value chains linking farms to cities are undergoing a “quiet revolution” (FAO, 2008:2). Figure 2.1 below illustrates the linkages between availability, access, utilisation that ultimately leads to stability. It can also give an interpretation of nutritional outcomes per city, as identified by the food security dimensions below. Furthermore, Lerner and Eakin (2010) state that “in the past, urban expansion

was concentrated in the world’s primate cities. Today, however, the process of urbanisation is far more heterogeneous” (2010:311).

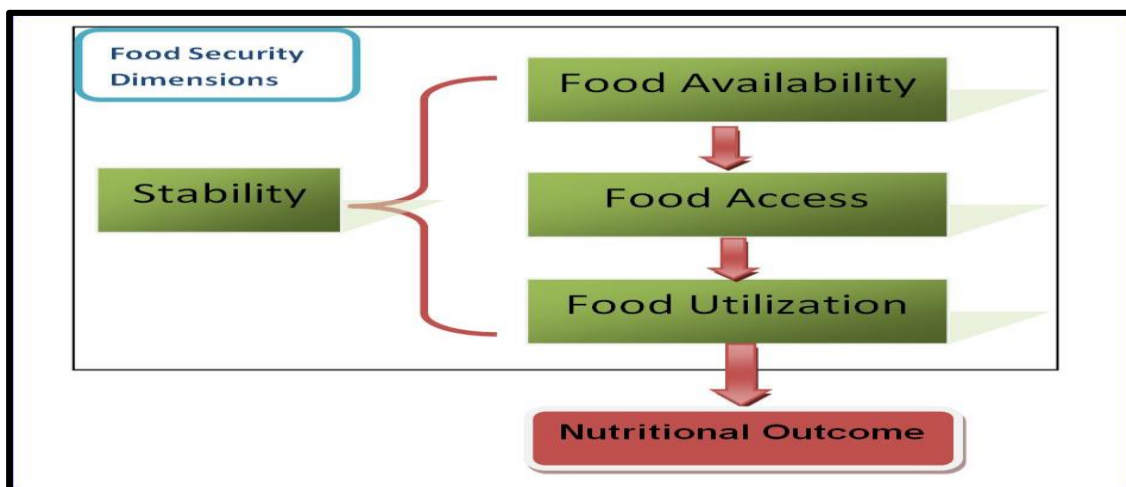


Figure 2.1: Dimensions and Integrated Phase Classification
(www.foodandenvironment.com)

Table 2.1 depicts the four dimensions of food security, with economic and physical access as the first part, followed by utilisation and stability completing the diagrammatical representation of the four dimensions, and how they link between the Integrated Phase Classifications and the food security objectives of the FAO (2008). It also describes recent trends in food security that has led to a proliferation of concepts related to the four dimensions of the FAO (2008). Recent developments in the field of urban agriculture have led to a renewed interest in the issue of food security and have been critical in many parts of the world, including South Africa (DAFF, 2011). However, when addressing food security challenges, there are other aspects of food insecurity to consider such as the type of food insecurity and the duration of food insecurity episodes experienced by any given household.. In 2000, the former United Nations Secretary-General, Kofi Annan, stated that the world have entered the urban millennium and that “urban ecosystems cities are dynamic biological-physical-social entities, in which social heterogeneity and spatially-localised feedback play a significant role” (Januwiadi, 2012:59). Annan (2000), as cited in Januwiadi, 2012: 59) defines this as a “crossroads of ideas and places of great intellectual ferment and innovation”. Cities can also be defined as places of exploitation, disease, violent crime and unemployment. Therefore we must do our best to make our cities safe and liveable places for all. Annan (2000) suggests that the world needs to “address the question of how we can use the ideas and innovations created by city dwellers from all walks of life to address the risks cities face” (Annan, 2000, as cited in Januwiadi, 2012: 59).

Moreover, “urban green spaces, which include but are not limited to vegetable gardens, have been associated with reduced crime rates in socially disadvantaged neighbourhoods and the consequent strengthening of residents pride of place” (Santo, *et al.*, 2016:6). Highlighting the gap, most recent scholars’ debates should perhaps include “talks around urban agriculture and its new gained fresh prominence with many arguing in favour thereof. In defining urban agriculture”, Van Veenhuizen and Dason (2007, as cited in Vuuren, 2016) document that the FAO have various classification of UA. They also state that a description only highlights a small part of what it consists of and suggests that there is an absence of clarity and variances between districts or towns.

Urban agriculture expands our understandings of food security in and within cities. Altirie *et al.* (1999: 132) explains that “urban agriculture in the 1990s stated that the Cuban food crisis highlights the importance of the practice for urban survival and defines urban agriculture as all agricultural and animal production that occurs within cities or peripheries that receive direct influence from the city”. He also concludes that “urban agriculture in Cuba has rapidly become a significant source of fresh produce for the urban and suburban populations”. Having said this, Companiononi *et al.*, (1997)(as cited in Altirie *et al.*, 1999) affirms that despite being deprived of partaking in clear-cut restrictions, urban agriculture embraces all gardens which are combined in the city. APE

Table 2.1: Four dimensions of food security (Food and Agricultural Organisation FAO, United Nations, 2008:1).

<p>Economic and physical ACCESS</p>	<p>To food an adequate supply of food at the national or international level does not in itself guarantee household level food security. Concerns about insufficient food access have resulted in a greater policy focus on incomes, expenditure, markets and prices in achieving food security objectives.</p>
<p>Food UTILISATION</p>	<p>Utilisation is commonly understood as the way the body makes the most of various nutrients in the food. Enough energy and nutrient intake by individuals are the result of diligent care and feeding practices, food preparation, and diversity of the diet and intra-household distribution of food. Combined with good biological utilisation of food consumed, this determines the nutritional status of individuals.</p>
<p>STABILITY</p>	<p>Of the other three dimensions over time even if your food intake is adequate today, you are still considered food insecure if you have inadequate access to food on a periodic basis, risking a deterioration of your nutritional status. Adverse weather conditions, political instability, or economic factors (unemployment, rising food prices) may have an impact on your food security status.</p>

2.1 FOOD SECURITY: AVAILABILITY, ACCESS AND UTILISATION

“Urban agricultural production conditions in 2014-2015 on a global scale were good according to the Seasonal Food Security Assessment” (Poncin, 2015:6), auguring for a decent crop for three years in a row. Nonetheless, “due to a high variation in admittance to plots and foodstuff convenience it does not spontaneously decipher into enhanced food security” (Poncin, 2015:6). The lingering challenge to date remains within cities and towns, with the evident challenge of access to available food at affordable prices. A major component of food security comprises of

access to land and availability of land as a form of economic access. According to Santo, *et al.*, (2016: 6) “urban agriculture has been promoted for several potential health benefits”. They further argue that “to those who participate in the actual gardening and or urban farming activities, to community members who may benefit from improved access to the food produced, as well as to city residents on a whole for its potential contribution to food security and resilience, if scaled up strategically and adequately” (Santo *et al.*, 2016:6). The benefits of urban agricultural activities as mentioned earlier could fully be realised if, “accurately interpreting and communicating the potential merits of urban agriculture, however, is essential” (Santo *et al.*, 2016:3). The South African economy remains agrarian with a tradition of growing fresh food produce, horticulture and livestock rearing for the most part of the country.

Even though agriculture is seen as ‘the most’ hopeful subdivision to ease the food shortage, availability of food evaluates the quantity side of food security, and this can be underpinned by the level of food production in each area on available farming plots. “Creating a productive urban landscape aims to reshape the urban sphere and build internal capacity to supply resources for the growing urban population” Viljoen and Bohn (2005:38). According to Viljoen and Bohn (2005: 39), “different farmers have diverse needs, based on past, present and projected trends in food security, and the constant need to produce more, as cities are exponentially expanding”. While Alam (2016) argues that the FAO should consider the four dimensions in looking at food security, Ziervogel and Ericksen, (2010) replaces the idea of ‘stability’ with ‘livelihoods’ to capture the significance in emphasising the four dimensions.

“Different factors and sectors on the global/national level (such as the extent of agricultural production, existing infrastructure, international policies and gender) issues play a crucial role and influence the level of food availability and access to food, care, and healthcare services, environmental and hygienic conditions on the sub-national level, which directly affects communities and households” (WHO/UNICEF, 1998). “The current need for urban food security encourages the drive towards alternate solutions, especially within developing nations” (Smit *et al.*, 2001:26). Furthermore, education plays a critical role in improving and changing the circumstances on a sub-national level. According to Van Veenhuizen and Dason, (2007) (as cited in Vuuren, 2016), urban agriculture serves as a recreational opportunity as well as an educational function. “Food production in the city is often a response of urban poor to inadequate, unreliable and irregular access to food and lack of purchasing power” (van Veenhuizen & Dason, 2007:7).

Improved “food availability and access to food, along with aspects of care determine the individual’s food intake (food use); whereas care and questions of health and hygiene influence the individual’s health status (food utilisation)” (FAO, 2005). Food intake and health statuses are closely related to each other and both determine the level and the over-all goal of food and nutrition security (FAO, 2005).

“Availability refers to the physical existence of food” (FAO, 2008:1); something that is tangible. The FAO (2008) reports that “food availability is when all people have enough quantities of food available on a constant basis. On national level, food availability is a combination of domestic food production, commercial food imports and exports, food aid and domestic food stocks” (FAO, 2008: 4). Furthermore, a main issue that influences food security is the obtainability of food at the state level that is governed by home production and the capability of markets to import healthy and beneficial food. The FAO (2008) also proposes that foodstuff convenience is the quantity side of food security which is a circulation difficulty. In addition, food accessibility alone does not create food security to maintain a balance, and the growing rate of food availability should not be lower than the growth rate of the population. Burchi and De Muro (2016: 16) further elaborate “Food security is purely an issue of cumulative (per capita) obtainability”. The World Food Conference of 1974 suggested that availability refers to the “availability at all times of adequate world food supplies of basic foodstuffs to sustain a steady expansion of food consumption and to offset fluctuations and prices” (UN, 1974).

Adom (2014) further states that “climate change and variability in weather, has led to reduced food production”. He also restates that “consequently, food insecurity has increased, and people are considered either severely or moderately food insecure, due to the in-availability or inaccessibility to food” (Adom, 2014: 115). Saravia-Matus *et al.*, (2012) argues that food insecurity is more of a demand issue, affecting the poor’s access to food, than a supply issue, affecting the availability of food at national level. According to Smit *et al.*, (2001) “food insecurity is weakly linked to national food availability”. In addition to food production, water resources are equally required in order to produce crops and to secure food for a growing urban population. Furthermore, “pressures of population growth, land demand issues and climate change also play a vital role in curbing food availability and/or accessibility”(Saravia-Matus *et al.*, 2012:72). As identified by the FAO (2008), “availability and access refer to structural conditions that worsen or improve food security, and their four distinct dimensions namely (availability, access,

utilisation, and stability) are classified as indicators of food insecurity” (Saravia-Matus *et al.*, 2012:77).

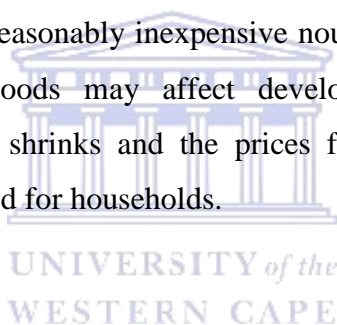
At domestic level, foodstuff might be from own assembly or credited from local marketplaces and/or supermarkets. Due to population progression and the changes in weather patterns, the pressure on existing natural resources such as land and water intensifies. Impacts of climate change can often lead to degraded land, lack of irrigated water, reduced soil moisture and, therefore; losses of economic livelihoods. The UN (World Food Programme, WFP 2014) argues that climate change increases the frequency and intensity of some natural disasters such as drought, floods, and storms affecting the availability of food. Together with an increase in conflicts over usage of water resources (cultivation of crops for energetic use vs. cultivation of crops for nutritional use, are used by other sectors like drinking water, industry and environment), this might be a threat for long-term food security (UN, 2014). The Stockholm International Water Institute (SIWI) emphasises the growing importance of green water. Unlike blue water which refers to water available in lakes, rivers, and aquifers, Green water is the water hidden in the ground as soil moisture.). “With suitable adaptation measures to soil such as irrigation systems improving water-use efficiency through cultivation methods and technologies, or infrastructural development for water harvesting and (re)use of marginal quality water and treated waste-water, or improved soil-water management in rain-fed systems like, the resilience of agricultural systems can be strengthened, risks reduced and livelihoods secured” (van Veenhuizen & Dason 2007:8). “Support of local water user groups and strengthening their planning and management skills can help minimise risks of scarce resources and reduce conflicts” (van Veenhuizen & Dason 2007:8).

2.1.1 Access

The United States Department of Agriculture (USDA, 2018) argues that “There are many complex reasons a person becomes food insecure”, and there is no single societal actor responsible for this process alone. The USDA (2018:2) further proposes that food uncertainty is complicated with a mix of socio-economic and administrative factors. The FAO (2008:2) describes access to food as “certified when all households have sufficient resources to obtain food in enough quantity, quality, and diversity for nutritious diets”. However, this depends mainly on the number of household resources and on prices. Population growth will make the challenge of feeding the (urban) population in both developing and developed countries much more difficult (Annual Cargill

Report,” 2014), creating a greater deficit in gaining access to food. The FAO (2011) suggested “that the most pressing and immediate issue facing the world community is the problem of ensuring safe, adequate, timely, and affordable food for a growing and increasing hungry population” (as cited in Besthorn, 2013:20). In addition, accessibility is also a question of the physical, social and policy environment.

The USDA (2018) reports that the world’s inhabitants are outperforming the food production volumes (i.e. the current production of food exceeds the global population requirements). Making access to food is a dire challenge for the developed and developing world’s populations. Furthermore, cities in developed countries (the Global North) are also increasingly confronted with problems of urban food security, normally associated with their poorer counterparts in the Global South (Morgan, 1996 as cited in Besthorn, 2013). “In the United States, for example, USDA's Economic Research Service (2009) estimates that 23.5 million individuals live in so-called metropolitan food deserts. The often-low-income inhabitants of these areas abstain inadequate access to healthy and reasonably inexpensive nourishment” (De Haan, 2015). As an example, severe droughts or floods may affect developing countries more frequently. Accordantly, the harvest volume shrinks and the prices for food increase affecting on the availability and accessibility of food for households.



2.1.2 Stability

Stability describes the temporal dimension of food and nutrition security, respectively the period over which food and nutrition security is being considered. “The sub-Saharan African region has the highest urban growth in the South” (Crush *et al.*, 2010:20). “The urban population is becoming increasingly vulnerable to food insecurity” (Crush & Frayne, 2010:20). Therefore, stability has become important in accessing food sources amidst food security challenges for developing countries. Stability is when the supply on household level remains constant during the year and long-term periods. That includes food, income, and economic resources. “Prosperous cities can operate efficiently and productively without necessarily damaging the environment” (UN-Habitat, 2012:93). To ensure stability, it is important to minimise external risks such as natural disasters and climate change, price volatility, conflicts or epidemics through activities and implementations improving the resilience of households (FAO, 2011). These measures include “insurances e.g.

against drought and crop failure as well as the protection of the environment and the sustainable use of natural resources like land, soil, and water” (FAO, 2011).

2.2 CONCEPTUALISING URBAN FOOD SECURITY

According to Aerts *et al.* (2016), “theoretically, urban cultivation has a helpful effect on water and energy movements, compared to build-up surfaces”. Allen (2003) (as cited in Kapande, 2015: 44) notes that “ the urban-rural dichotomy is deeply ingrained in planning systems and is inadequate for dealing with processes of environmental (such as; crops, agriculture, and livestock) and developmental change in the peri-urban context”. . This would enable us to to specify the importance of urban agriculture in cities. According to Lin *et al.* (2017:7), urban agriculture delivers 60% of vegetables and 90% eggs used up by residents in Shanghai, 47% of the harvest in urban Bulgaria, 60% of vegetables in Cuba, and 90–100% of the leafy vegetables in deprived homes of Harare and Zimbabwe. Furthermore, Lin *et al.* (2017) suggest that inner-city produce farming can also make available significant dietary assistance, and communities around the world are using it to advance the well-being of city inhabitants.

According to Aerts *et al.* (2016), urban agriculture is progressively projected as a globally friendly response to worldwide contests together with urbanisation, civic well-being, food security and macroclimate variations. In addition, it is stated that inner-city cultivation is a substitute agricultural structure based on small-scale local food farming in an urban/peri-urban environment, and which often, uses organic techniques and the principles of environmental sustainability in producing food (Aerts *et al.*, 2016). When the Rio Earth Summit convened in 1992, the world came of age. The decision to adopt and promote sustainable development was a defining moment in the history of social progress, peace, and development (Mokaba, White Paper on Environmental Policy, 1997:2). Urban agriculture is generally characterised by closeness to markets, high competition for land, limited space, use of urban resources such as organic solid wastes and wastewater (van Veenhuizen, *et al.*, 2006:301).

Mougeot (2000) conceptualises urban food security in the following manner:

“The most important distinguishing character of urban agriculture is not so much its location or any other of aforementioned criteria but the fact that it is an integral part of the urban economic, social and ecological system. Urban agriculture uses urban

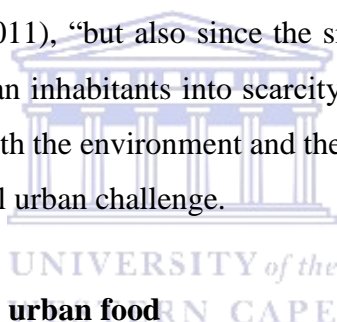
resources (land, labour, urban organic wastes, water), produces for urban citizens, is strongly influenced by urban conditions (policies, competition for land, urban markets and prices) and impacts the urban system (effects on urban food security and poverty, ecological and health impacts)”.

However, it is also important to consider the fact that the average farmer might contribute positively to the state of food insecure countries/cities immensely across the globe. As Lin *et al.* (2017) states, urban agriculture improves foodstuff accessibility and worth across nations and economies, and civic members contributing to UA in both industrialised and unindustrialised nations have been documented to exhibit greater dietary nutrition compared to non-participating communities. Furthermore, Lin *et al.* (2017) argue that land is a highly contested view both for development and for agricultural purposes, and land applies a niche that specifically deals with space and place. Generating a fruitful urban agricultural setting aims to redesign the city sphere and form internal capabilities to supply assets for the emergent urban inhabitants through urban agriculture. The image of a prolific city formed by the Viljoen and Bohn’s statement (2005:12) where it highlights the significance of food production in urban areas.

“Although food production is listed as a cornerstone for a productive city there are a variety of other aspects contributing to productivity including green space for social and ecological importance, transportation systems connecting areas, redeveloping as well as effective use and reuse of resources” (Viljoen & Bohn, 2005:12). One overarching principle is to construct a commercial environment that is pro-poor and empowers food insecure households to supplement themselves into the commercialised majority (DAFF, 2002:24). Furthermore, Lin *et al.* (2017) propose that urban green spaces such as urban agriculture can bring diverse green infrastructure back into the urban system by providing vegetative structure and biodiversity for ecosystem functions and services across fragmented habitats and spatial scales. Literature also suggests that food has also become invisible to planners due to that fact that food is just too big to see. Lin *et al.* (2017) reports that “urban agriculture has the potential to support not only in situ biodiversity but also neighbouring areas due to a landscape-mediated ‘spill-over’ of energy, resources, and organisms across habitats”. Whereas, Holland (2004) proposes that the achievement of public projects are reliant and based on self-development, self-help, and civic participation. It is of great importance to highlight the risks involved in ignoring food security as an urban threat, with subsequent impacts on the urban population.

2.2.1 Food security risks and the ‘Urban Reality’

As previously mentioned, the concept of food security has predominantly been ignored due to considering it a rural issue which is too big to see. Steele (2008: 10) reports that “in order to understand cities better, we need to look at them through food”. Urban food insecurity is a reality and knows no boundaries. The constant erosion of resources in the environment is placing a heavy strain on urban agriculture in any given geographical location. The constitution of South Africa and the National Environmental Management Act (Act 107 of 1998, hereafter known as NEMA) describe the perseverance of the environment as to “deliver for an accommodating environmentally friendly governance through initiating principals for decision making on matters distressing the environment, and to instate organisations that will endorse cooperative governance and procedures for co-ordinating environmental functions exercised by organs of state” (NEMA, Act 107 of 1998). “The percentage of the worlds underprivileged living in urban areas is increasing, not simply because the poor urbanise faster than the non-poor” (Ravallion 2002: 442 as cited in Ziervogel & Frayne, 2011), “but also since the situations in several city areas drive numerous prevailing and new urban inhabitants into scarcity” (Battersby & Haysom, 2012:40). This may well have an effect on both the environment and the urban population making access to food for the urban population a real urban challenge.



2.2.2 Distribution and access to urban food

It is irony to know that nearly 20% of the world’s food is wasted, while most of the urban population are too poor to afford food at reasonable prices. The international food worth intensified as of 2008 which saw a reported amount of hungry individuals in the world exceeding 1 billion (FAO, 2008). This generated a transformed interest in the food security agenda for the urban population. Therefore, it has become essential to curb food waste and create stable distribution patterns whereby all obtain access to safe healthy nutritious food. “Food security is a core concern, but more concerning is the type of food that is accessible” (Haysom, 2014:58).

In addition to this, to uphold strong associations between urban food and the circulation of urban food, we need to preserve a healthy inhabitant of farmers and farmsteads within the city limits. Previous studies done by scholars such as Battersby, Haysom and Crush suggest that vigorous interactions with farmers in the city support local food systems, and local food systems make food accessible, available and stable. According to Annan (2008:4), the primary reason for hunger and

shortage in Africa remained the long-term neglect of farming, on nation-wide and global levels and the unequal distribution of resources amongst population groups. Higher food prices mean higher transportation, fuel and electricity cost. According to Annan (2008:4), the global world has resuscitated itself to the work of inner-city farming and agriculture. “Governments from Beijing to Berlin are re-investing in agriculture, finding ways to support their farmers by pushing farm support policies that boost agricultural productivity and ensure cheap food” (Annan, 2008:4). This often requires good governance, planning and policy formations to change the urban condition from being food insecure to food secure.

2.3 URBAN FOOD SECURITY AND PLANNING

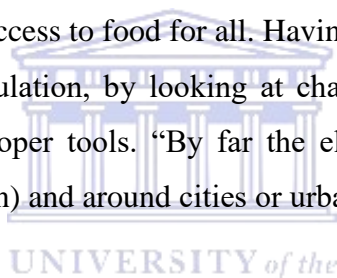
Planning often includes a commitment in diverse socio-economic locations, specifically locations with exceptional foodstuffs requirements. Planning also includes worldwide ingenuities that will better relief cities in upcoming requests towards making cities food safe. “The challenge is whether cities can transform themselves into self-regulating, sustainable systems, not only in their internal functioning but also in their relationships to the outside world” (Deelstra & Girardet, 2000:43). The Milan food Policy Pact rests on the pillars of sustainability and social justice. In October 2016 the United Nations conference on Urban Development and Sustainable Housing published a new agenda, which will guide the international efforts around urbanisation and urban food security for the next 20 years. A dialogue between governments and local authorities are key areas of intervention.

Social diversity requires diverse types of urban food access and governments and local authorities plays a pivotal role. Scholarly articles of the FAO suggest that responsibility, relationships, and rewards are the three fundamental aspects urban farming should embrace towards future food security and urban planning. “Many of today’s cities function very differently from those we have inherited from history, and relationships with the environment are changing” (Deelstra & Girardet, 2000:44). A better transparency ought to be entrenched in our arrangement in city farming and food classifications that will modernise urban food security as part of the legislative planning programme. “Urban agriculture is combined in individual urban communities and neighbourhood, as well as in the ways that cities function and are managed, including municipal policies, plans, and budgets” (Five Boroughs Farm, 2015:1). “Typologies based on one-time measurements provide a snapshot of farm situations at a certain point in time” (Ronzon *et al.*, 2013:6).

Furthermore, it is acknowledged that the term “classification is often misused to mean typology”, (Matus *et al.*, 2013). The fact that urban agriculture is often promoted as a means of empowerment is fickle due to much of the resources are expected to be grown by the poor. Ronzon *et al.* (2013) state that the core modifications amongst a typology and a classification structure are:

“that in the latter only one classificatory principle is used, leading to two or more classes, whereas typologies take more than one classificatory principle into account, giving rise to mutually and jointly exclusive types; and ii) that types may be reduced or expanded for analytical purposes as details of classificatory principles are excluded or included”.

The goal for comparability in agricultural typologies is no novel phenomena and challenges like, “mixed land use practices” within an agricultural or areas deemed rural activities under urban state or policy has all formed part of this phenomena. Therefore, it is fundamental that sustainable concepts such as the use of accepted surroundings, sustainable food production measures are set in place to maintain a clear and prosperous way forward for all types of agricultural practices. In assessing agricultural typologies, the three core tools needed to be considered is the equitable, effective and efficient manner of access to food for all. Having access to food is a livelihood that ultimately sustains the city’s population, by looking at changes based on a community level through actively involving the proper tools. “By far the element most common to reviewed definitions is the location in (within) and around cities or urban areas” (Mougeot, 2006:6).



Earlier work on agricultural typologies has brought along lessons that allow the following points to be noted throughout assessing the permeability of agriculture:

- Social attributes – information about the holding operator or decision maker in terms of gender, age and legal status;
- Operational attributes – labour and capital inputs, the extent of farming intensification or diminution and the ways in which holdings are worked;
- Production attributes – how much is produced and for what purpose; and
- Structural attributes – the scale of land use, livestock breeding, gross agricultural output, and commercial production. (*ibid*).

These terms need to be properly assessed and understood. If the term typology is properly applied and used under the correct measure, principles to the study will be better understood. “The ways in which they are to be introduced must be accurately set out” (*ibid*). Almeida *et al.*, (2015) argues that “The colonisation of Brazil has led to a new geography to emerge, with significant impact on

the environment and regional development”. Almeida *et al.* (2015) further state that a comprehensive amount of knowledge of local geography is essential to comprehend the spatial circulation and evolution of agrarian supply chain to evaluate the impact on current policies with a future orientation. In addition to the urban agriculture understanding the transitions of urban agriculture and its spatial variation, it has become an impassivity to seek for a balance between typological advances and linkages between farms and markets.

“We must work harder to bring urban agriculture to its conceptual maturity; only with greater internal coherence and external functionality will it turn into a distinctive and useful tool for us to understand and intervene” (Mougeot, 2005:1). City farming despite its difference in typologies and the importance towards the cities wider food systems chain, there are primal differences within and between agricultural sectors and their distribution channels. Furthermore, Mougeot (2000) argues that an incomplete backing and substantial losses, key food subdivisions will be affected should expansion obstruct on the urban agricultural ground for the use of practices not affiliated to agriculture. Food is a human dignity, not a competition. “Food should be able to be obtained in a way that upholds human dignity and the production and consumption of it should be managed by equitable and fair social values” (WHO, 2014).

“The informal sector remains a critical component of the South African food system, despite the rapid transformation and consolidation of the formal food sector since the end of apartheid” (Pereira *et al.*, 2014:5). The terms urban planning, regional planning and urban design are terms often used interchangeably, and this interchangeability depends on the metropolitan region. Thus, the concept should assist in obtaining a better understanding of new and older landowners, predominantly agricultural landowners. The PHA has also been named an area of mixed land use practices, which proves to be sustainable. According to Musakwa and Van Niekerk, (2012), maintainable growth is a fuzzy concept and summarised in the seminal definition by the Brundtland Commission as “development that meets the needs of the present without compromising the ability of future generations to meet their needs”. Within the PHA, mixed land use practices have been the source a many a debate, with the most recent being the potential prospecting for silica.

2.3.1 Urban food security in Sub-Saharan Africa

Urban food security in the sub-Saharan and South African context indicates a need to understand the various perceptions of urban agriculture that exist amongst urban populations in metropolitan locations. Increasing attention is being paid to the growth of supermarkets in countries outside of North America and Europe. Numerous studies have been carried out initially in Latin America and, more recently, in Central and Eastern Europe, Southern Africa and Asia. Reports by the FAO (2013) indicates that 12 million fewer people were hungry in the SSA. However, the image of food insecurity remains the same as we see the number of people at street corners, traffic lights and other public amenities begging for food, jobs, money and/or shelter is increasing. SSA has a significant challenge of urban population growth. “Although some forms of urban and peri-urban agriculture are based on temporary use of vacant lands, it is still a permanent feature of many cities in developing as well as developed countries” (van Veenhuizen, 2006:5). What we know about food security is largely based upon empirical studies that investigate how food security responses have been primarily focused on the availability of food and centered on the immediate needs and wants of the urban population. The changes experienced in access to food by 12 million fewer hungry people in the SSA remain unprecedented. Despite decreases in food prices, there are still several people in the SSA that suffers severe to chronic food insecurity.

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While these studies recognise the growth of supermarkets and the variations in supply chains, relatively little progress was made in identifying steps that need to be taken to help farmers adapt to this new reality.

“The 1994 open speech held by Nelson Mandela iterates that Post-Apartheid South Africans can be assured of a new constitution that will deliver on equality for all, based on the social and environmental justice with a future driven initiative. And this all as part of restorative justice for all past iniquities” (Joshi et al., 2017:84).

Furthermore, Joshi *et al.* (2017) note that the Mandela years (1991 – 1999) were relatively “progressive” with the main initiative to protect farmers, farmworkers and urban dwellers. A previous study conducted by van Veenhuizen, (2016:5) shows how rural agriculture complements and increases the efficiency of national food systems. Thus, it became a need to connect suppliers of fresh food and link or integrate supermarkets representatives, farmer representatives, government officials, and wholesalers with farmers. This is to better market access, and equitable

access to the farmers' economy. When examining the facts about their existence in these agricultural areas, supermarket distribution centre expansion places much strain on the local fresh food produce farmer. The question arises here is why has such expansion been deemed necessary for development? In simple terms, the traditional method of conducting business has lost value and favour with the rapid urbanisation across all international cities. It also decreases access to supermarkets. This has been done under the term 'Good Commercial Practices' (GCP). Foreign Direct Investments (FDI) has become a major part in shaping the market, consumption, and purchase power to the general household. According to Goldman (2000), although supermarkets would not expand assumed it in the emerging world, well almost every single piece of inner-city farming zone are being swooped up in FDI's, in respect of being noted as GCP.

The main source of access the SSA has been dependant on food aid, and "millions of tons of food aid is shipped to the SSA on a regular basis" (FAO, 2004). Most people on the planet currently do not have enough food to eat and many of these people live in developing countries like the SSA and South Africa. Furthermore, globally about 25 - 30% of the world's poor people measured using \$1 to \$2 per day to secure food sources including the SSA. "Since poor people generally spend a substantial part of their income on food (60–80 percent, as cited in Mougeot, 2005), the savings made by substituting home-grown vegetables can be substantial" (van Veenhuizen, 2016:6). Literature suggests that 35 of the world's countries experienced a food crisis during the years 2001- 2004. As a result, food aid became the international livelihood strategy for the world's underprivileged and a quick action to a long-term problem. According to the FAO (2004), 24 of those countries belongs to the SSA, and only eleven of those countries are situated on other continents. It becomes clear and evident that food insecurity has detrimental impacts on the SSA, specifically speaking to the population projection for 2030 (Crush *et al.*, 2011; Maxwell, 1999).

Undoubtedly, South Africa has similar issues with food insecurity. "The South African population has increased from 52% in the early nineties to 62% in 2011 as migration patterns increased from rural to urban areas in pursuit of better opportunities" (Ndebele, 2013:2). Unemployment is on the increase predominantly in low-income housing communities and informal settlements. Rapid urbanisation places huge demands on housing, employment, land, water and food resources in urban areas. More of the urban centres are heavily overpopulated and dependent on the resources the city has to offer. A necessary agency for city dwellers is the demise that "the city equals food" (Ndebele, 2013:2). The multiplicity of our food systems is key in response to urban agriculture

and food security was identified as a “key shaping power for South Africa” in the Diagnostic Overview of the National Planning Commission (NPC 2011, 6). According to Battersby (2016), a further elaboration is that a human right to foodstuff and challenge of food insecurities are being progressively expressed in open speeches”. “This public uproar is in search of new, dynamic, and, dedicated small-scale city farmers to establish themselves in farming communities” (Battersby & Haysom, 2012:9).

Another issue South African urban agriculture faces is the expansion of supermarket near and around agricultural facilities, making the role of the urban farmer extremely challenging. “Urban farmers see their roles slightly differently and while they currently engage in multiple livelihood strategies in order to make a success of their farming operations; they are investing significantly in the land and in their communities” (Battersby & Haysom, 2012:9). Although urbanisation is seen as a phenomenon that places pressure on the urban periphery, it equally exhumes the same amount of tension onto urban agricultural sectors. This creates pressures on small-scale and semi-commercial farmers in urban agricultural environments. “Rapid urbanisation often leads to land use practices that disregard future needs and cause inevitable problems such as; urban sprawl” (Musakwa & Van Niekerk, 2012:1237). According to Burton (2000), the World Commission on Environment and Development (WCED, 1987) and Hicken (2009), “overcrowding, increase of natural and man-made risks, and soil degradation often leads to the consumption of natural landscapes”. This adds to the tension on existing urban agricultural areas, much like the PHA in the City of Cape Town.

2.4 CAPE TOWN: URBAN FOOD INSECURITY (LOCAL SCALE)

Earlier studies on food security hinged on the ideology that food security and the shortage thereof, were a rural phenomenon, with urban food security, largely unnoticed and not much attention was given to the urban centres. Theron (2016) notes that the South African context can be a direct consequence of modernist planning during the apartheid regime, while this will inevitably increase the human pressure on ecological boundaries (Allen *et al.*, 2016 as cited in Theron, 2016). This in turn will ultimately affect urban agriculture in the long haul. World food day on 16 October 2015 highlighted that despite the fact that there is still a great need to recognise that all people always still need to gain physical and economic access to food, hunger and poverty rates in most regions of the world were tremendously halved between the years 1990 – 2010.

Poverty is not just a rural condition; urban settings are equally affected as much of the rural population flees to urban centres in aid of employment, better housing, access to food and better healthcare. It is more related to food accessibility than to food availability. Sen (1990) contends that the cause of hunger is not a shortage of food, but the irregular supply and access to food. The use of agricultural land delivers good prospects of agricultural production alongside ecosystem services, which in turn serves as a benefit for both. An agricultural ecosystem provides forage and bio-energy that are a well-needed resource for human well-being.

2.4.1 Urban agriculture

“The impact of urban food farming on the food security of poor households in African cities has been documented for many years. Urban agriculture includes the production of plant and tree crops and animal husbandry on-plot and in open public spaces or private rented land within the city and in the peri-urban zone” (Crush *et al.*, 2010:7). They further argue that “In African cities, the most commonly cultivated crops are leafy vegetables and maize (which is the staple crop in southern parts of the continent)” (Crush *et al.*, 2010:7). Further studies indicate that urban agriculture has been a major part of the livelihood strategies for poor households across Africa. According to Crush *et al.* (2010: 7), in urban “South Africa, household food production hypothetically escalated following the end of apartheid due to continued city growth, increasing levels of food inflation, and fluctuations within the formal economy” . Despite successes of Maputo and Botswana in their urban agricultural expansion, the same was not the case for South African urban agricultural production. “In Southern Africa, the evidence from the empirical studies of the 1980s and 1990s led to markedly different policy conclusions. The weight of opinion was that given the right policy environment, urban cultivation could be the panacea for food insecurity during rapid urbanisation” (Crush, *et al.*, 2010:7).

As indicated in the above-mentioned discussions, the reality is that food insecurity is real, and Cape Town is no exception to this phenomenon. Battersby (2011) reports that food insecurity is both severe and long lasting in Cape Town in the low-income housing communities. Low-income housing societies have settled for reduced foodstuff sources at affordable prices. Some of these concerns are anthropogenic factors in relation to land and the socio-economic factors associated with the current state of the environment.

2.5 LAND USE PRACTICES IN THE PHA

Urban agriculture in the PHA has taken on different identities. According to Blake (2014), the “Philippi area is a unique city-based productive green lung that has a long history of food production and is still being predominately used for agriculture today within the PHA”. Mixed Land use practices have altered urban agriculture in the PHA as well as many other urban agricultural environments. Blake (2014) further elaborates that “changing of the urban edge and rezoning of land from agriculture to mixed use is a current issue, and that, “Philippi is the traditional sand mining area in the CCT, with current glass sand mining being undertaken by Consol Glass since the mid-1950s” (Blake, 2014:6).

Over a five-year period, sonic drilling will take place that could damage the aquifer and hamper farming activities and could then spell the end for the PHA. Presently sonic drilling is predominantly used for environmental investigations (including sensitive projects such as dam remediation, nuclear site investigations and hazardous waste site reclamation), mineral exploration and geothermal installations (Blake, 2014:8). Food security remains a challenge, however; available land and the use of land for agricultural purposes is also becoming a contested issue, especially in the PHA. Some of these concerns are anthropogenic factors in relation to land and the socio-economic factors associated with the current state of the environment. For argument sake, informal settlements in South Africa specifically Cape Town, has seen the constant protesting and violent eruptions for service delivery. “Cultural services form an important part of tourism amenities in agricultural landscapes” (Van Berkel & Verburg, 2014: 166).

Food links people to land. Furthermore, “food relates to a wide range of municipal and regional policies, from land use planning to infrastructure and transport, environmental conservation, housing and economic development” (Moragues *et al.*, 2013:86). “Urban agriculture is one way to bolster urban food supplies”, Makoni *et al.*, (2016) and “urban farming is becoming more common in the USA, as food-based entrepreneurs seek to make money farming in the city, under mixed land use practices. Yet many urban farms are concerned with other factors in addition to food production, and thus have incorporated social goals into their missions” (Dimitri *et al.*, 2016:46).

Urban farming units are small and operate on a smaller scale and represent different forms of subsistence agriculture. According to Blake (2014), the main vegetable types that are grown in the PHA in both summer and winter due to the favourable microclimate include carrots, cabbages, potatoes, lettuce, beans, onions, peppers, leeks, cauliflowers, spinaches, and broccoli” (Blake, 2014:8). “Other types of farming include flower and shrub farming, as well as pig, poultry and cattle farming” (Meerkotter, 2011:46). This function forms part of a food network. This is to say, a safety net that seeks to supply the larger part of the society with access to food. “The agricultural public has a constant need to access land for agricultural purposes for the use of a common human resource need, food” (Meerkotter, 2011:40).

The multiplicities around urban/peri-urban agriculture, especially with regards to land use, have decreased over the years and many other forms of operations have taken over urban agricultural areas. “The PHA does, however, have significant management challenges and urbanisation pressures, most notably competing land demands for housing” (Report to Economic, Environment & Spatial Planning Committee 2012). Beukes (1987) states that 90% of the inhabitants of developing nations is tangled in one or the other form of farming. He also adds that city farming usually takes place in diverse conditions or on mixed land use space, much like the PHA with notable land use challenges. According to Adelana and Xu (2006), the “Cape Flats area is characterised by both high productivity of groundwater resources and dense human settlements with industrial and agricultural activity”. Blake (2014) indicates that the extensive use of groundwater within the PHA, which in effect controls the viability of the PHA, therefore indicates the high value of the Cape Flats Aquifer (CFA) to agricultural production in the region.

2.5.1 Urban Agricultural Policy for the City of Cape Town

According to the Development Bank of South Africa, (DBSA, 2009 as cited in Frayne *et al.*, 2009), the scale of demographic growth and urbanisation experienced in Southern African Development Community (SADC) indicates that urban development challenges will intensify over the coming decades. “With the recently adopted 2030 Agenda for sustainable development, and its full range of Sustainable Development Goals (SDG), specifically SDG 11 cities and human settlements [become] inclusive, safe, resilient and sustainable”. This means that there is a real global political demand for more resilient and robust urban food systems. The challenge is how to move forward and concretely address this demand”. Research indicates that future urban growth

will be most intense in Asia and Africa, and that these two regions will have the largest populations on the planet by 2030 (Frayne *et al.*, 2009:16).

The vision of the Integrated Food Security Strategy is to attain universal physical, social and economic access to enough, safe and nutritious food by all South Africans at all times to meet their dietary and food preferences for an active and healthy life (DAFF, 2002).

The DAFF (2002) further elaborates that its goal is to eliminate hunger, undernourishment and food uncertainty. In addition, its strategic objectives are to:

- a) Increase household food production and trading;
- b) Improve income generation and job creation opportunities;
- c) Improve nutrition and food safety;
- d) Increase safety nets and food emergency management systems;
- e) Improve analysis and information management system;
- f) Provide capacity building;
- g) Hold stakeholder dialogue.

In Cape Town, many people receive a limited income, and many of those people are situated close to or in proximity to a food producing community much like the PHA. Should poverty be eradicated, people of low-income housing communities and informal settlements will be better able to access food at affordable prices. To achieve such a standard, it is important to incorporate Community Food Security (CFS) at a local level before implementation at a national and global scale can take place. Although the concept is relatively new, it has an interest in capturing the central ideas and place of food in communities. It may be the world in a hunger crisis, but if this is narrowed down, it becomes individual communities that all form part of the greater crisis. Urban agriculture has also taken on the identity of a community at work, and in most overpopulated cities, some sort of the other community garden is being spearheaded towards achieving a greater good in feeding the community at large.

Hamm and Ballows (2003) define the notion of CFS as a condition in which all civic populations acquire a safe, culturally acceptable, nutritionally adequate diet through a supportable food system. This maximises community self-resilience and social justice. The CFS involves key role players and stakeholders who could forever alter that face of urban agriculture in favour of the community rather than the nation. This makes the goal of alleviating global scale, food insecurity

become obtainable. “The Western Cape’s agricultural sector accounts for almost 21% of the country’s agricultural production and 45% of the country’s agricultural exports” (Battersby *et al.*, 2014:5). Battersby et al (2014:6) further elaborate that the Western Province is a major contributor to national primary agricultural employment, and upstream and downstream employment”. In addition, it promotes urban social food accessibility. As part of the MDG, South Africa has made a commitment to increase food security by 2030 as set out in the MDG (FAO, 2009). “In June 1997 the CCT has set out an Agricultural Policy to assist the National Government in achieving this fundamental goal” (City of Cape Town 2007). This policy will then enable poorer communities to utilise urban agriculture as a strategic development plan in aiding food sources needed to survive. On the other side, it creates economic opportunity through job implementation and stable incomes. “This policy as set out by the CCT (2007) will equally enhance people empowerment to those who were/are previously disadvantaged through the initiation of programmes, education and up-liftment” (CCT, 2007:5). In order to be successful in alleviating poverty and food security at a local level, “The most needed resource before a food security issue is technical, social and business skills” (CCT, 2007:4).

“The initiation of urban food gardens is a result in response to this policy. In the constitution of South Africa regarding the National Environmental Management Act” (Act 107 of 1998, NEMA). It describes the purpose of the environment which is to provide for cooperative environmental governance through establishing principals for decision making on matters affecting the environment, and to instate institutions that will promote cooperative governance and procedures for coordinating environmental functions exercised by organs of state. “On the ground, urban agriculture is growing out of its ability to assist with, resolving or coping with diverse development challenges. It is spurred by a complex web of factors still little understood, not the least of which are urban poverty and food insecurity” (Mougeot, 2000).

Nonetheless, the South African white paper policy demands that the “environment is needed for both activities, housing and agriculture” (Department of Environmental Affairs and Tourism, DEAT, 2017: 2). The white paper policy also suggests that through their mission statement, which reads as follows: “Governments aim is to initiate grounds for sustainable development founded on unified and holistic environmental management practices and processes” (DEAT, 2017: 3). Furthermore Allen (2003) notes that “there is also recognition that the urban-rural dichotomy that

is deeply ingrained in planning systems is inadequate for dealing with processes of environmental and developmental change in the peri-urban context” (2003:136).

This, however; has a large focus on interactions between civil societies, organisations, national, provincial government and local government. According to Aerts *et al.* (2016), UA is progressively anticipated as an environmentally responsive answer to worldwide challenges as well as urbanisation, public health, food security, and climate change. Aerts *et al.* (2016) also states that UA is a substitute agricultural system based on small-scale local food production in an urban/peri-urban milieu, and which often but not automatically, uses organic techniques and the principles of environmental sustainability. This opportunity allows for individuals without the proposition of land to be actively involved in community projects which can become equipped educationally, financially and socially. Ultimately, this forms part of the broader concept of securing Cape Town’s food sources through people’s empowerment. However these types of projects require strict evaluation and monitoring, whether the programme yields satisfactory results or not. The main question centred on urban food insecurity should be whether urban food, urban agriculture or urban community gardens are in fact able to assist in alleviating poverty.

2.6 CLIMATE CHANGE AND URBAN AGRICULTURE

South Africa’s continental climate is a semi-arid climate, with only about 10.1% of arable land used for agriculture (World Bank, 2014). “Water supply for agriculture comes mostly from snowmelt in the high mountains, making irrigation infrastructure critical for cultivation” (World Bank, 2014). FAO (2009) defines arable land as “land under temporary crops (double-cropped areas are counted once), temporary meadows for mowing or for pasture, land under market or kitchen gardens, and land temporarily fallow. Land abandoned because of shifting cultivation is excluded” (tradingeconomics.com/south-africa/arable-land-percent-of-land-area, 2014).

Climate change is seen as one of the major influences on food security and effects farming in a negative way. Challenges around this negative impact of climate change are on, soaring food prices and land availability for agricultural purposes. However regarding the PHA Blake (2014) states that although the Cape Flats district collects moderately large capacities of precipitation during winter, the main rainwater source for irrigation within the PHA during summer is often from groundwater abstraction. “Irrigation ponds have been constructed and act as reservoirs to store water from rainfall, boreholes, and Irrigation Return Flow, (IRF)” (Blake, 2014:6). “It is

likely that much of this abstracted groundwater is returned to the CFA directly, either through enhanced recharge from the dams or IRF. IRF and irrigation pond water affected by evaporation may have a longstanding effect on the salinity of the aquifer and the soils. This is a concern regarding the long-term sustainability of the groundwater resource” (Blake, 2014:7).

2.6.1 Food security in Philippi Horticultural Area (PHA)

The City of Cape Town has seen numerous take accesses to food for granted. Food is always thought of to be directly from the stovetops in our kitchens, or carrier bags from a boot of a car into a house. However supermarkets has played a fundamental role in making food access possible. “Supermarkets in Southern Africa are emerging and growing rapidly, even across national borders” (Battersby & Haysom, 2012:46). “The most aggressive expansion is being driven by Shoprite which opened their first non-South African store in 1995” (Haysom, 2014: 46). He also adds that “by the end of 2012, the company had 131 supermarkets in sixteen African countries, excluding their South Africa” (Haysom, 2014:46). In addition, supermarket expansion does not necessarily make food sources instantly affordable; instead, it places some urban dwellers in a ‘seasonal access to food insecure’ position. “The expansion of supermarkets in Southern Africa means that development and food security practitioners seeking to enable food access need to realise that access to markets will increasingly mean access to supermarkets” (Weatherspoon & Reardon 2003: 1146).

The constant drive to utilise the environment for the use of agriculture has been noted to assist greatly in alleviating food-insecure nations through integrated approaches. This makes the challenge of urban-rural migration a manageable task for government officials and policy-makers. “Research published in 2003 found that the supermarket sector in South Africa accounted for 50 to 60 percent of all food retail” (Reardon *et al.*, 2003: 337). Haysom (2014) reports that the supermarket sector has persisted to develop, with formal food trade accounting for 68 percent of all food trade in 2010. “In 2012 Shoprite Checkers and Pick n Pay each controlled over 30 percent of the formal food retail market, Spar 20 percent and Woolworths just under 10 percent” (Haysom, 2014:47). While, in Cape Town, informal settlers are protesting for housing, and farmers in the PHA are fighting against development to secure food security for urban dwellers, supermarket expansion is growing as rapidly as development in the PHA.

The ‘super-marketization’ of food is argued to assist urban food security as it has the capacity to lower food prices, thereby providing affordable, nutritious food for the urban poor (Battersby & Peyton, 2014 as cited in Haysom, 2016). “However, this is primarily based on the assumption that price is the only determinant of urban food access” (Battersby & Peyton, 2014, as cited in Haysom, 2016”47).

2.6.2 Seasonal food security (Cape Town)

“The 2015 Seasonal Food Security Assessment (SFSA) monitors changes in livelihoods and food security in the country” (Seasonal Food Security Assessment (SFSA), 2015:5). According to the SFSA (2015), generally 5.9% of the people (1, 57 million people) is relentlessly food insecure on present consumption and coping capability accounts. Access to land is the main reason for food insecure household in urban or build up environments. Landholding sizes seem more relevant in explaining or describing stock such as food, income, property, and capital. These four points speak directly to the four dimensions of food security as earlier mentioned by the FAO (2008); namely availability, stability and access for both physical and economical.

2.6.3 Urban agricultural gardening projects in Cape Town

With city space being the biggest concern for urban dwellers, many urban garden projects have been started in backyards. Small open spaces used materials like bottles, bathtubs, old tyres and street corners based in low-income housing communities. Some formal institutions like schools, community churches and community centres have equally opened their domains for these projects to start. One of the CCT concerns is overcrowding. Any available open space is immediately consumed as living space. Due to the fact that most urban dwellers are dependent on potatoes as part of their main meal of the day, growing your own vegetables allows for less buying and reduces the economic dependency for potatoes. “The PHA produces over 50 different crops and just under 100 000 tonnes of fresh produce annually to both established retail stores and local communities”, Blake (2014), “while assisting community gardeners to produce fresh food produce, for the growing population” (Blake, 2014:7).

2.7 SUSTAINABLE LIVELIHOODS APPROACH (SLA)

2.7.1 Theoretical framework

The empirical proof delivered by the literature review suggests that urban agriculture does have a significant contribution towards urban households in the form of urban farming. This examination is based on how food security in developing countries much like South Africa, through urban agriculture has contributed significantly towards urban food security. The Sustainable Livelihoods Approach (SLA) is used in this investigation as a framework to help categorise livelihood activities or strategies, and identify livelihood aspiration and barriers. The SLA is an important analytical tool used to explain how peripheral factors effect the poor internally. Poor households will only be able to live a productive and healthy life if they adopt different livelihood strategies. In this study, the influence and access to livelihood resources include access to land, water, equipment, income, skills, knowledge, health and social networks and association.

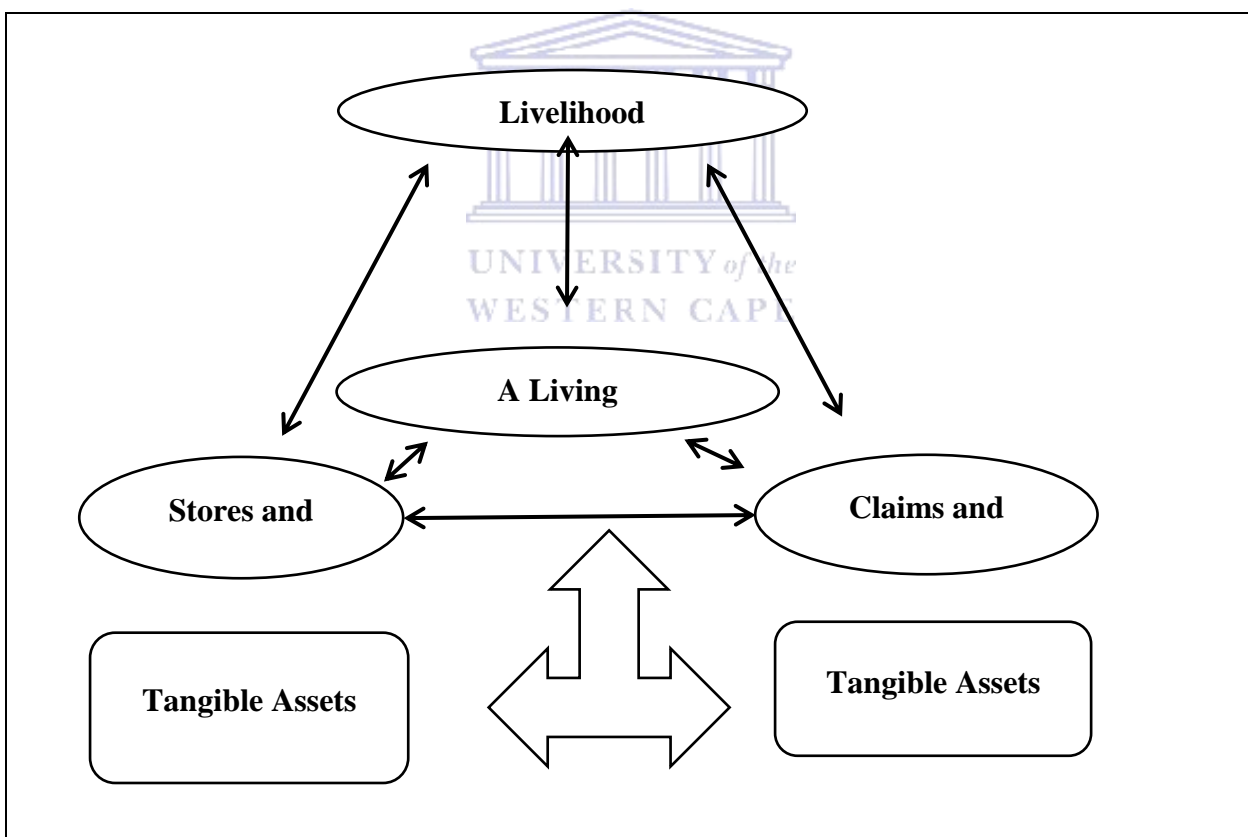


Figure 2:2: Sustainable Livelihoods Approach Framework.

The Sustainable Livelihood Approach framework assisted me in the quest to identify the livelihood strategies and coping mechanisms adopted by the PHA farmers and the PHA

community for survival and to be more food secure. Using this framework allowed for analysis of the PHA in the context of a well-known framework with well-publicised principles, goals and documented empirical studies. This is to facilitate a better and more cohesive approach to understanding the research questions. The SLA allowed the researcher to report on livelihood strategies adopted, the livelihood outcomes as well as the coping mechanisms adopted by the community. To understand the SLA in the context of the PHA, it is important to highlight factors like community vulnerability and external factors that affect the community at large and. Equally, it is also important to understand what it means to community members of the PHA to make a living.

The general notion of SLA is central to sustainability. The livelihood approach is an attempt to understand how different people live their lives in various places. “The literature shows a variety of definitions of the concept livelihoods, which at its most basic entails “the means of gaining a living” (Chambers in Scoones 2009). They share a preference or similarity with the same common goal. The areas of application include but not limited to “village studies, household economics and gender analyses, farming system research, agro-ecosystem analyses, rapid and participatory appraisal, studies of socio-environmental change, political ecology, sustainability science and resilience studies” (Scoones 2009). This shows the wide range of practical uses. SLA strongly influences organisations to re-look their development policies and strategies towards involving the poor and to place them at a centre or intersecting point of analysis. The source provided by Conway (1991) suggests that one should look at local perspectives with aims of seeing food security from an environmental, social and economic point of view rather than a “previous top-down neo-liberal policy”.

Environmental sustainability refers to challenges with overpopulation and wasteful and polluting consumption patterns that cause climate change, pollution, desertification, and excessive use of non-renewable resources, from local to the global level (Conway, 1991). In terms of availability, SLA defines the social availability as an enhancement to self-sufficient/ self-reliant capabilities to assist in stresses, social shocks or environmental pressures. The general notion is that livelihoods become sustainable when they reach resilience though pressures persist. (Department for International Development, DFID, 1999: 5) identifies five common assets ; namely human, social, physical, natural and financial capital. These livelihood resources as identified by Scoones, (2009, as cited in Conway, 1991) refer to capital and suggest conceptualising them as productive streams

derived from livelihoods constructed” (1998:7). DFID (1999) outlines each of the five assets and identifies that each area has its own works of literature with questions of validity to the general concept. With the SLA as an integral part of understanding the PHA, a concise description of each idea is necessary.

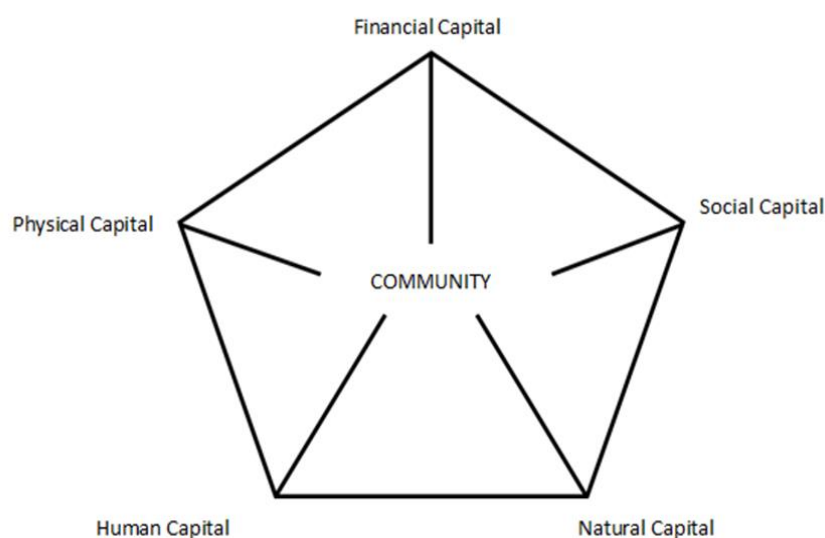


Figure 2.3: Food and Agricultural Organisation, Sustainable Livelihood Approach Layout Map, 2003.



2.7.2 Financial capital

“Financial capital refers to economic activities such as cash flows, savings, and investments that support livelihoods and what can be afforded by individuals” (DFID, 1999:2). As identified by the DFID (1999) “economic wealth is a versatile possession and the only capital that can be converted into varying types of capitals with ease depending on transformation structures and process” (DFID, 1999: 2). Therefore, financial capital is, in fact, resources that individuals and predominantly households can use.

2.7.3 Social capital

Secondly, “social capital refers to the mutual trust and understanding, shared amongst members of the human network” (DFID, 1999:2). Furthermore “values and behaviours bind members and forms human networks and build communities to make cooperative action possible” (Njagi, 2005:4). Unlike other assets, social capital is envisaged as “a mechanism to correct market

failures, especially those associated with access to information, a way in which checks, and balances can be placed on government action and a means through which policy can be influenced” (May *et al.*, 2000: 255).

2.7.4 Natural capital

Thirdly, “natural capital refers to resource bases found in nature that are essential for livelihood creation to sustain life and includes clean air, trees, and forests, water, land and wildlife” (DFID, 1999:2). DFID (1999) also explains the “flows and services that are derived from the natural resource bases, such as nutrient cycling, erosion protection, and waste assimilation, in its definition of natural capital” (DFID, 1999: 2.3.3).

2.7.5 Human capital

Fourthly, “human capital refers to the skills, knowledge, ability to labour and good health that enable a person to pursue different livelihood strategies and achieve their livelihood objectives” (DFID, 1999: 2). DFID (1999) stresses that “human capital can be bolstered directly, for example through resource transfers for building schools and hospitals and indirectly, by promoting job creation initiatives, thereby bolstering the value of education in the eyes of the community” (DFID, 1999: 2).

2.7.6 Physical capital

Lastly, “physical capital refers to basic infrastructure, including affordable transportation, secure shelter and buildings, adequate water supply and sanitation, clean and affordable energy and access to information, as well as producer goods, which are the tools and equipment that people use to function more productively like vehicles, computers and farming equipment” (DFID, 1999: 2).

Regardless of these natural processes being visible, there exists an absence of enough knowledge about these processes, such as climate change, understanding the natural urban environment and urban farming in the PHA and amongst the community. The PHA is a leading working environment. in cooperation with organisations such as Schaapkraal Civic Alliance, PHA Food

and Farming Campaigners, backed by 33 other civil organisation, the PHA has been working with urban farmers and communities in low-income, specifically orientated around the PHA environments. This is in order to save this fundamental portion of land. The prime objective of the PHA is to promote and establish sustainable food production. The PHA is notorious for producing commercial and emerging small-scale urban farmers. They produce food explicitly for sale and not for home consumption (Crush *et al.*, 2011, as cited in Wachholz, n.d.).

Urban agriculture does, however; influence and contribute to disadvantaged communities. This can be weakened through a lack of knowledge on the financial, social, natural human and physical capitals supported by the SLA. Urban agriculture is a “largely sustainable livelihood strategy, especially for poor urban dwellers” (Chen, 2016:19). In order to evaluate whether the livelihood assets farmers of the PHA use positively or negatively affect the lives of urban dwellers accessing the PHA, it was necessary to gain insight through the SLA for the purpose of this study. The SLA assisted and provided information about the farmers of the PHA, their resources and distribution thereof, which will ultimately secure their future successes.

Conway (1991:7) confirms that

“A livelihood comprises of capabilities, assets (stores, resources, claims and access) and activities required for a means of living. A livelihood is sustainable which can cope with and recover from stress and shocks, maintain and enhance its capabilities and assets, and provide a sustainable livelihood opportunity for the next generation; and which contributes net benefits to other livelihoods at the local and global levels and in short and long term”.

Attention is paid to the concepts of predispositions of access to food, availability of food, behaviour towards the field and towards the social support. To live a healthy productive lifestyle, poorer households need to adopt livelihood strategies suitable for their situation. Incorporating sustainable livelihoods into urban landscapes encourages sustainable development. According to Chamber & Conway (1992), a livelihood embraces the capabilities of people and available resources to survive. However complexities city dwellers face are centred on the food and water nexus, unemployment, poverty, population increase, and waste accumulation. Figure 2.3 indicates the five foci points of SLA and its position in the community. Kappel *et al.*, (2010:8) note that livelihood outcomes are the achievements of people’s livelihood strategies. In addition, very little

research has been found that surveyed notoriously violent low-income communities in assessing food security, urban agriculture and sustainable environmental management. However, much uncertainty still exists in the relation between low-income communities.

2.8 SUMMARY

By contextualising this chapter through a literature review discussion, the focus was laid on urban food security from a global South perspective starting with the SSA, bringing it to the South African context. It also provided discussions of underpinnings such as land use for agriculture, urban agricultural typologies and its contribution to urban food security as well as urban food gardens as a resource of alleviating poverty at a local scale. Lastly, the visit to urban food insecurity at a local scale assisted the researcher with literature on Cape Town, the PHA and local food initiatives in aid of understanding food security from various angles. It also discussed the Conceptual Framework; Sustainable Livelihood Approach (SLA).



CHAPTER 3

CONTEXTUALISING THE PHILIPPI HORTICULTURAL AREA (PHA)

*“Never doubt that a small group of thoughtful, committed, citizens can change the world.
Indeed, it is the only thing that ever has”*

- Margaret Mead

3.1 INTRODUCTION

While chapter two discussed the literature reviewed and the conceptual framework used in this thesis, this chapter provides a report and discussion of the Philippi Horticultural Area (PHA). It also discusses urban agriculture in the PHA and in Cape Town, especially the Cape Flats Aquifer (CFA) and the biodiversity network connected to the PHA. A description of the study site is presented, including an account of urban agriculture, land use and food security in the PHA. Photographs taken during the data collection process were used for a graphic presentation of the study area. Links between urban agriculture and food security in communities are numerous and varied in both, the PHA and surrounding geographical locations, and, are favorable to, and, includes availability, access, and stability to food, in cities.

3.2 THE STUDY AREA

With coordinates of 34° 1'0" S, 18° 33'0" E, within the local municipal authority of City of Cape Town (CCT), the PHA is situated in an ideal location for urban agriculture and in proximity to local communities. This prime agricultural land borders Manenberg, Hanover Park, Mitchell's Plain and Lotus River. Blake (2014) argues that the PHA produces over 50 different crops and just under 100 000 tons of fresh produce annually (to both established retail stores and local communities). The PHA is situated 12 km southeast of Cape Town city Centre, in the southern central Cape Flats region. It covers an area in excess of 400 km². It extends from False Bay in the south to the Tygerberg Hills and Milnerton in the northeast and northwest respectively (Blake, 2014:2). As shown in Figure 3.10, the PHA is directly above the CFA which has been the main water supply for the PHA farmers. There are also some residents farming successfully because of land reform procedures in the PHA (Van Der Merwe, 2016). According to the Food and Farming

Campaign (para 1. 2016), farms are so close to surrounding main roads and industrial areas. This means that it is a short drive away from some of Cape Town's busiest business districts, industrial areas, and low-income housing communities. Situated between the major transport routes of the R300, N2 and Govan Mbeki roads, many have turned to an informal way of accessing resources to secure their daily food needs. Many of these dwellers have since been occupying the PHA under informal dweller status of Uitkykbos (Figure 3.2).

3.3 POPULATION OF THE PHA

The PHA and its surrounding areas are made up of predominantly 'so-called' coloured and black population groups as defined by Jackson (2010:38). The population of the PHA is 6618 with a population density of 193 people p/km² (STATSSA, 2011). There has been a fixed entry of people through the PHA from surrounding communities. Figure 3.1 depicts population densities and sizes for the PHA and surrounding communities. In 1967 the PHA were reduced for township establishment in the Northern and Eastern section (Theron, 2016). Firstly, the PHA is an area where small-scale farmers are able to feasibly make a living. According to the Food and Farming Campaign (para 1. 2016), the CCT is under pressure to provide housing to the growing population, and the suburb of Philippi's population itself is in a struggle to gain better access to food sources. According to Census data, the PHA falls under the Cape Flats Planning District, bordered by Ottery, Hanover Park and Manenberg areas. These areas are long battered by gang violence, with Hanover Park and Manenberg being two of the Cape's most notoriously violent areas on the Cape Flats (Food and Farming Campaign, para. 2. 2016).



Figure 3.1: Population densities in the PHA and surrounding suburbs. Amended map by Sadauh 2016

Figure 3.1 identifies some low-income housing zones around the PHA. It includes the following:

Hanover Park: population 34 625 density 16 385.1 p/km,

Lentegeur Population 37 698, density 6118 p/km,

Mitchells Plain: Population 310 485, density 7095 p/km,

Strandfontein: Population 40 403, density 3432 p/km²,

Lotus River: Population 35 628, density 7600 p/km²,

The PHA population 6618, density 193 p/km² and

Manenberg (Amended PHA map from Saudah 2016).

In the 1970s, Philippi East was rezoned from a farming area to an industrial zone and has become a growing industrial node in Cape Town. Nowadays, there is an ever-increasing number of people moving through the area predominantly from the areas highlighted in Figure 3.1 (Food & Farming Campaign, para. 3. 2016).

The concept of food security includes rural and urban agriculture as well as physical aspects such as labour. In the increasingly stressful world, it seems likely that in future food insecurity amongst low-income housing communities will continue to grow, while urban agriculture in the PHA will continue to promote sustainable agricultural practices in the PHA to assist in alleviating poverty.

3.4 SOCIO-ECONOMIC CONDITIONS AND WASTE MANAGEMENT

“The socio-economic challenges faced by the PHA included waste management and socio-economic impacts such as increases in criminal activities and drug use, unemployment, a lack of skilled workers, and housing backlogs” (Van der Merwe, 2016 :20). It is evident that an increased level of poverty, access to food, and financial resources are on the steady decline in the PHA. Most of the coloured informal dwellers in the PHA are from areas such as Manenberg, Hanoverpark and Mitchells Plain These people have used a waste collection method as a means of access to financial resources to secure their daily meal as well as a sustainable livelihood strategy to ensure this become a reality. Van Veenhuizen (2016:6) concludes that turning urban wastes into a productive urban resource might contribute to sustainable urban development.. “It also functions as an important strategy for poverty alleviation, community building and social integration of disadvantaged groups” (Van Veenhuizen, 2016:6).

On a day-to-day basis, the following are always present and noted:

- Trolley pushers (plastic bottles, plastics, paper, and tins)
- Wheelie bin waste collectors (wood, papers, bin diggers for electrical goods, etc.)
- Scrap metal collectors (copper, iron, metal electrical cabling etc.)

The above-mentioned are all referred to as “Google” in simple terms for people who are from this community searching for items that are deemed sellable for a financial return. Figure 3.2 below shows the different elements involved in the informal trading process in low-income housing communities to access food or to secure their financial access day-to-day.



Figure 3.2: Informal community members of Uitkykbos, PHA:

((A) Low-income housing community members, (B) Bottle collection in the PHA, (C) Waste collection earnings, (D) food that can be purchased of the earnings) (Source: Authors own, representation of the trolley pushers in the PHA).

A lack of access to financial resources disenables the low-income housing communities of Uitkykbos, Manenberg, Hanover; food is offered at affordable prices in Park and Mitchell Plain. . Low cost housing was developed in townships (Battersby-Lennard & Haysom 2012:7), while the remaining section of the PHA was protected by the Physical Planning Act, Act 88 of 1967 (Theron, 2016: 16). However, community members have resorted to other ways to provide financial resources to secure their daily meals.

A livelihood strategy employed by the low-income housing community members was developed. As indicated in Figure 3.2, it included the following: photo (A) to do scrap collecting daily (referred to as “Google” searching for goods), photo (B) willingness to gather plastic bottles in the PHA, washed and separated by colour and sold to pay for a daily meal, photo (C) the amount of money that can be made after selling of the above-mentioned items in photo (B) and photo (D) items that can be bought with the amount earned in photo (C). Some community members feel that this is their contribution to the environment as collecting waste helps them to have access to both food and financial resources. This is a form of sustainability that ensures their needs are met while caring for the environment.

Theron (2016) notes that between the 1970s and the 1980s informal settlements arose in the Crossroads area in the northern section of the PHA. Between 1951 and 1980, the population in the rezoned sections of the PHA and Crossroads increased from approximately 16,500 to 140,500 people (Anderson *et al.*, 2009:8). Figure 3.3 below depicts livelihoods of low-income housing community members. Photo (A) shows formal housing and shop for low-income households in the PHA. Photos (B, C,E & F) show the type of housing structures in the PHA deemed informal housing settlements. Photo (D) shows a slightly improved quality of informal dwelling in the PHA.



Figure 3.3: Formal and informal dwellings in the PHA: (A) Formal Housing in the PHA; (B, C, D & E) Shows informal housing in the PHA; (D) indicates Semi-formal housing in the PHA. (Source Authors Own, Photograph representation of informal settlements in the PHA).

3.4.1 The impact of development on urban agriculture in the PHA

Encroachment on the PHA has been very active and persistent. This has resulted in the disempowerment and resilience of the poor as identified in Figure 3.3. The challenge of the PHA officials, such as the City of Cape Officials, DAFF Officials, Schaapkraal Civic Association and the Food and Farming Campaigners, face is to find ways to best respond to land use challenges affecting urban agricultural farmers on both commercial and small-scale levels.

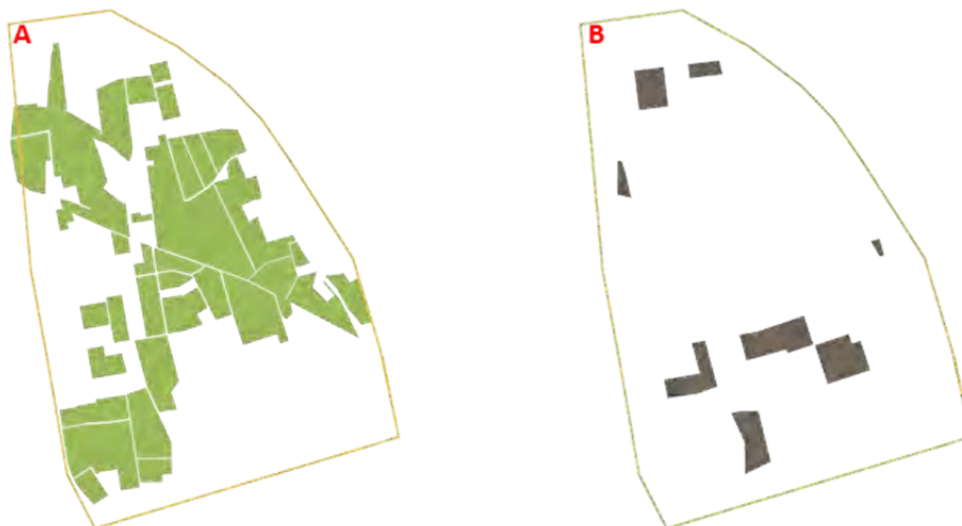


Figure 3.4: Urban development trends in the PHA: (A) Represents available agricultural land in the PHA; (B) Represents developed land in the PHA (Amended map from Saudah, 2016).

Key protagonists in the PHA have been private property developers and the city’s housing department. Both are desperate to acquire land in order to address the housing backlog of the CCT (Pollack, 2008). Planning Directorate officials have tried to introduce alternative measures through funding new and innovative research within the area to retain the current zoning concern (Pepco). However, even after formal city scale decisions were made to protect the land, ministerial office bearers in the Western Cape Province overruled these, as was the case with the 445.9ha area of land in the southwestern corner of the PHA, Figure 3.8, (Haysom, 2012). Figure 3.4 above shows that photo (A) highlights the green which represents available land for agriculture in the PHA, while photo (B) highlights the grey which represents the already developed land in the PHA.

Figure 3.4 also refers to the available agricultural land in the PHA. The PHA farmers, both commercial and small-scale, produce 48 or more vegetable types, which contribute over 50% of fresh vegetables consumed in Cape Town (<https://www.farmgardentrust.org/pha>). Decisions to redraw land use will reduce hectares of the PHA where vegetables are currently grown Figure 3.5, (<https://www.farmgardentrust.org/pha>). Hawkers and spaza shops in the poor areas of Cape Town sell over 20% of fresh produce from the PHA. The rest is sold via distribution networks of major retailers like Pick n Pay, Shoprite, Woolworths, and Fruit n Veg City (<https://www.farmgardentrust.org/pha>).

UNIVERSITY of the



Figure 3.5: The Philippi Horticultural Area (PHA) is known as Cape Town’s Food Basket. (A) Farm of Johan Terblanche in the PHA; (B) farm labourers of the PHA; (C) rooting for veggies, Save the PHA farms, Cape Times (April 2018);(D, E & F) Photo by Western Cape Government.

As indicated in Figure 3.5, it represents the already existing agricultural scale of the PHA as indicated in photo (A) farm of Johan Terblanche in the PHA. (B) is a photo of farm labourers of the PHA. photo (C) shows rooting for veggies, Save the PHA farms, Cape Times (April 2018). Whereas photo (D) is taken by the Western Cape Government.

Figure 3.6 below shows how development has impeded the agricultural area and could be the reason why urban agriculture in the PHA would decline. It depicts the following: photo (A) in red represents recent development in the PHA, while photo (B) shows grey areas of major developments.

in Figure 3.7, photo (C) shows the available agricultural land in the PHA currently.

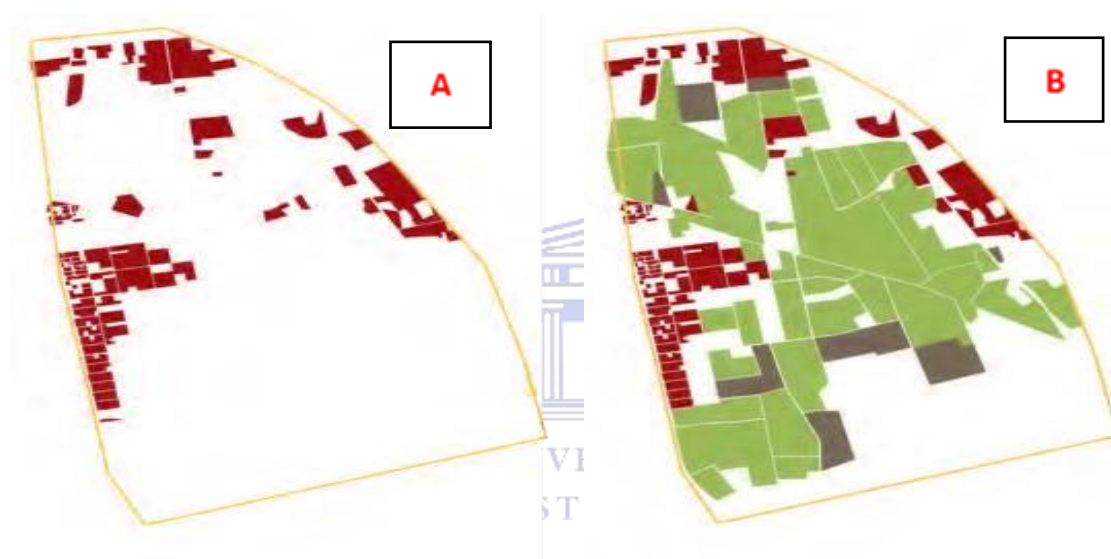


Figure 3.6: Development components of the PHA: (A) Map of recent developments in the PHA; (B) Combined outlook of recent developments in the PHA. (Amended maps from Saudah, 2016).

The City of Cape Town's Urban Agricultural Policy states that urban agriculture can:

- Enable the poorest of the poor to utilise urban agriculture as an element of their survival strategy (household food security)
- Enable people to create commercially sustainable economic opportunities through urban agriculture (jobs and income)
- Enable previously disadvantaged people to participate in the land redistribution for agricultural development program (redress imbalances)
- Facilitate human resources development (technical, business and social skills training)



Figure 3.7: Development and agriculture overlay map of the PHA: (C) Green and Grey areas represent available agricultural land and developed land. (Amended map from Saudah, 2016).

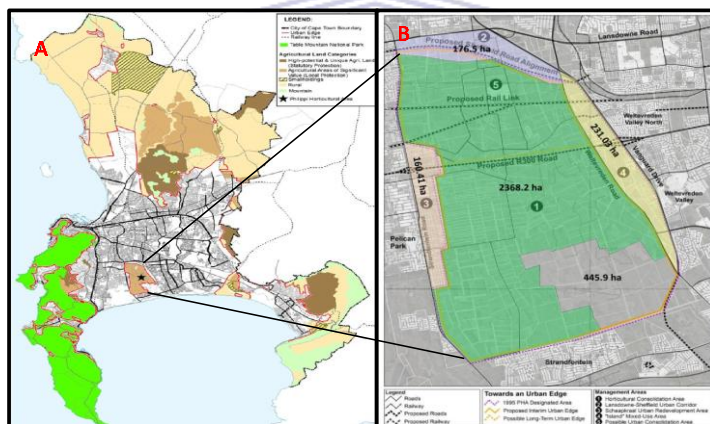


Figure 3.8: Location of the PHA: (A) Cultural and Agricultural land (CCT) 2012 PHA. (B)

Research site in the PHA. (Source:

https://tools.wmflabs.org/geohack/geohack.php?pagename=Philippi,_Cape Town).

Pepco argues that for most within the city and provincial government structures, the PHA does not reflect the needs of a modern city, even though the PHA produces 50% of the CCT's fresh food produce. Pepco further argues that food production does not belong to the city, and it has no place in the city's sphere. In addition, there are more pressing issues such as housing development, large infrastructural development, and other private sector developmental needs. However, processes for development on the land have proceeded with the Provincial Department of Environmental Affairs. Development Planning has recently approved the Environmental Impact

Assessment (EIA) for Oakland city a proposed 472.36ha housing and industrial development in the near future. Despite broad public opposition (www.iol.co.za/capetimes/news), this plays a major role in saving the PHA for its contribution towards food security through farming initiatives. The proposed housing development made by company Rapicorp 122, Figure 3.9, will threaten the livelihoods of emerging farmers and their workers (www.iol.co.za/capetimes/news). While the (southeast) area is less horticulturally important, it is still far more valuable for its purpose as the overlay of an irreplaceable aquifer and for agriculture than as a site for development” (www.iol.co.za/capetimes/news).



Figure 3.9: Proposed housing development in the PHA: Oakland Housing Development Framework for the PHA. The PHA is a Cultural Landscape and the productive core of the agricultural area to be protected in terms of the City’s District Plan (Source: Oakland Housing Development Framework, 2016).

Furthermore to halt development in the PHA, it is said that the PHA is a unique and irreplaceable area, and it cannot be recreated in any given geographical location (www.iol.co.za/capetimes/news). However, the PHA encompasses a distinctive landscape feature as one of the only natural agricultural areas in the metropole area of Cape Town. Development will alter this phenomenon forever. Furthermore major distribution centres in the PHA continues to upgrade, extend and enlarge their infrastructural territories. The portion of land in question is owned by Rapicorp 122 (Pty) Ltd (Figure 3.9). They intend to rezone and subdivide the property for the purpose of a large, mixed use development comprising, inter alia, residential, educational, offices, retail, industrial, civic, community, open space and conservation land uses (Postlethwayt,

2015:3 as cited in Blake, 2014:5). The Uvest, which trades as Exclusive Access Trading, is looking at two smaller developments, altogether comprising about 750 hectares (www.groundup.org). This will shrink the PHA tremendously and negatively affect its agricultural contribution which is over 48 vegetables. It will also affect the constant flow of the CFA that provides farmers with a stable water source.

3.4.2 The impact of development on the Cape Flats Aquifer (CFA)

The Cape Flats Aquifer (CFA) is the most important source of water for PHA farming (Haysom, 2012:20). According to Haysom (2012), parts of the Cape Flats area have a very high-water table, and the CFA supplies the PHA with water all year round. A concern for the PHA is the discussions around the longevity of the CFA as development grows within the area. The PHA's natural system is currently being encroached and will influence this natural water source in the PHA, that makes the PHA drought proof.

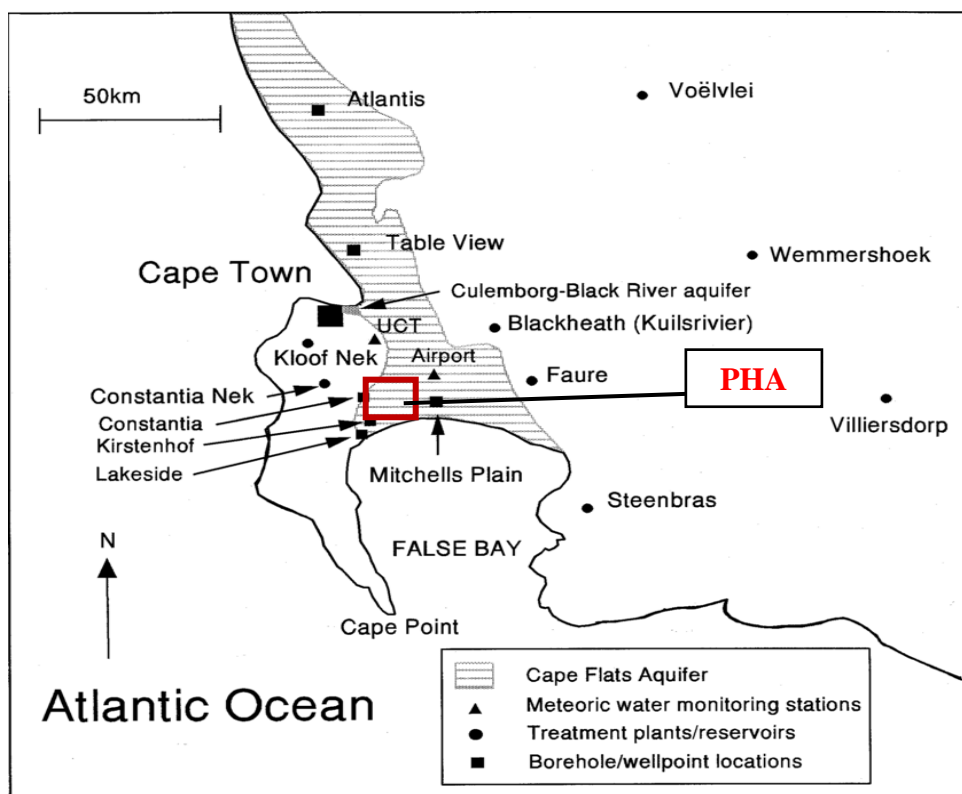


Figure 3.10: Sketch map of the Cape Peninsula and part of the Western Cape region showing the position of water treatment plants and aquifers: The location of the Cape Flats and Culemborg-Black River aquifers is shown. Steenbras, Constantia Nek, Kloof Nek, Wemmershoek and Voëlvlei. (Retrieved and amended from: <https://www.researchgate.net>).

The CFA covers about 630 square kilometers as shown in Figure 3.10. It has the potential to supply the CCT with an estimated 18 billion liters of fresh water per annum, representing more than two-thirds of the city's basic water needs (Haysom, 2012:42). There are also some residents farming successfully because of land reform procedures (Van der Merwe, 2016:2). This is why the PHA is such a valuable urban agricultural farming area. The CFA is an integrated underground water system covering 630 square kilometers, mostly located underneath the Cape Flats, and mostly covered by tar and concrete structures, (Van der Merwe, 2016:2). The Western Cape Provincial SDF 2014, in alignment with the National Spatial Development Perspective (NSDP), are specific and clear documents, giving the private sector clear signals as to which parts of the city should be used for development (Theron, 2016: 21).

The remaining farming areas of the PHA that have not been developed yet are being earmarked for development. According to the hydro-geologist Yongxin Xu, Professor at the University of the Western Cape, the aquifer holds enough fresh water to supply the city with 30% of its potable water needs almost immediately (Van der Merwe, 2016). Essential to the health of the CFA is its recharge zone and the aboveground catchment area (Van der Merwe, 2016). The PHA farmlands and wetlands form the last natural green space where rainfall can permeate freely into the underground aquifer. This is a process that is essential to survival of the CFA for the PHA as shown in Figure 3.11.

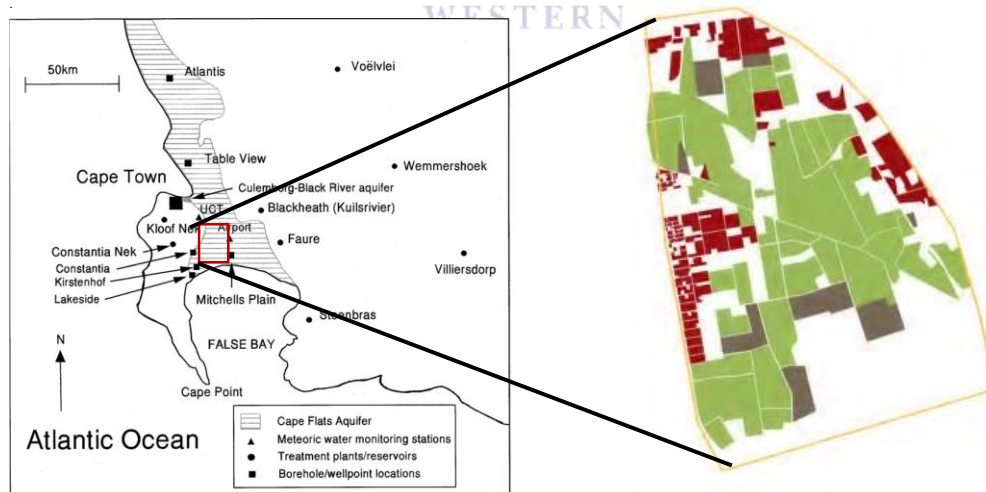


Figure 3.11: Sketch map of the Cape Peninsula and water treatment plants and aquifers: Situational map for the PHA on the Cape Flats Aquifer. (Amended from Saudah, 2016 & CFA map retrieved from <https://www.researchgate.net>).

The CFA is also under growing threat from pollution caused by human activities: waste-water treatment plants, waste disposal sites, informal settlements with a lack of adequate sanitation, unlined or leaking canals, leaking sewerage pipes in some areas, storm-water runoff and leakage of toxic industrial chemicals and petrol/diesel tanks (Haysom, 2014:5). Although at present these are regarded as low-to-medium threats in the PHA, in other areas of the aquifer, these sources of pollution have caused water quality to deteriorate to non-potable levels (Haysom, 2016:12). The nature of urban expansion has increased the threat of anthropogenic contamination to the sustainability of the CFA for potable use, and over the past decade, it has deteriorated so much that it is non-potable in certain areas (Hay, *et. al.*, 2015:7). Figure 3.11 shows the extent of the aquifer and the location of the PHA, providing a better understanding why the PHA is so fertile. This is simply because of locality and accessibility to the CFA.

A study conducted by the Council for Scientific and Industrial Research (CSIR) (1995) reports that the Cape Flats consists of both primary and secondary sandy aquifers where the former gives the Cape Flats several distinct advantages:

- The aquifer is recharged during the winter months and serves as a reliable resource during the long dry summer;
- The aquifer is recharged relatively easily and allows additional treatment of wastewaters (both treated sewage effluent and urban storm-water);
- Development and maintenance costs are low in comparison with surface water schemes;
- The aquifer is centrally situated to the urban area;
- The supply of water from a groundwater scheme can be introduced or stopped instantly, providing maximum management flexibility.

(Adapted from Wright & Conrad, 1995).

Adelana *et al.*, (2010) argue that the Eerste River, Kuils River, the Diep River, Zeekoevlei as well as other open water bodies represent the surface water hydrology of the Cape Flats area. One fundamental characteristic of the CFA according to Hay *et al.*, (2015) is that the CFA recharges quickly and has an estimated residence time of approximately 20 years. Should development continue in the PHA and other areas, this fundamental service received by farmers from the CFA will deteriorate and be lost forever.

3.4.3 Topography of the PHA

The Cape Flats represents a broad area between the Cape Peninsula and mainland areas. The CSIR (1995) reports that horizontal sandstones of Table Mountain were originally linked to the same formations capping the mountains on the eastern fringes of the Cape Flats. Post-Palaeozoic erosion has removed these sandstones between False Bay and Table Bay. Rivers have carved valleys to both False Bay and Table Bay while surf-zone erosion during transgressions has formed marine platforms in the southeast corner of the Cape Flats (CSIR, 1995: 7). This fluvial and marine erosion has shaped the topography of deeply weathered Malmesbury Group and Cape Granite bedrock on the Cape Flats (CSIR, 1995: 7).

3.4.4 Geology of the PHA

The CFA consists of Cenozoic deposits which according to the CSIR report of 1995 it deposits underlain by the Malmesbury Shales or Cape Granite. The CSIR (1995) main points show that the sands, which cover an area of some 630 km², extend in a northerly direction along the West Coast as indicated in Figure 2.1. Furthermore, the CSIR (1995: 7) suggests that Sedimentation initially occurred in a shallow marine environment, subsequently progressing to intermediate beach and wind-blown deposits, and finally to aeolian and marsh (peat) conditions. The CSIR (1995) further argues that a feature of the sediments is the presence of shelly material over most of the area. The sand body is generally stratified horizontally and several lithostratigraphic units can be recognised. Calcareous sands and surface limestone deposits cover portions of the area, while silcrete, marine clays and bottom sediments of small inland water bodies also occur sporadically. Adalana *et al.*, (2010) elicit that the Cape Flats area is essentially lowland. Generally, the Water Management Area (WMA) has a varied terrain, ranging from low-lying sandy plains (with an average elevation of 30 m a.m.s.l.) to Rocky Mountains (the Cape Peninsula mountain chain) with a series of peaks rising to up to 1 038 m on Table Mountain and dropping sharply to the sea in many parts of the peninsula.

3.5 ENVIRONMENTAL CHALLENGES AND BIODIVERSITY CONNECTIONS

The PHA has a high biodiversity density and has diverse environmental needs to thrive. The PHA has its own water sources through the CFA, which in turn allow the biodiversity of the PHA to

flourish, along with any crops grown. Accelerated changes in the environment will ultimately affect this natural phenomenon. The PHA has several industrialised buildings along with several small, medium and large businesses, impeding on the ecological background of the PHA the biodiversity network of Cape Town, (Figure 3.12). Uncontrolled human settlement and illegal land uses (e.g. sand mining) have negatively impacted the biodiversity of the area as well as the quality of biodiversity in the PHA and some parts of the biodiversity networks (in terms of environmental health conditions) (RUAf, 2009: 6). The RUAf (2009). In addition, this is compounded by illegal dumping, lack of toilets, lack of proper waste disposal, free roaming animals, as well as formal housing with very little access to municipal services such as electricity, sanitation and water (RUAf, 2009: 6). The urban agricultural landscape has shrunk significantly since 1953 to date (Figure 3.13) drastically affecting the agricultural productivity of the PHA.

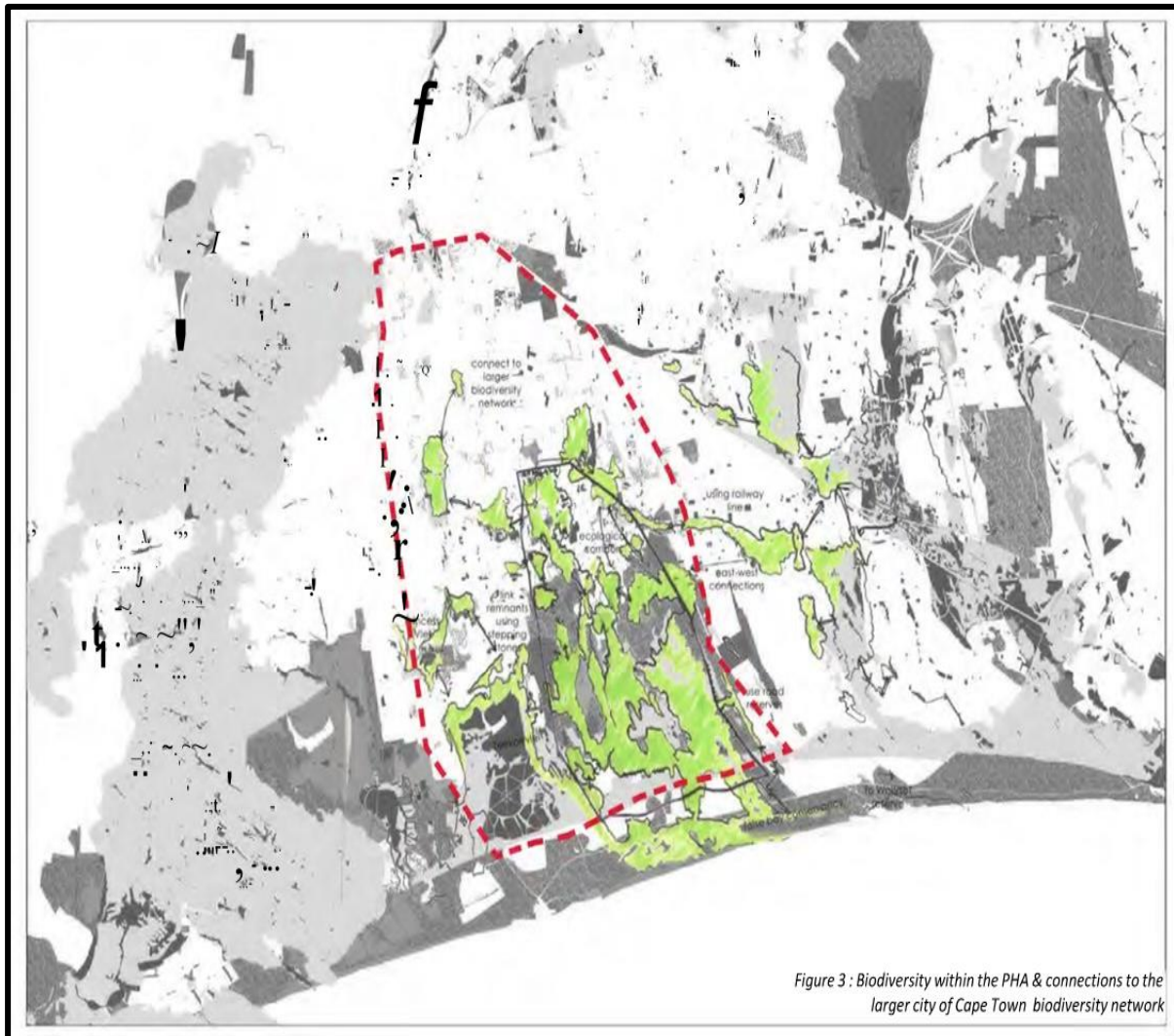


Figure 3.12: Biodiversity within the PHA & connections. (Amended map from Saudah, 2016).

The Future Cape Town Summit 2013 concluded that the major problem within the Cape Town region is the lack of accountability during the process of urban development that is hampered by political agendas, rent seeking and vote-winning initiatives, rather than being guided towards sustainable planning, including urban agriculture (Theron, 2016: 13). The changes over the years are a direct indication of the above-mentioned events in the PHA (Figure, 3.12 & 3.13). The PHA had 13 000 hectares available for agriculture before urban encroachment started within the mid-19th century (Rabe 1983). There were 100 farmers in the area (Battersby-Lennard & Haysom 2012: 20). However due to these changes, the number has dropped to about 32 landowners (16 Smallholding farmers and 16 commercial landowners (Western Cape Department of Agriculture 2016).





Figure 3.13: Changes to the PHA urban edge: (Red-1953, Blue-1988, Yellow-2002 & Green-2011, (Adapted from Theron, 2016, Architectural image of the PHA by Hennessy 2013).

This contrasts to 38 farmers in 2012 (Battersby-Lennard & Haysom 2012). Theron (2016) argues that the proposed Sheffield road alignment within the Northern section, close to the Lansdowne/Govan Mbeki road has already removed 176,50ha from agriculture for future construction purposes. The Schaapkraal Smallholdings area of 160,41 ha and the Vanguard drive island of 231,03ha have been earmarked for development. An area, rezoned by Province for development by Ropicorp is stated to be 445,90ha. The total remaining agricultural area then consists of 3652,04ha (Theron, 2016: 17).

3.6 SUMMARY

The PHA is an area of 3652, 04 ha. The PHA is a fragile environment situated on the Cape Flats in the Western Cape, and it has very active urban farming. Fed by the CFA another fragile part of the PHA with a major contribution of securing water to farmers and landowners of the PHA to assist them in producing year round crops is at the risk of deterioration. The population of the PHA consists of 6618 people and a small number of commercial and small-scale farmers. However, the PHA is under huge pressure with development and informal housing communities on the incline in the area. All of which has an impeding impact on this fertile water rich agricultural area.



CHAPTER 4

RESEARCH METHODOLOGY

“The quest for food security can be the common thread that links the different challenges we face and helps build a sustainable future.”

– José Graziano da Silva, United Nations Food and Agriculture Organization (FAO) director-general

4.1 INTRODUCTION

In order to determine the significance of urban agriculture in the Philippi Horticultural Area (PHA) and its contribution to food security, it was vital to determine whether urban agriculture is a reality in the community of the PHA. It was also important to determine to what extent community members regard urban agriculture as a source of livelihood or a livelihood strategy. Therefore, this research first seeks to establish the level of urban agriculture in the study area as a contributor towards food security (in) around the PHA. The benefit of urban agriculture was then assessed in determining the level of food security and other livelihood strategies employed by the PHA community. The methods conducted respond to the research questions, which have been guiding this research. . In addition, this chapter will provide details on the techniques employed in this research study. In relation to these techniques, this chapter will discuss the informants who participated in this study as well as how and when each informant was contacted during the data collection process. A discussion on the limitations of this research as well as the ethical considerations, which were deliberated before and during the writing of this thesis are also included.

4.2 RESEARCH AIMS AND OBJECTIVES

As stated in Chapter 1 Section 1.5 the main aim of the study is to determine the impacts that housing and industrial developments in the PHA have had, and might have in the future, on food security in the Greater Cape Town Area (GCTA). The primary objective of this research was to provide recommendations for an urban agricultural environment with food security as its primary objective. In addition to this, the aim was also to clarify the impact of development, land use

practices, urban agriculture, and access to food and livelihood strategies of the urban poor within the PHA.

To conclude, this research has the following objectives:

- To investigate the urban agricultural distribution of the Philipp Area (PHA);
- To investigate agricultural facilitation, people empowerment and the use of land for agricultural purposes;
- To determine the level of access to food for people within and around the PHA; and
- To examine the links between the urban agricultural food sector and food production.

4.3 RESEARCH METHODS

To produce quantitative and qualitative data, this thesis used semi-structured and structured interviews as well as surveys. The techniques employed included field observation, semi-structured interviews with farmers (both small-scale and commercial) and interviews with participants who live in the PHA and surrounding neighbourhoods of Manenberg, Hanover Park, and Uitkykbos (Philippi north). Other participants of the survey were commercial business sector officials predominantly warehouse distribution centre officials and relevant role players in the PHA. Lastly, images taken of the PHA are included as a photo gallery in the appendix. The qualitative design fell within the 'Interpretative Paradigm' seeking to understand and describe a phenomenon (De Vos, 1998).

This method responded to and is informed by the main research questions and objectives. Unlike structured interviews, semi-structured interviews allowed room to bring in new ideas (Babbie & Mouton, 1998:643). Some of the critical differences between semi-structured and structured interviews refer to the inherent symbolic nature of human behaviour and the historicity of all human actions (Babbie & Mouton, 1998:643). This specific research sought to explore changes to livelihoods and capabilities from the participant's perspective in order to gain a 'rich, descriptive account' (Merriam, 2002:7) which the Interpretive Paradigm takes cognisance of humanity and the natural phenomena.

The techniques included a literature review, field observations, semi-structured interviews, and photographs. These techniques facilitated an in-depth understanding of the context and network processes involved in this research. The questions asked during the semi-structured and structured interviews are in Appendices 3 and 4. The interviews took place over the period of four months (February-May 2016). It was a lengthy process due to the unavailability of informants and participants at certain times. Further field visits took place during the months of May-June 2017 which then marked the end of the data collection process.

Through field observations, the deeper meanings of the urban agricultural processes within the PHA were revealed. This technique made it possible to do observations of the PHA firstly as an agricultural site and secondly from an outsider's perspective. This allowed for observations on who makes use of the PHA, what type of use they required, and the farming activities that took place daily. It also observed the daily routines of the low-income housing communities within the PHA. Through observations, it was possible to see the daily encounters from farming to scrap collecting to job hunting and securing food for the day. Observations of the PHA took place during February through to May of 2016 and were approximately 2-3 hours per visit. These visits were conducted at contrasting times of the day and on different days of the week to observe how the aspects movement affected the PHA. These observational periods allowed an understanding of the lived experiences of being situated in a predominantly urban agricultural environment threatened by development as a farmer and/or urban dweller. Through observations, some key questions pertinent to food security were answered.

4.3.1 Semi-structured interviews

In addition to observations, semi-structured interviews were conducted with relevant participants ranging from small-scale farmers, commercial farmers, PHA community members, distribution management, and street corner hawkers. Those interviews allowed for a greater understanding of the effects of development on the PHA as well as the processes that will, in turn, make food inaccessible and expensive.

The interviews consisted of the following:

- Five key questions directed at public officials connected to the PHA,
- 10 questions directed at small-scale and commercial farmers and
- 10 questions for participants of the PHA (Uitkykbos, Manenberg & Hanover Park).

The questions were designed to elicit food security-related data.

As opposed to structured interviews, semi-structured interviews were conducted because they can provide insight into aspects of the research topic, which were perhaps not previously considered. These recorded interviews were transcribed despite the length of the interview. Furthermore, notes were also taken during and after each interview to illustrate whether they were scheduled or unscheduled meetings that took place with the participants. .

Most the interviews took place in the PHA, while some took place in the researcher's house. The researcher interviewed 6 commercial farmers and 4 small-scale-farmers of the PHA, as well as with 68 participants who lived in or accessed the PHA daily. Participants were approached while on site during the research months to provide a greater in-depth analysis and understanding of the research project. During field visits, there was no need for a translator due to most of the participants either being English or Afrikaans speaking. This minimised the opportunity of losing information during the translation period. Other semi-structured interviews which took place were with a CCT official, DAFF Official, an Official at Both Pick n Pay and Spar in the PHA and with a Cape Town Market Official (formerly known as the Epping Market). The goal was to help the researcher understand the processes involved should the agricultural area of the PHA be lost permanently due to development as well as the institutions which governs the CCT. Both officials from the DAFF and CCT were approached via emails and telephone calls in order to arrange a meeting for 12 April 2016 (DAFF meeting) and 17 March 2016 (CCT meeting). The researcher was allowed to visit the Cape Town Official at any time during his shift and without prior appointment. . The researcher had a telephone conversation with the Spar Official and a site visit at both Spar and Pick n Pay Distribution Centre's.

According to geographer Dunn (2005), semi-structured interviews employ an interview guide. Interviews with various relevant informants allowed for a greater understanding of the effects of development in the PHA and the processes that enables access to food for the people of the PHA.. Neuman (2000) argues that personal interviews have the highest response but at a high-cost. , Because time was costly, this research leaned towards a semi-structured process. Notwithstanding that, semi-structured interviews are highly recommended qualitative method of questioning. This process also allowed for an exploratory and explanatory nature, (Blaumberg, *et al.*, 2008: 386) to take place. This instrument is an advantaged due to its flexibility and easier nature to administer the research based on the research objectives (Blaumberg, *et al.*, 2008:386). The researcher in this

study conducted the semi-structured interviews to collect the participant's views on the following: agricultural facilitation, people empowerment, the use of land for agricultural purpose, and, the effects of development in the PHA means to the participants.

4.4 DATA COLLECTION TOOLS

4.4.1 Surveys

The first method used was a large set of surveys 68 out of a population size of approximately 320 people (as per the indication of the CCT official), targeting people who live in the informal settlement in the PHA and those who work in the PHA (*Appendix 4*). As part of the formal interviews, the participants were provided with a research explanation and consent form (*Appendix 3 & 4*). The initial plan was to interview 20 small-scale and 20 commercial farmers, however; many declined to part-take in the process, and only four commercial and six small-scale farmers attended the interviews. . The researcher made it clear to the participants that their anonymity and the right to withdraw at any time would be maintained. The second survey was conducted with farmers of the PHA, where the researcher followed the same pattern as with the 68 participants. The participants were mainly derived from the area (PHA). The survey consisted of three types of key questions covering demographics, practice (direct & indirect), knowledge, urban agricultural awareness and its contribution to food security. It contained largely open-ended questions and could be filled out in around ten to fifteen minutes. The results were analysed using Statistical Package for the Social Science (SPSS, 24), with the relevant cross-tabulations as a result. The survey is included in the appendix but not the transcribed material as this is part of intellectual property. This decision was also made on behalf of all who participated in this research.

4.4.2 Sample

A representative sample was advisable for the preferred method of data collection. 68 participants out of 120 families (as indicated by the CCT official) who lived in the informal settlement (Uitkykbos, Philippi North, PHA), took part in this research. A further six commercial and four small-scale farmers were interviewed, along with three Officials and (or) representatives of the PHA. This, however, was an unbiased random selection. In any event, collecting data from the

entire population would prove to be challenging, however, a random sample selection of the total population was cost-effective and time wise. “This is important as with a sample element would be drawn from the population and inferences would be made from the sample to the entire population” (Blaumberg, *et al.*, 2008:387).

Snowball sampling was the sampling technique used during data collection. This type of sampling relies on the judgment of the participant in referring additional participants to take part in the research, for example, referral of people, organisations and events. A non-probability technique does not need underlying theories or a set number of participants. It relies on referrals where subjects are hard to find. In other words, “the researcher decides what needs to be known and sets out to find people who can and are willing to provide the information by knowledge or experience” (Etikan *et al.*, 2015: 2).

Table 3.1: Sampling method

Sampling Technique	Snowball sampling
Area of Analysis	Philippi Horticultural Area (PHA)
Population Group	Commercial farmers, Small-scale farmers, Public Officials and Private sector officials of the PHA and the City of Cape Town
Sample Size	6 Commercial farmers; 4 Small-scale farmers; 3 Public sector officials and 2 Private sector officials

The usual protocol is that the sample is quite small, especially concerning the other available techniques of sample selection (*Table 3.1*). The main goal of probability sampling is to ensure that a set of characteristics aimed for will be best answered with the proposed method of sampling. The idea behind probability sampling is to look at the subject from all available angles, thereby achieving a greater understanding. During a mixed methods research design, more than one type of probability sampling technique may be used.

4.4.3 Criteria for selection of participants

The criterion for selection of participants in the study involved two stages including a quantitative sample and a qualitative sample. The researcher selected 68 participants out of 320 from the PHA

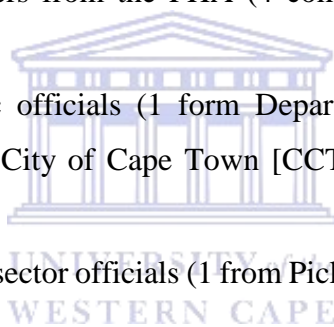
residing in Weltevreden informal settlement (off Weltevreden Road), Jim se Bos (off Oliebloem Road) and Jabula informal settlement (Oliebloem Road) as a quantitative sample.

This study established the following criteria:

- Participants were selected from the PHA.
- 31 males and 37 females.
- 18 up to 65 years old.
- All participants were lived in the PHA including Uitkykbos, and north of the PHA in Manenberg and northeast of the PHA in Hanover Park.
- Their level of education was including primary, secondary and college.

The researcher selected 10 farmers and 5 officials as the qualitative sample. This study established the following criteria:

- 10 Participants were farmers from the PHA (4 commercial farmers and 6 small-scale farmers);
- 3 Participants were public officials (1 from Department of Agriculture Forestry and Fisheries [DAFF], 1 from City of Cape Town [CCT], and 1 from Cape Town Market [CTM]);
- 2 Participants were private sector officials (1 from Pick n Pay and 1 from Spar Distribution Centres in the PHA);



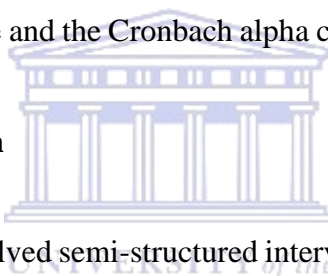
The reason for the selection of the above-mentioned participants was merely due to availability and time. Most of these participants were, in fact, under time constraint and numerous meetings had to be rescheduled based on their availability. The farmers who participated in the study were able to refer the researcher to other farmers who were accommodative.

4.5 COLLECTION OF QUANTITATIVE AND QUALITATIVE DATA

According to Hox and Bechger (1998), to collect data, a social scientist makes use of several different data collection strategies. On every occasion that primary data is collected, it adds to the existing store of social knowledge.

4.5.1 Quantitative data collection

Quantitative data were collected by means of a questionnaire that was distributed amongst the people in the PHA. The participants comprised of 68 by purposive data collection strategy. Both open and closed-ended questions were administered on a Likert scale which the researcher used to measure their socio-economic statuses (*Appendix 4*) Surveys for people in the PHA. This questionnaire sought to answer the following demographic data including *age, gender, level of education, income status, employment and residential distribution*. The information provided would assist the researcher in determining whether individuals grasp the nature of food insecurity in context. It determined the participant's view in the PHA, (e.g. *what do you think about the Development in the PHA*) (*Appendix 3*). It further measured the access to financial resources, (e.g.; *how do you access financial resources: Social Grant, Employed, Unemployed, and Self Employed?*). The questionnaire aimed to establish the ways in which the participants apply livelihood strategies and coping mechanisms to achieve accessing food within the PHA. The internal consistency was acceptable and the Cronbach alpha coefficient ranged from 0.70 to 0.89.



4.5.2 Qualitative data collection

The qualitative data collection involved semi-structured interviews. Selecting the participants was based on their availability, dates and time convenience of others within the area. Semi-Structured Interviews were conducted with participants in the PHA.

4.6 PROCEDURE FOR QUALITATIVE DATA COLLECTION

Welman, Kruger and Mitchell (2005:188) define qualitative research as a descriptive form of research which the researcher finds relevant to this study. Qualitative data collection took place as people became available. Although most of the participants were unemployed, they were not always available for interview or interaction. Therefore, the data collection day could at times yield no result or interaction. The formal approach was to set an appointment where the researcher introduced the study and explained its aims to the participant and obtained their permission and consent, In so doing, the participants assisted in selecting other participants who were willing to take part in the research. All the participants wished to remain anonymous.

4.6.1 PROCEDURES FOR QUANTITATIVE DATA COLLECTION

For this study, 68 participants comprising of informal urban dwellers of the informal settlements in the PHA and 10 members comprising of farmers (small-scale and commercial) and activist and 5 officials actively involved in the PHA were randomly selected.. They were asked to complete the self-administered (open and close-ended) questionnaire. There are two informal settlements near the data collection point and one formal housing development in the area. These members of the community are actively involved and aware of developments of the PHA and recipients or beneficiaries of food aid and assistance. Some of the participants were gathered on the same day in one place while others paid a visit to a communal point to either complete or deliver their questionnaire. The structured questionnaire accumulated information such as socio-demographic profiling, urban agricultural involvement, the linkages between urban agriculture and distribution of food, means used to secure food for household purposes, level of education and people empowerment within the area and any information related to livelihood strategies or survival strategies in the PHA.

The close-ended section allowed the participants to select the appropriate choice available. To some of the participant's, people asking question was just another part of their day that was less profitable, and in most cases, some of them did not understand the concept of food security at all. It is for this purpose that the research seeks to identify the level of understanding around being food secure, what it means to those who reside in the area, and to what level are they willing to go to provide enough for the day. In so doing, it gave me a deeper appreciation for the food on my table at days end.

4.7 DATA ANALYSIS

Terre Blanche *et al.* (2011) notes that the data analysis procedure can be divided into qualitative and quantitative techniques. The data analysis is a mixed method approach that includes two phases including thematic analysis and descriptive statistics. Quantitative methods employ a statistical analysis to make logic of the data while qualitative methods identify themes in the data and the relations between these themes (Terre Blanche *et al.*, 2011:52). Details of the process involved in analysing the data are listed below. The first part of the data analysis describes the process for qualitative data thereafter follows the process for quantitative data analysis.

4.7.1 Qualitative: Thematic analysis

Qualitative data collection is usually dependent on interpretation. This means that the data requires several explanations (Alhojailan, 2012:39). Thematic analysis is a type of analysis that requires a certain classification such as defining the research problem, organising data, coding and categorising, identifying themes, transcription and translation of verbal data, familiarising yourself with your data , generating initial codes or labels, searching for themes, reviewing themes, defining and naming themes and writing a report. Qualitative data analysis can be described as the process of making sense from research participants' views and opinions of situations, corresponding patterns, themes, categories and regular similarities (Cohen *et al.*, 2007:461). To analyse qualitative and thematic data, there are quite a few steps involved Scholars recommend that qualitative data collected be coded in themes or often-referred to as thematic data, and in that way, patterns can be identified (Babbie, 2010:74). The themes below have been identified as key to answering the research objectives and the data will be analysed accordingly.

Theme 1: Participant's definition of food security and agricultural facilitation in the PHA. Some participants acknowledged the value of farmland, competition for land, and the productivity of the PHA.



Theme 2: Urban food gardens as a livelihood strategy. This theme has been analysed in response to the second research question. Participants connected people empowerment in the PHA to access to urban food and the growth rate of unemployment in the area.

Theme 3: Livelihood strategies adopted to be food secure. In this theme which is related to the coping mechanisms and the livelihood strategies linking to the use of land for agricultural purposes, some participants pointed out the farmer's distress for security in the area, development impeding on the CFA, and benefits of urban agriculture.

Theme 4: The effects of development in the PHA. Some participants declared that access to fresh food produce for low-income housing in the PHA, growth of small-scale and commercial farmers, possible price increases of fresh food produce, and livelihood and resilience are becoming increasingly challenging.

Table 3.2: Research techniques, data collection of participants

Research Technique	Data Collected	Research Participants
Quantitative	Surveys (Open-ended)	68 Participants (Included members of the PHA, and beneficiaries of the PHA)
Qualitative	Semi-Structured/Personal Interviews/ Field Observations	Five Interviews: With Key Officials at (Pick n Pay DC, Spar DC, Cape Town Market, CTM, The City of Cape Town CCT, and The Department of Agriculture Forestry and Fisheries DAFF)
Source: Authors Field Data		

4.8 QUANTITATIVE: DESCRIPTIVE STATISTICS

Descriptive statistics applies simple quantitative data to provide basic features in the study. This allows the research to indicate what the data shows. This study used frequencies and percentages to investigate the urban agricultural distribution of the PHA.

Research objective 1: Descriptive statistics were used in answering the first research question. The analysis describes the level of food security, the source of food, and ways of access using a summary statistics and frequency distribution table. This table used descriptive statistics to interpret demographic variables such as age, gender, level of education and residential area.

Research objective 2: To answer this research question, descriptive statistics were used to analyse agricultural facilitation, people empowerment and the use of land for agricultural purposes in the PHAs as well as opinions of development, how farmers help, other ways farmers help and the importance of the PHA.

Research objective 3: The study analysed the livelihood strategies implemented by members of the community in order to answer this question. . The study determined what capabilities, social resources, and economic resources the participants employed to be more food secure. Descriptive statistics were used to identify the livelihood strategies adopted by using summary statistics.

Research objective 4: In response to this research question, an analysis of the requirements as given by the participants as to what extent urban agriculture and food security link was provided.

4.9 ETHICAL CONSIDERATIONS

Welman *et al.* (2007) consider ethical behaviour as most important in research. Consideration such as plagiarism, honesty and reporting results accurately arise in all research. The underlying principles of research ethics are universal and have a concern with issues such as respect and the right of the individual. The importance of research is that the participants feel that their voice has been actively heard and that they are acknowledged regardless of the significance of complaint comment. Participants need secure and absolute confidentiality and that their credentials will be respected throughout the process. In the event they require anonymity this should not be withheld but much rather it should be the option of the participant to consider whether they would want to be named during any stage of the thesis. Researchers maybe subject to litigation and could forfeit academician indemnity if found guilty of any misconduct or unethical offenses.

Welman *et al.*, (2007) states the four ethical considerations as follows:

- **Informed Consent**- the researcher must obtain the necessary permission from the participants after they are thoroughly and truthfully informed about the purpose of the interview and the investigation.
- **The right of Privacy**- the participants should be assured of their right to privacy and that their identity will not be disclosed.

4.10 SUMMARY

This chapter focused on the methodology and the justifications for this research project using a mixed methods research methodology. A combination of both quantitative and qualitative research approaches was used as the preferred data collection paradigm. Chapter five will present the data analysis for both quantitative and qualitative data.

CHAPTER 5

PRESENTATION AND ANALYSIS OF RESULTS

“Imagine all the food mankind has produced over the past 8,000 years. Now consider that we need to produce that same amount again — but in just the next 40 years if we are to feed our growing and hungry world.”

– Paul Polman, CEO of Unilever (Ltd), and Daniel Servitje, CEO of Grupo Bimbo (Ltd)

5.1 INTRODUCTION

In this chapter will present and analyse the data collected using the various research techniques used in this study. This chapter will deal with development in the current context of the Philippi Horticultural Area (PHA), food insecurity and urban agriculture. The quantitative data together with the data gathered from observations during field visits to the PHA and collected will be analysed. This chapter will similarly discuss the results of the semi-structured interviews with officials, farmers and community members of the PHA and surrounding areas-hereafter known as the qualitative data.. This analysis is in response to the research objectives.

WESTERN CAPE

OPINIONS OF RESIDENTS IN THE PHA AND SURROUNDING AREAS

5.2 PRESENTATION OF RESULTS

The main assessment is to determine whether urban agriculture does indeed play a vital role in alleviating poverty and increases access to food for the urban dweller. The data were analysed to present the result of the participants which comprised of (N=68) who accessed or lived in the PHA on a daily basis. It is important and worth mentioning that the data analysed will present results of the participant demographic position in the study area, and will describe demographic characteristics such as age, gender, education, and population distribution patterns in and around the PHA. The general idea is that South Africa is thought to be food secure, however; a major concern at present is the number of people who struggle to access food and lack of financial

resources, housing, and clean drinking water. To understand these issues it was necessary to conduct a survey in the PHA and understand how farmers can assist the population in the PHA.

5.3 SOCIO-DEMOGRAPHIC PROFILE OF THE PARTICIPANTS

Table 5.1: Demographic results.

Demographic variables		Number	Percent
Gender	Females	37	54.4
	Males	31	45.6
Age	Under 18	2	2.9
	19-35	26	38.2
	36-59	30	44.1
	60-64	9	13.2
	65+	1	1.5
Level of education	Primary	25	36.8
	Secondary	38	55.9
	College	1	1.5
Living in PHA	Yes	50	73.5
	No	18	26.5
Residential area	Manenberg	34	50.0
	Hanoverpark	9	13.2
	Other	25	36.8
Total		68	100

5.3.1 Gender

The results displayed in *Table 5.1* indicate that more than half (54.4%) of the participants were females and 45.6% were males, showing a female dominance amongst the participants who were interviewed. This also suggests that the main caregiver for the PHA low-income housing communities are females. This means shifting responsibilities of the male-headed household to female-headed households, which slowly moving the area towards a matriarchal society.

5.3.2 Age

The results presented in *Table 5.1* show that most of the participants (44.1%) were in the age category of 36-59 years of age. Surveys indicated that 38.2% of the participants were between the ages of 19 and 35 years. The *Table* further highlights that 13.2% of the participants were in the 60-64 year age category, while 2.9% of the participants were under 18 years of age and 1.5% reported in the above 65-year-old age category. The highest number of those interviewed is in the age category of 44.1% and 38.2% suggested that this age category forms part of the working class society of the PHA.

5.3.3 Level of education

The results displayed in *Table 5.1* indicate that 36.8% of the participants received primary education, while 55.9% of the participants received at least some secondary education. Furthermore, only 1.5% of the participants achieved a college education, and in respect to the variable secondary education, it has reached the highest number of participants with 55.9%, indicating a potential for educational successes and opportunity for participants of the PHA. This signifies that the participants who received scholarly studies indicated that it is important to keep in mind the role that education plays in gaining access to better opportunities. It is also essential to remember that education alone does not safeguard the population from being food insecure and that the current challenge for the participants is to secure their livelihood over educational advancement.

5.3.4 Living in the PHA

The results displayed in *Table 5.1* showed that 73.5% of the population are permanent residents in the PHA. 26.5% indicated that they only access the PHA in search of food sources for their daily survival. Essential to the statistics, many of the participants have indicated that despite being in close proximity to a food producing environment, it does not mean that they are food secure all the time. In respect of the variable 'living in the PHA' as indicated in the *table*, most of the participants showed that food security to them means to be food secure for today as tomorrow is a new challenge.

When prompted with the question of living status and what it means to be food secure, many of the participants announced that those in ‘offices’ do not fully understand what it means to have no food. they add that they are regarded as ‘the poor’ not as a people. The participants also indicated that not every day is a food insecure day. Some food aid organisations have supplied them with food on certain days of the week, while they had to seek security for other days. It is interesting to note that 13.2% and 1.5% of the population living in the PHA is made up of 54.4% females and 45.6% males, indicating that the majority of those living in the PHA is female-headed households, and 13.2% of the participants fall within the age category of 60-64 years of age. In response to the above question, participants indicated that food security to them is a day-to-day struggle.

5.3.5 Residential area

The results displayed in *Table 5.1* show that half of the participants (50%) lived in the Manenberg local municipality. The *table* suggests that 36.8% of them resided in surrounding areas and only 13.2% of them lived in Hanover Park. Although 36.8% lived in surrounding areas, their needs were being met within the urban landscape of the PHA. Farmers have made it possible for them to eat daily irrespective of the type of resource available on a specific day. Despite the benefit of having access to the PHA daily, the participants indicated that to be food secure for that day, they need to cover a large area on foot collecting sellable scrap items to afford food for a specific day. Farmers have been very proactive in assisting scrap collectors with off-cuts of scrap items and fresh food produce, which assists them in support of feeding their families.

5.4 ACCESS TO FINANCIAL RESOURCES AND EMPLOYMENT STATUS

Table 5.2: Access to financial resources and employment status.

		Frequency	Percent
Access to financial resources	Social grant	23	33.8
	Employed	20	29.4
	Unemployed	22	32.4
	Self Employed	1	1.5
Whether employed on farms in the PHA	Yes	18	26.5
	No	48	70.6
Total		66	100

5.4.1 Access to financial resources

The results displayed in *Table 5.2* specify that 33.8% of the sample size receive financial resources through the Government social grant system (South African Social Support Agency, SASSA). The same *table* further elaborates that 29.4% of the participants are employed and a further 32.4% of the participants are unemployed of the PHA. This indicates that most of the participants have since become dependent on the SASSA social grant offered by the government in aid of generating a financial resource stability for the poor in the PHA and other areas. In fact, as indicated by the participants, any person between the age categories of 18 to 60 depending on their income status are encouraged by relatives to apply for the support of the SASSA as an income to stabilise their family income.

5.4.2 Employment status of low-income households in the PHA

As indicated in *Table 5.2*, 70% of the participants are unemployed and, therefore; the SASSA has become their main source of support since 33.8% are recipients of this grant. The results displayed in the *table* indicate that 26.5% of the participants were employed on farms in the PHA, while 70.6% were not despite occupying living space in the PHA for many years. This has a major influence on their level of food security and the livelihood of the participants in the PHA. Participants have also indicated that being employed has a vital impact on their ability to access supermarkets and that with a stable income they can become food secure. It is important to note that while some of the participants indicated that they are employed on farms in the PHA, others just want to meet their food intake need for the day. Therefore, 66 participants provided the

following information presented in *Table 5.2*, and only 2 of the participants did not respond to this question. While 33.8% of the participants are dependent on the social grant system of South Africa, it is evident to note that 26.5% of the participants are employed and that employment opportunities are available in the PHA.



5.5 SUBJECTIVE OPINIONS OF DEVELOPMENT IN THE PHA

Table5.3: Opinions of development how do farmers help, in the PHA.

		Number	Percent
Opinions of development in the PHA	Save the PHA	51	75.0
	Do not Save the PHA	10	14.7
	Let development continue	7	10.3
How does farmers help	Jobs	22	32.4
	Access to food	26	38.2
	Education	1	1.5
	Other	19	27.9
Other ways farmers help	Food Parcels from farmers	27	39.7
	No work	9	13.2
	Waste Picking	18	26.5
	Feelings of exclusion	3	4.4
	Temporary Employment	8	11.8
	Education	3	4.4
How Important is the PHA to you	Home of our Children	41	60.3
	Not important	8	11.8
	Formal employment	2	2.9
	Education	11	16.2
	Formal Housing Opportunities	6	8.8
What the PHA mean to you	Save the PHA	24	35.3
	No farms, No work	15	22.1
	Access to Food	15	22.1
	People empowerment	14	20.6
Total		68	100

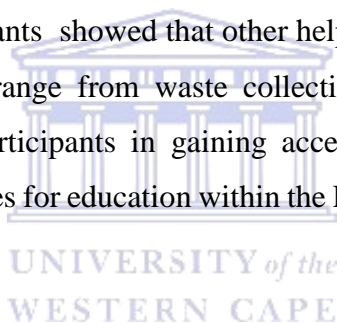
5.5.1 Opinions

When prompted with the question of their opinions of development in the PHA, the participants responded in favour of this valuable portion of land, the PHA. The *table* highlights that 75% of

the participants were in favour of saving the PHA, 14.7% iterated not to save the PHA and, 10.3% indicated to let development continue despite the benefits of having access to secure food sources and living space whether formal or informal housing. Interestingly, 38.2% of those who wanted development to continue specified that farmers of the PHA assisted them with access to food daily. Nonetheless, many of the participants 75% were in favour of saving the PHA for its beneficial assistance towards food security for the population of the PHA and the Greater Cape Town Area (GCTA). This indicated that the PHA has a very valuable position in the CCT with the portentous ability to eradicating the food insecure state of the PHA and the GCTA.

5.5.2 How do farmers help

Table 5.3 highlights that farmers assist low-income households with employment opportunities, access to food, and, a sense of over-all security in the PHA. The *table* below displays that 32.4% of the participants showed that farmers assisted them with employment opportunities in the PHA. Furthermore 27.9% of the participants showed that other help is offered apart from employment and access to food. This could range from waste collecting, rubble clearing and odd farm assistance jobs to support the participants in gaining access to resources. While only 1.5% indicated that there are opportunities for education within the PHA, placing education last on their survival list.



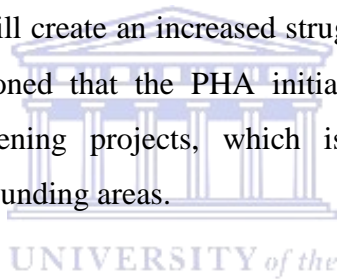
5.5.3 Other ways farmers help

Table 5.3 indicates that 39.7% of the participants receives food parcels from farmers and other food aid organisations in the PHA, and that 13.2% of the participants are unemployed. However, the participants indicated that people are turning towards informal trading especially the population group that falls in the age category of 18 years of age and below. The participants stated that 26.5% of them are dependent on waste picking in the PHA, with a further 4.4% of the participants experiencing feelings of exclusion by either farmers or other community members. Although indicated by a minority of the participants (11.8%) temporary employment is seen as a prospect in the PHA and can assist in food security. , other offers are the help of farmers where 4.4% of the participants indicated that some of the farmers offer education in community gardening projects and other educational outreach projects to assist the population to enhance their lifestyles. These projects specifically target female-headed households in the PHA.

5.5.4 Perceived importance of the PHA

In *Table 5.3*, 60.3% of the participants referred to the PHA as the home of their children. 16.2% suggested that their children attend school from their homes in the PHA, despite their lack of access to much needed amenities like transportation services in the PHA. 11.8% of the participants found that the PHA is not as important for farming purposes, while 8.8% initiated that their main interest in the PHA is to secure formal housing for their families and access to food. However, the participants indicated that 2.9% of the informal housing community had formal employment in the PHA.

The *table* indicates that the highest number of participants (35.3%) suggested that the PHA is important and should be preserved for future generations and future economic good. Furthermore, 22.1% indicated that the PHA is a point of access to food for them and their families, while 22.1% indicated that should these farms disappear from the PHA, it will create less work or employment opportunities in the future. This will create an increased struggle to gain access to food sources. 20.6% of the participants mentioned that the PHA initiates people empowerment through interaction such as urban gardening projects, which is currently creating employment opportunities in the PHA and surrounding areas.



The frequency in distribution indicates that the importance of the PHA carries a high value with 35.3% of the participants indicated that the PHA should be saved even though developers are purely interested in self-gain. Both the above tables (5.1 and 5.2) identify the significance of the PHA in terms of employment, housing and demographic statuses of the community of the PHA.

5.6 PHYSICAL ACCESS TO FOOD

Table 5.4: Physical access to food.

Physical access to food		Frequency	Percentage
SASSA		2	2.9
Collect scrap		10	14.7
Temporary employment		20	29.4
Food Parcels from farmers		17	25.0
Community food hand-outs		4	5.9
Employed at DC		9	13.2
Own stall		4	5.9
Total		68	100

Out of the 68 participants, only one did not respond to the question in *Table 5.4* where the results indicate that 14.7% receive a social grant, while 29.4% of the participants depend on collecting scrap as a means of obtaining access to financial resources and access to food. The data also highlights that 25% of the participants found temporary employment in the PHA, 5.9% of the participants were dependent on farmers for food hand-outs, and 13.2% of the participants sought door to door help in nearby communities. In addition, 5.9% of the participants were employed at the commercial distribution centres in the PHA, and a mere 1.5% of the participants owned a stall as a means of obtaining financial income to secure food. Therefore, it is worth mentioning that the highest percentages of financial security for the participants in the PHA were 29.4% and 25% for scrap collection and temporary employment respectively.

5.7 AGE AND GENDER

Table 5.5: Age and gender.

Age	Gender				Total	
	Female		Male		N	%
	N	%	N	%		
Under 18	1	2.7	1	3.2	2	2.9
19-35	13	35.1	13	41.9	26	38.2
36-59	15	40.5	15	48.4	30	44.1
60-64	7	18.9	2	6.5	9	13.2
65 +	1	2.7	0	0.0	1	1.5
Total	37	100	31	100	68	100

Table 5.5 indicates that 2.7% of the female participants and 3.2% of the male participants were in the age category of 18 and below. This places emphasis on under-age children selling fruit at street corners to assist in stabilising financial security. For the age category of 19-35, the *table* indicates that 35.1% were female and 41.9% were male. Furthermore, for the age category of 36-59 the female participants were 40.5% and the male participants were 48.4%. This indicates that the male presence in both the above age categories (19-35 & 36-59) was more prevalent than the female. However, in the age category of 60-64, the *table* identifies that 18.9% of the participants were female and 6.5% were male, indicating that the community of the PHA is leaning heavily towards the matriarchal society. In other words, most of the families are female-headed households making the geriatric society of the PHA female dominated. Moreover, in support of the previous statement, 2.7% of the age category of 65(+) was female dominance. Therefore, this indicates that between the age categories of 60-64 and 65(+) the female presence is more widespread than male presence in the PHA. The *table* shows that 75.6% of the participants (cumulative) are younger than 60 years old, and as indicated in *Table 5.3*, 33.8% of the participants are dependent on receiving a social grant and 32.4% of the participants were unemployed.

5.8 AGE AND EDUCATION

Table 5.6: Age and education.

Education	Gender				Total	
	F		M			
	N	%	N	%	N	%
Primary School	19	51.4	10	32.3	29	42.6
Secondary School	18	48.6	20	64.5	38	55.9
College Education	0	0.0	1	3.2	1	1.5
Total	37	100	31	100	68	100

Table 5.6 shows that 37 of the participants were female, and 31 were male coming mostly from previously disadvantaged backgrounds. It also shows that 51.4% of the female participants had at least achieved some primary school education, and 32.3% of the male participants had received primary school education. Moreover, 48.6% of the female participants and 64.5% of the male participants had achieved some secondary school education. However, none of the female participants achieved a college education which only 3.2% of male participants had obtained.

While education is important and could eradicate poverty, the main concern for the participants was their livelihoods. Strategies adopted in obtaining access to safe nutritious and affordable food are employed to secure their livelihood in a hope of ensuring them a meal at the end of each day. Other reasons for this could be because finances are absorbed before educational needs are met and some may think that it is too late to educate themselves and that education is a distant reality to them. This makes it obvious that food comes first for the participants of the PHA.

OPINIONS OF FARMERS, OFFICIALS AND MEMBERS OF THE COMMUNITY IN THE PHA

PRESENTATION OF RESULTS

5.9 THEME 1: AGRICULTURAL FACILITATION

When asked to answer questions related to the agricultural facilitation in the PHA, some participants acknowledged the value of farmland, competition for land, and the productivity of the PHA.

5.9.1 Value of farm land

The analysis of transcripts showing the value of farmland was labelled (*P1, P2, P3, & P4*). They show how important the PHA is to farmers. However, most of the participants declared that PHA is a place of passion to them. As farmers, the PHA is all they know as this place is of outstanding importance to them as it has the best quality soil for urban agriculture. The participants stated that because the PHA is a place of significance, the value attached to it is irreplaceable. The participants also pointed out that the importance of the PHA is for consumers to understand that food production is dependent on the availability of land for valuable fresh food produce to ensure household food security. As indicated by the participants, no one sees the value of food from the urban soil no more. However, it was indicated by most of the participants that the link between food and the production of food is greatly impacted on land availability in the PHA. Some of the participants felt a need to express real concerns aimed at the value the PHA has in terms of food security and water security. The excerpts below of two participants and one official highlight this.

“I am extremely passionate about the PHA, and there is an importance of this area “(PHA Farmer 1).

“Losing this farmland will mean our vegetables would need to be brought into the City, prices of vegetables will increase, while many of the people here are dependent on this land” (PHA Spokesperson 3).

“Cape Town is well known for their street corner markets, door to door hawkers, and informal traders apart from the Epping market. Therefore, I think personally the PHA makes it easier for all to access resources, much needed resources to sustain them. We know we need houses, but our City also needs food, and many informal traders are making this so accessible. Take a drive down Vanguard Road at the corner of Vanguard and Klipfontein Road you will not even have to get out of your car to purchase fruit or vegetables. It is brought to your car window. One of the amazing parts of these corner sellers is, they only purchase at the market that which they know will sell. Therefore, I believe Philippi is important to us all” (Cape Town Market Official, Interview with Mr Britton: 25/06/16).

In addition, an Official from the department of Forestry and Fisheries highlights that their aim is:

“To ensure that sustained long term food security in terms of access and production are considered for the PHA. As well as promote a well-balanced approach to urban agricultural land in the PHA, and to evaluate whether development in the PHA is sustainable to the agricultural sector operation in the in the PHA. As a fresh food produce organisation we would also want to ensure that agricultural land remains available for agricultural purposes” (Interview: DAFF Official, 24th March 2016).

From these excerpts, it appears that the participants of the PHA understand the value of agricultural land and that it is prime agricultural land in the PHA. Furthermore, the best currency of the PHA is consistency. Farmers in and around the PHA has been extremely persistent in making the PHA one of the main distribution hubs of fresh food produce, agricultural facilitation, and agricultural activities to the population of the PHA and surrounding areas. A cooperative interaction will allow the land to be more valued not just to secure future jobs within the PHA as indicated by the participants of the study area but as a direct resource to food security to the participants in the PHA. The excerpts above identify the importance of the PHA as a fresh food produce distribution hub and its connections to hawkers, informal traders, and corner sellers because of easy access to fresh food produce. However, the problem with the industrialisation of urban agricultural land is that cities are expanding and a greater amount of food needs to be produced. This is why the PHA has been significant as it can make this a reality. Apart from the fact that you could go to any supermarket to access these items, informal traders recognise the importance of informal markets, such as street corner brokers especially those at a number of our traffic stops, as indicated by the Cape Town Market (CMT) official. One example of this is the

statement of an under-age fruit seller in the PHA which initiated an interest to find street corner brokers through observation. This eleven-year-old participant indicated the following in the excerpt below:

“I sell grapes to make money, Pick n Pay’s grapes is expensive and people think I want to do this because I’m naughty and don’t want to go to school, my mom is sick and we don’t have an income, so I sell grapes for the broker and he pays me for each carton of grapes I sell, then I can buy bread or potatoes or give my mom the money. But, “everywhere they building big buildings and don’t worry about us” (Interview with: An 11 year old grape seller in the PHA).



Figure 4.1: Under age fruit seller in the PHA.

From this excerpt, it is fascinating to hear the views of this young grape seller (informal trader in the PHA) and how he points out the need to have money for food. The participant also pointed out buying grapes from the street corner is cheaper than those found in supermarkets. It would be easy to disassociate the participant with issues that would be regarded as an adult concern, yet the participant takes on an adult role as he sees his immediate need. *Figure 4.2* below depicts an image of the grape stall in the PHA where the young grape seller finds temporary employment to gain access to financial security.



Figure 4.2: Fruit stall in the PHA.

Furthermore, the more land the farmers in the PHA lose, the less they can produce. The participants reported that the value of land for agricultural purposes is lost due to the constant competition for this highly valued agricultural land. Institutions like the CCT has already confirmed that this area is highly valued, and the participant's strongly indicated that one day the City of Cape Town's Spatial Planning and Development Department (CCT) will come back and seek this land for its invaluable contribution to food security in the GCTA. The participants also reported that should this portion of land be valued for its contribution towards food security, it would eradicate competition for this land exponentially. In addition, the participants indicated that the PHA should not be a contested issue. On contrary, it should be valued, protected and secured. The excerpts below of two participants highlight the views above.

“There is enough land outside of the PHA that is available for housing development or any kind of development, but instead they want this valuable land, the land in the PHA” (PHA Spokesperson 3).

“The PHA is a high valued conservation area that needs to be protected” (PHA Farmer 4).

The excerpts show that the participants are fully aware of the value of the PHA and its contribution towards food security. They also show that both the PHA farmers and key role players encourage and initiate public protests to save the PHA, for potentially being able to eradicate poverty for low-income households around the PHA and for the future good of Cape Town. It helps the participants to develop a tolerance and endurance to save the PHA for the continuous urban agricultural productivity without any partial attitude.

“Development is quite a massive thing; most people see development as a negative impact on their lives, while development actually tries to up-lift communities like the PHA. Pick n Pay has invested a lot in making access an ease to all. Especially to those who accesses this place daily. (Interview with Pick n Pay Distribution Management: 09th September 2015).

The participants indicated that access to distribution centres and the Business Park in the PHA is highly controlled and limited to the public. Making job seeking extremely restricted since these distribution centres are situated behind large security-controlled gates and heavy security guards at entrances. This adds to aspects that influence the livelihoods of people in the PHA. The participants indicated that strict security measures are being put in place and forms part of their integrated security measure into a larger unseen amount of public access control.

5.9.2 Competition for land

The analysis of participants' interviews also revealed that nine of the participants confirm the constant competition for land in the PHA. These participants (*P1, P2, P3, P4, P6, P7, P8, P9, & P10*) indicated that developers have a negative effect on the farmland required to produce fresh food produce. Developers are chasing after prime agricultural land, which currently produces over thirty percent of the CCT's fresh food produce which directly supplies the GCTA as indicated by the participants. It was also highlighted that the PHA as a high valued conservation area is constantly facing developers which creates a platform for competition between farmers and developers. Another physical resource that plays a key role in urban agriculture is the aquifer in the PHA. As indicated by most of the participants, keeping both the aquifer and farming activity active has since become the highlight or platform for protests and community activism in the PHA. Most of the participants indicated that key role players like the CCT should stop and think twice

before plans are approved as this can eliminate or minimise the competition for land in the PHA. One of the key issues in this regard is that development is being fast-tracked, ignoring farmers, the aquifer and the low-income housing and informal settlements in the area altogether. While land is one of the most important natural capitals, the participant indirectly indicated that because farmers in the PHA are not supported, decision makers are being assisted in the forward movement of development. This results in suffocating both the natural and economic capitals of the PHA as well as standing a chance to lose the two most expensive commodities; a finite resource (water) and urban agriculture (for food security). All this is due to development in the PHA. The four excerpts below of four participants highlight this.

“Between us and developers there is a constant competition for land I farm right on the doorstep of Pick n Pay, Spar and Sheffield Business Park, or is it they develop right on my doorstep as a farmer” (PHA Farmer 1).

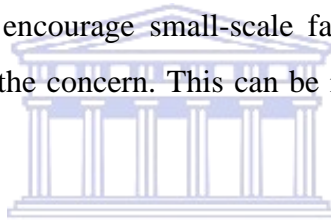
“I have been here for years these buildings has changed the farming area to it almost being an industrial area and, yet our farms are so close to the roads as farmers we need to feel protected despite developers seeking out land of significant value” (PHA Farmer 3).

“Developers are threatening good relationships and balanced business facilitations” (PHA Farmer 7).

“The PHA is a Cultural Landscape and the productive core of the agricultural area is to be protected in terms of the City’s District Plan. Any mining activity or development is undesirable in the PHA. The land in question is agricultural land. The PHA cultural landscape is similar if not more important than the icon Table Mountain since it was established in 1885 to provide food for the city. “The Philippi area encompasses a distinctive cultural landscape as well as some of the last remaining agricultural and natural landscape within the metropolitan area. ... This includes the Horticultural area, the sand dunes along the southern border of area, the wetlands ecological/green corridor.” “The fact that no old farm buildings exist on the actual land proposed for the paving over of 20,000 houses, does not negate its heritage value. The heritage value of the cultural landscape is just as valid as any development will FUNDAMENTALLY change the tone of the area” (C. Postlethwayt of

Oakland City Development)” (C Postlethwayt October 2015, Oakland City Development Report).

The excerpts display that the constant competition for land of which farmers can utilise to assist in alleviating food insecurity in the PHA is constantly sought after. Their contributed efforts are their interaction with the current state of low-income and informal housing communities in granting access to food through urban agriculture. The participants motivated that the PHA has been, since the sixteen hundreds, a very active and productive community, not just for agriculture but also for the growth of human, natural, physical and socio-economic capital gains. The analysis of the interviews along observation data indicated that this process would be jeopardised should development continue. Urban agriculture as a resource to contribute to food security is equally important to the need for continued productivity of the landscape.. The participants also indicated that public participation from both farmers and the greater public is necessary to achieve this. This showed that commercial farmers encourage small-scale farmers to participate in discussions which adds value and richness to the concern. This can be illustrated through the two excerpts below:



“Development is making the process of urban farming more expensive for both the consumer and supplier a public intervention is needed to keep the PHA alive. The future of us all is dependent on this land. The PHA takes the food produced and it can be turned into a point of discussion. We are all farmers aiming towards the same common good” (PHA Farmer8).

“Don’t give a bad problem a good name, hunger has no preference, even those developers, planners and states people all need the same resource, food” (PHA Farmer 10).

The participants expressed that they felt isolated, almost excluded), in the challenge of saving the PHA. Their main concern for the PHA at present is the future of the PHA and the contribution of the PHA towards alleviating food insecurity. They also confirmed that competition for land is slowly impeding on the productivity span of the PHA.

5.9.3 Productivity of the PHA

The issue of economic corridors is also raised by participants (*P2, P3, P5, & P7*) who stated that the quality of agriculture in the PHA is valued for its urban soil, aquifer and productive attribution. However, as expressed by the farmers participants, both small-scale and commercial produce enough vegetables to assist in food security for the immediate vicinity and the city at large. The participants mentioned that they received economic, social or physical support from the PHA. This support constitutes a positive factor in favour of productivity in the PHA to enhance urban farming at a community level. The participants indicated that over thirty percent of the fresh food produce sold by formal and informal retailers in and around the PHA depends on the PHA for its productive output. The benefit of this process as indicated by the participant means healthier foods, better accessibility to food at cheaper much more affordable prices and sustainable farming practices. The participants reported that the PHA is productive because of the aquifer and the provision of water for irrigation of crops which makes the PHA a drought proof farming area. For the participants in the PHA, food security is a collective effort and to produce fresh food produce at higher rates, with less work force will be impossible and extremely challenging for farmers while being uncertain of their future. As mentioned by the participants, all farmers in the PHA including small-scale and commercial will be affected by this especially with their productivity. This is highlighted in the following excerpts of four participants.:

“The PHA is a 3000 hectare of farmland in the middle of the City, and over time this can become the highest producing community in the City per hectare. This area also can employ up to 12 000 people in the future if this farm land is reserved strictly for agricultural purposes” (PHA Spokesperson 2).

“Because of this aquifer, the PHA is almost a drought proof farming community in the PHA, just the idea of losing this creates frustrations because half the time we don’t know what the future of us as farmers in the PHA looks like, it’s confusing” (PHA Spokesperson 3).

“When we [farmers of the PHA] lose resources like that due to development, it is a forever loss, emotionally and economically” (PHA Farmer 7).

“We [farmers of the PHA] produce herbs and vegetables for Shoprite and other bigger companies in the area and around the PHA, like Pick n Pay, Checkers and Spar who gets their supplies harvested, washed, cut, packed and labelled on the same day, and soon this will change, less will be produced, by lesser hands and more will eventually go hungry at an expensive rate, go check and see how many of them are around us” (PHA Farmer 8).

5.10 THEME 2: PEOPLE EMPOWERMENT

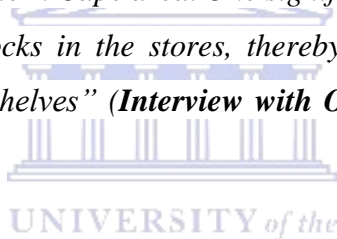
5.10.1 Access to urban food

The analysis of qualitative transcripts showed that low access to fresh food produce was a negative effect of people empowerment in the PHA. However participants (P1 & P3) declared that growth of small-scale farmers and urban food production in the PHA allow people to have easier access to food, jobs, and housing as indicated in 5.1.2. As urban food gardens and urban agriculture is part of the city, the participants indicated that farmers of the PHA produce diverse types of vegetables to ensure household food security and to sell at the Cape Town Fresh Produce Market to make access affordable. This comes as an economic activity in support of the Cape Flats low-income housing community, informal settlements and buyers in order to ensure daily access to the PHA. The participants pointed out that currently in the PHA they are being targeted, and this will ultimately lead to lose of valuable farmland, which is currently being utilised to generate enough fresh food produce for the CCT. The participants indicated that because this is a place where the core business is distributed, it would be imagined that the challenges for farmers would be access to transportation or distribution. However their main challenge is keeping their land for agricultural purposes. The participants indicated that the land is currently being consumed for urban agriculture, and development will threaten this land and disturb its distribution abilities. The productivity of the PHA in response to this study indicated that farmers of the PHA produce over 48 diverse types of vegetables, almost 50% of the fresh food produce consumed by Cape Town. It also provides access to food to the GCTA, but more specifically the low-income households closer to the PHA. The participants expressed that despite the type of farming practiced in the PHA, farmers contribute tremendously to fresh food produce and other relative resources. The following extracts of three participants exemplify the above:

“Almost fifty percent of the fresh food produce is consumed by Cape Town that is produced by farmers in the PHA. People here of low income housing depends on me from time to time, for food supplies. I would open the food tip for them twice a week” (PHA Farmer 1).

“Farmers both commercial and semi-commercial produce enough vegetables to produce food for the City of Cape Town. Over thirty percent of the fresh food produce are sold by hawkers and spaza shops depends on the PHA” (PHA Spokesperson 3).

“Over the years, the supermarket chain has been criticised for not investing in centralised distribution and has had operational challenges at one of its distribution centres. Pick n Pay has eight distribution centres, with main ones in Gauteng, KwaZulu-Natal, Eastern Cape and Western Cape. It plans to roll out the extension of fine picking areas in most of these centres. A picking area added on to the Philippi distribution centre has enabled the picking and delivering of 7 000 more products to stores in the Western Cape. Philippi would also be transporting goods to the Eastern Cape area. One significant benefit of a distribution centre is flexibility to replenish stocks in the stores, thereby reducing the occurrence of non-availability of stock on the shelves” (Interview with Official at Pick n Pay: 09th March 2016).



It is self-evident that urban agriculture supports those in need of fresh food produce, low-income housing and informal settlements with access to food. These participants informed the research that the challenge they encountered, which prevented them from reaching its highest level of urban agricultural potential, was ensuring that those in the PHA has access to available and affordable fresh food produce to meet their daily dietary intake. In most cases, as indicated by the participants and by the official at Pick n Pay, the PHA makes access to food possible in many ways. It is equally evident that there are plans of extensions for various distributions centres in the PHA designated for the near future. The participants indicated that some of them offer vegetable cut-offs, and these cut-offs would, in turn, be used for soup kitchens and to prepare other small meals for children at local schools as part of a feeding scheme. This helped them to promote their urban agricultural skills and encourages job creation through intervention. The negative effect of poor education is perceived to be the reason why low-income housing communities in the PHA are dependent on social grants, waste picking, and casual/temporary employment. However, people in the area believe that prior to development, more people had work, and, more people had access

to fresh food products like potatoes. They added that more people are dropping out of school to support their families because jobs are becoming lesser in the PHA..

5.10.2 Growing rate of unemployment in the PHA

The analysis of qualitative transcripts reported that the growing rate of unemployment in the PHA was one of the results of development in the PHA. A relative quantity of the participants (*P5, P8, & P9*) reported that some of the people living in informal settlements in the PHA were employed where some of these big distribution centres are now situated. One of the biggest distribution centres in the PHA belongs to pick n Pay. The participant indicated that labour on farms in the PHA is relatively smaller adding to the unemployment rate of the PHA. As indicated by the participants the person of the area has been embarrassingly exploited by developers and has since affected in other ways the opportunities of obtaining access to financial resources. This is what two participants expressed when interviewed.

“People in the area are going to suffer as well as the farmers” (PHA Farmer 8).

“It halts operations, and decreases business, people in the low-income housing community suffers most. Access to food, housing will become a greater problem if developers and city planners are going to keep on ignoring the vital role the PHA has not only for farmers. And in future if they are going to build a housing community in the PHA, it will mean more food needs to be produced” (PHA Farmer 9).

A profound interest in the PHA for farmers is the benefits of farming such as job creation, the resilience of the poor and the livelihood strategies applied.

“The PHA even assists the informal dwellers in the PHA with access to food, especially for their children and the elderly. The PHA is a City Farm facing City issues, while supporting the people in the informal settlements in the PHA with jobs. This helps to minimise the unemployment rate and assists low-income housing communities in household food security through the productivity of urban agriculture in the City” (PHA Farmer 5).

“There are too many, first and foremost housing for informal dwellers is a huge issue but so is food. South Africa has a water crisis and a land use challenge, we a city with many unsolved

challenges, and can only meet them one at a time” (Interview with CCT Official: 05th February 2016).

5.11 THEME 3: USE OF LAND FOR AGRICULTURAL PURPOSES

When asked about the use of land for agricultural purposes to food security, some participants stated these three aspects: the farmer’s distress for security in the area, development impeding on the Cape Flats Aquifer [CFA] and benefits of urban agriculture.

5.11.1 Farmer’s distress for security in the PHA

Participants *P2* & *P4* indicated that developing the agricultural land in the PHA creates a distress for farmers. Development will disregard the function of urban agriculture permanently and will create a platform for other urban stresses. It is suggested that urban agriculture should be the principal function of the PHA, and development should be excluded from the PHA completely. Furthermore, due to developers encroaching more and more land, many of the participants reported that they needed to decrease their labour rapidly over the last year because of development attracting more people in the PHA. Most of the farmers in the PHA indicated that they are situated near low-income housing communities and informal settlements in and around the PHA. A key factor mentioned by participants is that most people from low-income housing communities had limited knowledge and experience when seeking employment in the PHA. Protecting their farms from vagrants has become an expensive exercise to farmers in the PHA. Participants also indicated that security of farms has become a concern ever since the distribution centres and other non-farming businesses have moved into the PHA. In addition, the PHA has been a source of livelihood to many farmers. Despite the challenges at times with theft and constant fighting to save this area, the issue that the participants raised was why remove them to make way for development. Participants explained that since development has moved into the PHA there has been an increase in illegal activities causing them a distress. The excerpts below illustrate this concern.

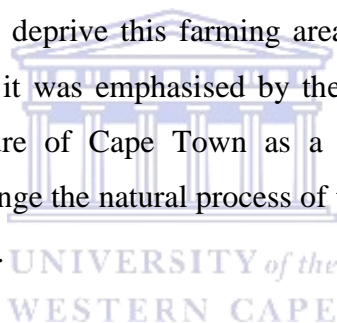
“Losing this land and the aquifer and the ability to produce food is forever and losing it bit by bit because of theft, burglary or any other incidences is hurtful. What is painful to us as farmers is the fact that we have a police station situated in the PHA, but gang violence in

Hanover Park and other areas are keeping them extremely busy to attend to us” (PHA Spokesperson 2).

“My farm must be guarded more than ever, because these distribution centres attract all sorts of characters, unemployed characters in the area that makes it difficult for us as farmers” (PHA Farmer 4).

5.11.2 Development impeding on the Cape Flats Aquifer CFA

Participants *P8 & P10* highlighted that development as an impeding onto the PHA and its most valuable resource the Cape Flats Aquifer (CFA). The participants also indicated that the farmers of the PHA are the only farmers who have excellent soil quality. An ideal climate best suited for all sorts of urban agricultural practices and with their own water supply; the CFA. Their farms are secured against all natural pressures. The participants also highlighted that building malls other types of housing structures would deprive this farming area of the aquifer that feeds into the agricultural area directly. In fact, it was emphasised by the participants that the aquifer is so important especially for the future of Cape Town as a water supply hub. Unfortunately, development will permanently change the natural process of the CFA. This because they believe that food grows where water flows.



“It is an injustice to decide against urban farming in favour of development on part of the aquifer that services us as farmers” (PHA Farmer 10).

“Because of this aquifer, the PHA is almost a drought proof farming community in the PHA” (PHA Farmer 8).

5.11.3 The benefits of urban agriculture in the PHA

Participant (*P6*) indicated that development affects the benefit of urban agriculture and that developers are only interested in the PHA for their own benefit at their disposal, excluding the public. It was highlighted by most of the participants that urban agricultural areas much like the PHA are so designed for farmers, low-income housing communities and the GCTA to depend on the area for a number of security issues they face. Participants indicated that urban agriculture is

a way of life and not just a farming ability. Many of the participants suggested that one benefit of being near an urban agricultural area is that it allows easier access to food as it becomes available. Furthermore, active in the area are participants who participate in selling seedlings, supply fertilisers and active food intervention for the poor. This increases the ability to counteract food insecurity in Cape Town at affordable prices to both the suppliers and producers. Another important aspect to highlight as mentioned by the participants is the fact that food flows play a vital role in securing the future of food access to the poor as well as all members of society. Another benefit of the PHA was that people who access the vicinity ought to have two meals which unfortunately have become inaccessible to them anymore. This is what was highlighted in the following excerpts.

“ Development is making this process more expensive for both the consumer and supplier. In addition, the selling price is making fresh food produce more and more inaccessible to the poor, stripping the community from the benefit of urban agriculture. I have also integrated that cut-offs from the vegetables are carefully collected and stored for soup kitchens, who come and collect once a week, this is all to ensure that people of the PHA do not go hungry especially the children ” (PHA Farmer 6).

“We are responsible for the urban greening of open and vacant spaces and plots. Apart from all the other function, such as fisheries, forestry, licensing, rights planning and financial support. We are an organisation that wishes to see each urban agricultural activity continues to exist. Therefore, the food security production programme is aimed at meeting the needs of the needy. The PHA is such an area that allows fresh food to produce to become available accessible and affordable to all kinds of people from all walks of life” (Interview with Official at the DAFF: 24th March 2016).

The participants indicated that the PHA does not only carry a productive value but yields great benefits through its continued productivity. The participant at the DAFF indicated that there are a Preservation and Development of Agricultural Land Framework policy and bill. The DAFF framework policy revealed that this would ensure that urban agriculture will continue, and land will not be compromised. This means giving the assurance that this agricultural land will be preserved for agricultural purposes to enable all to have access to food and be food secure in a productive and sustainable manner.

5.12 THEME 4: EFFECTS OF DEVELOPMENT IN PHA

When asked about the effects of development in PHA, some participants mentioned the following aspects as concerns: access to fresh food produce for low-income housing in the PHA, growth of small-scale and commercial farmers, possible price increases of fresh food produce and livelihood and resilience.



Figure 4.3: NO TO DEVELOPMENT: Philippi farming protest: Phando Jikelo (<http://gctca.org.za>).

Patricia Gcilishe is a farmer from Khayelitsha, leading a group of Philippi farmers, were picketing to save the PHA. The group are trying to stop the CCT from using their land for development and allow better access to fresh food produce for low-income housing in the PHA as indicated in *Figure 4.3*. Their request is to build houses outside of the PHA and not on fertile agricultural land. Some placards indicated that Minister De Lille and developers are chasing them out of their fertile soil. This fertile soil allows food to be accessible in the PHA to the community and beyond. They want their voices to be heard on these placards in order to build houses for farm workers instead of allowing developers to build.

The analysis of qualitative interviews showed that access to fresh food produce was an effect of the development in the PHA. However, some of the participants including *P1* & *P3* declared that growth of small-scale farmers and urban food production in the PHA allow people to an easier access to food, jobs, and housing.

As urban food gardens and urban agriculture are part of the city, the participants indicated that farmers of the PHA produce several types of vegetables to ensure household food security and to

sell at market level.. The participants indicated that more and more people are going hungry because of land constantly being developed. Participants also suggested that other distributions patterns where the majority of the fresh food produce sold are developed structures such as Pick n Pay, Spar, Woolworths, and Fruit and Veg., however, development has affected farmers severely to an extent where daily access to food for low-income housing has become limited. The following extracts illustrate the above statement.

“Almost 50% of the fresh food produce is consumed by Cape Town that is produced by farmers in the PHA. People here of low income housing depends on me from time to time, for food supplies. I would open the food tip for them twice a week” (PHA Farmer 1).

“Farmers both commercial and semi-commercial produce vegetables not only for the distribution alone, but also to allow others especially the low-income housing communities to get access to fresh food produce” (PHA Spokesperson 3).

5.12.1 Growth of small-scale and commercial farmers

The analysis of the interviews showed that the growth of small-scale farmers in the PHA was an effect of development. Many of the participants of the PHA indicated that farms are affected because of what can be produced with the help of developers in the PHA. This could become the answer to Cape Town’s food insecure state. The participant reported that at present we are fighting to place five hundred farmers on one thousand hectares of farmland to eradicate the food access issue in the PHA. The participants indicated that one of the biggest issues they have are the type of development that will take place in the PHA. The participants indicated that this would disrupt farming activities for small-scale and commercial farmers in the PHA and change the identity of the PHA entirely.

5.12.2 Possible price increases of fresh food produce

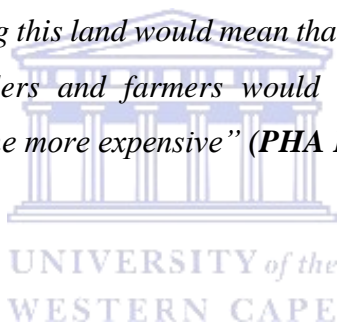
Participants argued that possible price increase of fresh food produce was one of the impacts of development in the PHA. The participants *P4* & *P5* indicated that one of the main concerns is losing more than thirteen thousand hectares of agricultural land with the biggest and best soil quality attached to it because of urban development and sand mining. The participants indicated

that losing this farmland will mean vegetables would need to be brought into the city to feed the city. This in turn cause prices of vegetables to increase, while many people here are dependent on this land. As previously indicated by the participants' urban food gardens and urban agriculture are part of the city, and therefore it would be injustice to decide against urban farming in favour of development.

“People of the City of Cape Town acts unaware of the risks associated with losing this valuable land. People must act and support our concern for the farming land. The reason why the PHA is important to me is the fact that the City sees a short-term gain, at a long-term loss. As farmers of the PHA, we are saving the City of trucking in food from outside the City. Saving on diesel, time, loss of production, by keeping the PHA farming” (PHA Farmer 4).

“This farmland in the PHA is situated next 3 vital low-income housing communities that accesses this area daily, losing this land would mean that those traders, low-income housing communities, informal dwellers and farmers would lose access to food forever, and purchasing food would become more expensive” (PHA Farmer 5).

5.12.3 Livelihood and resilience



Livelihood and resilience are also considered as an effect of development in the PHA. The participants *P6* & *P9* reported that there is a constant competition for farmland between the farmers and developers in this area, and they stated that fresh food productions will eventually slow-down in the PHA. This is despite the attempts to maintain food security for the food insecure households in the CCT. The participants indicated that scrap and other waste materials have become their livelihood. The participants equally suggested that this can change the lives of many unemployed, their livelihood, and access to education and socio-economic status can change.

“In that way, I think development has had a severe strike on the PHA” (PHA Farmer 6).

“While we have a very active food producing community in the PHA, and yes while in other areas farmers are being killed, but development in the PHA will do a killing of a different kind, kill our livelihood including you and me (PHA Farmer 9).

5.13 SUMMARY

In this chapter the results of the descriptive statistics analysis were presented. The Sustainable Livelihood Approach as a conceptual framework was applied to analyse and determine the relationship between food security, sustainable livelihoods and urban agriculture in the PHA. Different variables have been identified to analyse the role that they play in food security within the urban agricultural area while the relationship between low-income housing communities and urban agriculture is highlighted. Moreover, this study was applied to show that the abilities, capabilities, access to resources and sustainable livelihoods contribute to food security through urban agricultural practices and areas. Other livelihood outcomes have also been identified. Many of the participants indicated that despite being near an urban agricultural environment, surviving in low-income housing communities has proven itself a very difficult socio-economic condition. . The participants have also indicated that they have adopted livelihood strategies that will either change, improve or assist them in their socio-economic situation. These diversifications include sparse income sources, changes in eating patterns and in portion size as well as adopting a change in seeing waste picking as a resource to obtain financial access to food.

The most important livelihood strategy for all involved in the PHA is the social resources. This strategy allows an adoption for their livelihoods to be approached from various angles as a means of survival. The relations, as indicated by the participants, suggest that a community although fragmented, consists of a series of dependencies much like neighbourhoods, family, and friends active community clubs (soup kitchens and community gardens). Social networks have since become an integrated network, much like a safety net to those situated in poor socially constructed communities.

In this chapter, the qualitative analysis was employed and discussed by four emerging themes complemented/informed by the research objectives. The SLA was employed while substantiating contributing factors of food security. The qualitative analysis brought depth and understanding in support of the analysis. Chapter six will focus on and explain the quantitative and qualitative data analysis.

CHAPTER 6

CONCLUSION AND RECOMMENDATIONS OF THE STUDY

“Food security is an authentically human requirement. Guaranteeing it for present and future generations also means safeguarding ourselves against the uncontrolled exploitation of natural resources. Indeed, the process of consumption and waste seems to overlook any concern for ... biodiversity, which is so important for agriculture”

Pope Benedict XVI

6.1 INTRODUCTION

Chapter 5 provided a description and analysis of the aim of the study, its four research objectives and its contribution towards urban food security in the PHA which were articulated in chapter one. This will establish the extent to which the findings speak to the Sustainable Livelihoods Approach (SLA) as the conceptual framework applied in this thesis. Recommendations will be put provided at the end of this chapter. This chapter relates the findings of this study to the aim and objectives and explores the links between urban agriculture, land use, food security and relevant literature provided in Chapter two about the Sustainable Livelihoods Approach (SLA) in the PHA. It also reviews the contribution of small-scale and commercial farmers in the PHA in search of solutions to aspects of environmental sustainability and sustainable livelihood strategies of the low-income housing community in the PHA and their accessibility to food.

6.2 STUDY CONCLUSIONS

The main conclusions of the study will be linked to the various objectives.

RESEARCH OBJECTIVE 1

To investigate the urban agricultural distribution of Philippi Horticultural Area (PHA)

In the study, most of the participants indicated that the PHA had a significant value to them, and many share a passion for this portion of land they call 'home'. Others mentioned that the



PHA provides them with a sense of knowing where their food comes from and at what cost. The participants have equally reported that at times, they felt excluded from the land of which they fight to protect as; the PHA is more personal to them than practical. It was reported by most of the participants that the PHA has a significant worth and that land is a commodity that is irreplaceable.

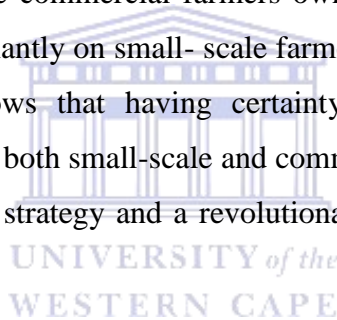
The value of the land was well iterated by small-scale and commercial farmers of the area. Even though there is a great need to have access to food on a regular basis, developing this land will remove the ability to provide access to food constantly, thus losing valuable arable land in aide of development. Urban agriculture is a very established practice, and this study reflected on the active role of urban agriculture predominantly in the PHA, and found that despite the rapid expansion of developments agriculture is still a thriving part of this valued portion of land. As urban agriculture provides vegetables for the community by the community, most of participants in the study considered the value of the PHA as highly important, despite their position, location or level of education.

The farmers have realigned their production to new markets and market systems and are now selling direct to the major retailers, retail agents and other sources such as restaurants and specialty stores. The participants highlighted that most private developers are concerned with development and have since disregarded the farmers of the PHA and the importance of productivity in the PHA.

RESEARCH OBJECTIVE 2

To investigate agricultural assistance, people empowerment and the use of land for agricultural purposes, people empowerment

The outcome of the participants involved in urban agriculture in this study indicated that food security contributes greatly towards food security and people empowerment in the PHA. It has been also identified that for most people within the study area, the PHA makes food accessible to all despite the challenges of facing developers on a regular basis. Participants made it known that smaller plots need to produce an equal amount of food for both market level and household level access. The fight for better cities is seldom as clearly defined as when water and food are at stake. Reducing the recovery time frame for the soil for the next harvest, as smaller scale farmers own smaller plots, while commercial farmers owns larger scale plots, increase the pressure for production predominantly on small- scale farmers with smaller plots in the PHA. Without waiver, the study shows that having certainty formulates a sense of people empowerment within the PHA to both small-scale and commercial farmers. Urban agriculture can, be regarded as a livelihood strategy and a revolutionary form of people empowerment within the PHA for the PHA.



RESEARCH OBJECTIVE 3

To determine the level of access to food for people within and around the PHA

The participants indicated that poor and non-visible policing places them under stress and causes a concern for security within the PHA. Increased unemployment rates contribute towards theft, burglaries and other illegal activities within the PHA. A decrease in labour on farms equally contributes towards increased low-income housing unemployment rates, which in turn generates settlements that are more informal as a chain effect of poor economic relief. The challenge of theft is made worse by ineffective control in the area as aggravated by reports

from all farmers. As indicated by the participants, vacant land and plots become informal dwelling places. They added that the poor support of the governmental authority and other forums is making matters even worse

It is important to strengthen and ensure secure water resources for small-scale and commercial farmers in order to ensure increased farm productivity. This means addressing development problems in which those owning the land are the ones utilising the land for urban agricultural purposes. The landowners, who has been farming here for years, should be given right of use to the land without waiver. Development does not give them assurance over how long they should be working on their plots. Arguably, significant to the community there should be a mechanism in place that would give first preference to the quality and importance the aquifer contributes towards food security in the PHA and the GCTA.

The participants indicated that most of them are dependent on their land not only as an economic resource, but also as a benefit towards their own household food security. The participants also indicated that in most cases they feed their families off their own lands.

RESEARCH OBJECTIVE 4



To examine the links between the urban agricultural food security, food production and access to food, effects of development in Philippi Horticultural Area (PHA).

The study suggests most low-income housing dwellers fear that access to food will increase. Although the PHA produces several types of vegetables, the main concern of the community is accessibility, stability and economic relief.

The participants confirmed that the challenges farmers receive pressure both small-scale and commercial farmers. Development is by far the biggest challenge farmer's face in the PHA. The growth of small-scale farmers in the PHA can at times be hampered by developers and at times be regarded as insignificant despite their role as urban farmers. The study highlights that each contribution of both small-scale and commercial farmers is equally important in alleviating poverty with the prospects of eradicating food insecurity, which is one of the MDG's. However, the study equally indicates that should this be extended to all type of farming, urban agriculture on every scale can improve food security.

The study also highlights that the constant competition for land, price increases of food resources, and unemployment, housing and low levels of education affect the livelihood strategies of the community. The study revealed that most people in the PHA have sought for other ways in sourcing financial assistance to survive. While most people have adopted the concept of 'grow your own and feed your home', others have found waste collection a means



of survival. The study also revealed that a lack of leadership within the community has resulted in increasing concerns regarding securing food from farmer to household level. In this study, it was highlighted that many of the participants have encompassed the food security challenge. The study conducted in PHA demonstrates the extent to which urban agriculture can proactively contribute to food security as well as other livelihood benefits for those in and around the PHA. Therefore, it is imperative that urban agriculture becomes part of expanded initiatives to assist the GCTA in achieving food security for all by all. Too little is being done to save areas like the PHA in their common goal of securing food, employment and a continuous production for the people of Cape Town.

6.3 KEY RECOMMENDATIONS

Several recommendation are suggested. Firstly, there is a need for further investigations that focus on food availability in the PHA.



Secondly, there is a dire need to integrate and streamline diverse food security programs alongside urban agriculture. A well-coordinated food security strategy for low-income housing communities should be of highest priority. In support of such an initiative, it is vital assessing the fundamental security of urban agriculture firstly before all others. The ability to farm, produce food from superior quality soil and to be dependent on water supplied by an aquifer and not disturbing city-sourced water are beneficial to any city.

Thirdly, to improve this, city officials, governmental officers and other role players and stakeholders of the PHA should incorporate the PHA as a source of livelihood that could ultimately safeguard the future of Cape Town. A multilateral approach to urban agriculture in the PHA should be adopted in order to ensure urban sustainability and food security to the diverse livelihood strategies. . The study predicts that hauling in food outside of the CCT would prove to be an expensive exercise for most of the participants in the GCTA, who are dependent on the PHA for fresh food produce. Therefore, it would be advisable to conduct research based of transportation cost of fresh food produced at city-to-city imported rates. Lastly, an in-depth study, which focusses on training programmes, would ultimately allow low-income housing communities situated in agricultural areas to be educated in the phenomenon of agriculture, food security and resource management.

6.3.1 LIMITATION OF THE STUDY

The economic evaluation was challenging in several ways, particularly in seeking to obtain completed resource logs. Furthermore, farmers are actively involved on their farms and at times interviewing they became a challenge. The data collection period was also problematic in a field such as public involvement, where activity may be very episodic and sporadic, thus collecting the data became a process of availability. Another limitation was the availability of participants. A major part of the interviews became more observational due to farmers constantly being called out to attend to matters in the field. People had many limitations on their time, so getting involved in our research as well as their daily operation was likely to be a burden for some. Furthermore, the researcher found that it much harder to interview officials than farmers. This is because scheduling and arranging meetings was more ‘on the go’ than in a stable office environment. Another difficulty was to engage research participants with my research as the area has been researched prior to this study.

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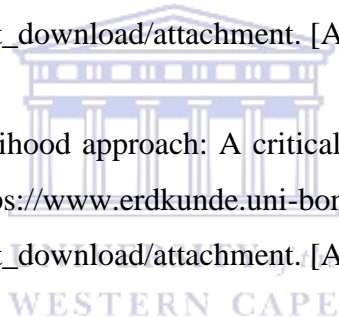
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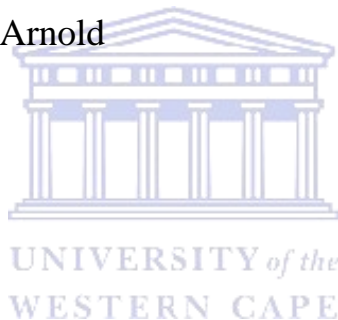
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Appendix 1: Consent form

“The bread basket of Cape Town”: Exploring the links between Urban Agriculture, Food Security and Environmental Management in the Philippi Horticultural Area (PHA)

Researcher: Natasha Donn-Arnold



Please initial box

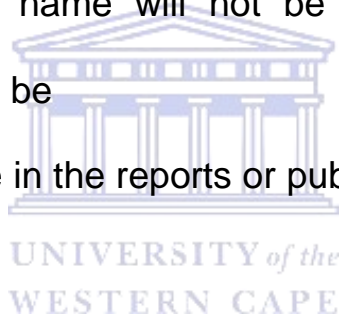
1. I confirm that I have read and understand the information sheet explaining the above research project and I have had the opportunity to ask questions about the project.
2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason and without there being any negative consequences. In addition,

should I not wish to answer any particular question or questions, I am free to decline.

(If I wish to withdraw I may contact the lead research at any time)

3. I understand my responses and personal data will be kept strictly confidential. I give permission for members of the research team to have access to my anonymised responses.

I understand that my name will not be linked with the research materials, and I will not be identified or identifiable in the reports or publications that result for the research.



4. As a participant of the discussion, I will not discuss or divulge information shared by others in the group or the researcher outside of this group.

5. I agree for the data collected from me to be used in future research.

6. I agree for to take part in the above research project.

Name of Participant

Date

Signature

(or legal representative)

Name of person taking consent

Date

Signature

(If different from lead researcher)



Lead Researcher

Date

Signature

(To be signed and dated in presence of the participant)

Copies: All participants will receive a copy of the signed and dated version of the consent form and information sheet for themselves. A copy of this will be filed and kept in a secure location for research purposes only.

Researcher:
Natasha Donn-Arnold
Department of Geography
Environmental Studies and
Tourism
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UNIVERSITY of the WESTERN CAPE

DEPARTMENT OF RESEARCH DEVELOPMENT

Appendix 2: Information sheet given to research participants

Project Title: The breadbasket of Cape Town:

Exploring the links between urban agriculture, land use and food security in the

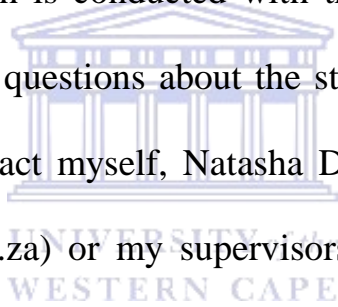
Philippi Horticultural Area (PHA)

This is a full thesis being conducted by Mrs. Natasha Donn-Arnold (3135078) from the Department of Geography and Environmental Studies, University of the Western Cape, Private Bag X17 Bellville 7535, South Africa.

I would like to request your participation in this research, and, your participation is completely voluntary. Equally should you not wish to participate, your request will be met with utmost of respect. Should you agree to participate, you will ask a question in relation to your field/ expertise and experience. Please be informed that during this process, I will take notes, record the interview session and draw mental maps, to retract the information shared with me.

Each session will take approximately 30 minutes; however, this is entirely based on your availability. The interview session is quite flexible, and can take place at your earliest convenience, and in a fashion that suits your schedule.

I give you my assurance that any information will be treated with utmost confidentiality, as I will not divulge any personal information unless otherwise instructed by you. All collected information will be used to compile my thesis in the *Department of Geography and Environmental Studies*, University of the Western Cape. This research is conducted with the hope that other may also benefit from it. Should any questions about the study arise, or your right as a participant feel free to contact myself, Natasha Doon-Arnold on 0607453338 (email-3135078@myuwc.ac.za) or my supervisors Prof D. Tevera (0)21 959 2160 Email: dtevera@uwc.ac.za and or Dr M. Boekstein (0)21 959 2160 Email: mboekstein@uwc.ac.za.



Natasha Donn-Arnold

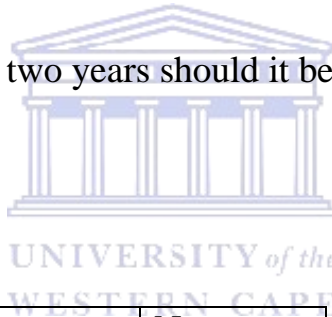
Date.....

Signature.....

Appendix 3: Questionnaire for participants linked to the PHA

Questionnaire for people linked to the PHA

The information gathered from this questionnaire is for the use of a master's project being completed at UWC in the Geography department. The contents disclosed will not be used for profitable gain and your anonymity is guaranteed. Informed consent is given to be linked to the results? You will be informed of any beneficitation and any unlikely harmful side effects because of this project. The results of this study will be made accessible to you. The results of this study will be kept for an estimated two years should it be required for future use.



1. Do you live in the PHA?

Yes	No
-----	----

If no where do you live

Manenberg	Hanoverpark	Other

2. Do you work on any farms in the PHA?

Yes	No
-----	----

3. How do you obtain access to food (Means or measures)?

.....

.....

.....

.....

.....

.....



4. What do you think about the development in the PHA (Tick the box with X)

Save the PHA	Do not Save the PHA	Let Development Continue

5. In what age category do you fall (Tick your box with X)

Under 18	19-35	36-59	60-64	65 plus

6. What is your level of Education

Primary Education	Secondary Education	College Education	University Education

7. How do you access financial resources?

Social Grant	Employed	Unemployed	Self Employed

Other (Explain)



.....

.....

.....

.....

.....

.....

.....

8. How does farmers in the area help you?

Jobs	Access to Food	Education	Other

If other, please explain

.....

.....

.....

.....

.....

How important is the PHA to you?

.....

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.....

.....



Are there any comments you would like to add?

.....

.....

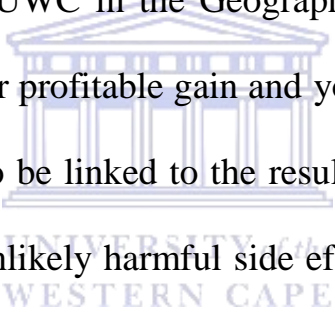
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.....
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Appendix 4: Questionnaire for Farmers in the PHA

Questionnaire for the Farmers of PHA

The information gathered from this questionnaire is for the use of a master’s project being completed at UWC in the Geography department. The contents disclosed will not be used for profitable gain and your anonymity is guaranteed. Informed consent is given to be linked to the results? You will be informed of any beneficiation and any unlikely harmful side effects because of this project. The results of this study will be made accessible to you. The results of this study will be kept for an estimated two years should it be required for future use.



Name:

Address:

Telephone number:

Male Female Black Coloured White Christian Muslim

- 1. Commercial/ semi-commercial agriculture
- 1. Commercial/ semi-commercial agriculture

2. How many people do you employ? (B/W/C. (M/F)

Farming

i. Full time.....

ii. Part time.....

iii. Seasonally.....

iv. Permanently.....

4. What crops do you produce?

a. Baby marrows

b. Beetroot

c. Broccoli

d. Butternut

e. Cabbage

f. Carrots

g. Cauliflower

h. Cucumber

i. Dunja

j. Egg plant

k. Fennel



5. Do you own a farm stall?

.....

6. Is the farm stall supported by your farm?

.....

If no, who are your providers for the stall?

a) Other farmers from PHA

b) Other farmers from outside PHA

c) Epping

d)

Other.....



7. What would you estimate the amount of vegetables sold to traders from

Your farm stalls to be?

a. R

13. What are the top 5 products you sell to traders/ traders buy?

a. Cabbage

b. Spinach

c. Carrots

d. Cauliflower

e. Potatoes

f. Tomatoes

g. Other.....

8. How does development in the PHA effect your farm?

.....

.....

.....

.....

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.....



9. To what level have you been affected by development.

.....

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.....

10. What is your view on saving the PHA?

.....
.....
.....
.....
.....
.....



Appendix 5: SPSS tables from the participants responses in the PHA

Table 4.10: Physical access to food

		Access to food			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	2	2.9	3.0	3.0
	SASSA	10	14.7	14.9	17.9
	Collect Scrap	20	29.4	29.9	47.8
	Temporary Employment	17	25.0	25.4	73.1
	Food Parcels from farmers	4	5.9	6.0	79.1
	Community food hand-outs	9	13.2	13.4	92.5
	Employed at DC	4	5.9	6.0	98.5
	Own Stall	1	1.5	1.5	100.0
	Total	67	98.5	100.0	
Missing	System	1	1.5		
Total		68	100.0		

Q6 education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Primary Education	25	36.8	39.1	39.1
	Secondary Education	38	55.9	59.4	98.4
	College Education1		1.5	1.6	100.0
	Total	64	94.1	100.0	
Missing System		4	5.9		
Total		68	100.0		

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Q6 education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Primary Education	25	36.8	39.1	39.1
	Secondary Education	38	55.9	59.4	98.4
	College Education1		1.5	1.6	100.0
	Total	64	94.1	100.0	
Missing System		4	5.9		
Total		68	100.0		

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Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	F	37	54.4	54.4	54.4
	M	31	45.6	45.6	100.0
	Total	68	100.0	100.0	

Q5 age category

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Under 18	2	2.9	2.9	2.9
	19-35	26	38.2	38.2	41.2
	36-59	30	44.1	44.1	85.3
	60-64	9	13.2	13.2	98.5
	65+	1	1.5	1.5	100.0
	Total	68	100.0	100.0	

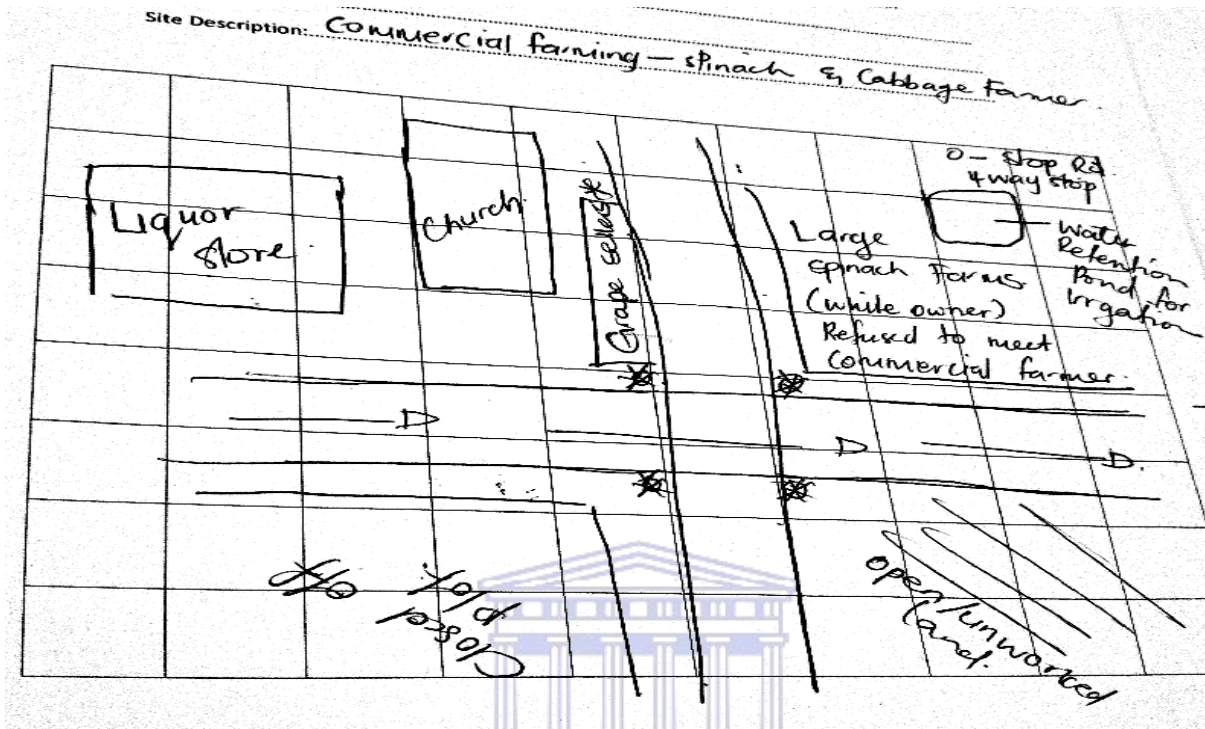


Q1if no where

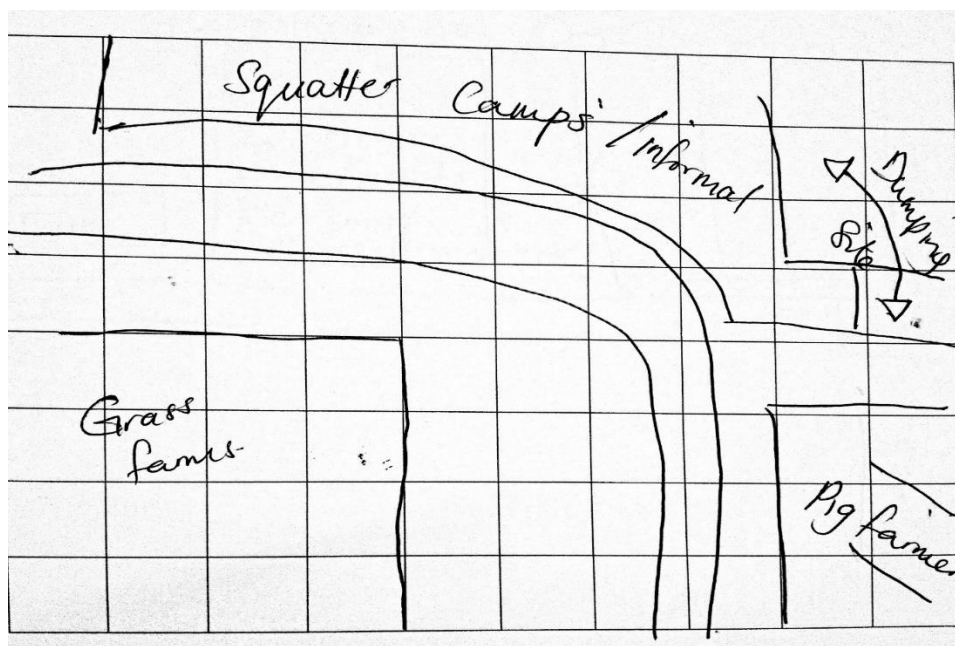
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	MANENBERG	34	50.0	50.0	50.0
	HANOVERPARK	9	13.2	13.2	63.2
	OTHER	25	36.8	36.8	100.0
	Total	68	100.0	100.0	

Appendix 6: Observational maps of the PHA

Commercial farming area in the PHA



Informal settlement display in the PHA



Appendix 7: Formal and informal developments in the PHA



Figure 7.1: Pick n Pay: Corner 5th Ave and Jan Smuts Philippi



Figure 7.2: GLS trolley repair unit, Pick n Pay. Philippi.



Figure 7.3: Animal Welfare Society: View of Pick n Pay Distribution Centre



Figure 7.4: Pick n Pay Distribution Centre street view

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