Women and Food Production in Urban Areas

A case study of urban food gardening in Johannesburg

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Abstract

Food security is a challenge for many African urbanites. This study uses a qualitative approach and examines the experiences of women practising food gardening around the city of Johannesburg. Data was obtained through participant observation and semi-structured interviews. This data was analysed using thematic content analysis. Findings revealed that although food gardening is less promoted, badly managed and ill-equipped, it still reduces household food insecurity. From the collected data, conclusions can be drawn that the failure to maximise food gardening to mitigate food insecurities at a broader scale is due to gender disparities and inequalities. Some gardens were dominated by men and their attitudes towards women showed gender tensions and disunity. The findings of this study indicate that food security in urban areas can be optimised by acknowledging and involving women at all levels. Women also need to be equipped with better knowledge of what is needed to improve their household food security. As such, the study recommends that local governments need to be active on the ground to support all interventions taken by women to reduce food insecurity. To improve food gardening productivity, all stakeholders need to work together, and the government needs to actively promote urban food gardening to help its vulnerable citizens.

Keywords: Women, food gardens, food security, urban agriculture, women's empowerment, gender

Kgutsufatso

Boemo ba ho kgona ho fumana dijo tsa phepo e loketseng ka mokgwa o lefellehang habobebe ke bothata Maaforikeng a phelang ditoropong. Phuputso ena e sebedisitse datha eo e seng ya dipalo ho utlwisisa maikutlo a bafuputswa, ho hlahloba diketsahalo tseo basadi ba lemang le ho jala ditshingwana tsa dijo ho potoloha toropo ya Johannesburg ba bileng le tsona. Datha e fumanwe ka ho rekota maikutlo a bankakarolo le diinthaviu tsa dipotso tse hlokang ho arajwa ka tlhaloso e felletseng (e seng karabo ya e kapa tjhe feela) pele e ka hlophollwa ka tlhahlobo ya mokgwa wa ho hlopholla datha ya mofuta ona. Lesedi le fumanweng le bontshitse hore, le ha ho jala dijo ho sa tshehetswe le ho laolwa hampe, le hore batho ba jalang hangata ha ba be le disebediswa tse lekaneng, ketso ya ho jala e ntse e fokoletsa malapa bothata ba ho se kgone ho fumana dijo tsa phepo e loketseng. Ho tswa datheng e bokelletsweng, mofuputsi o qetelletse ka hore ho hloleha ho tshehetsa le ho atisa ho jalwa ha dijo, ho fokotsa bothata bo namelang dibakeng tse ngata ba ho se kgone ho fumana dijo tsa phepo e loketseng, ho ka bakwa ke mabaka a etsang hore banna le basadi ba se fumantshwe menyetla ka ho lekana le ho se tshwarwe ka ho tshwana. Ditshingwana tse ding e ne e le tsa banna haholo, mme maikutlo a bona bathong ba basadi a ne a bontsha ho se utlwane ha banna le basadi. Lesedi le fumanweng le bontshitse le hore boemo ba ho kgona ho fumana dijo tsa phepo e loketseng ka mokgwa o lefellehang habobebe dibakeng tsa ditoropong bo ka matlafatswa le ho kenya basadi maemong kaofela. Basadi ba hloka ho fumantshwa tsebo e batsi ya se hlokehang ho ntlafatsa boemo ba malapa a bona a ho kgona ho fumana dijo tsa phepo e loketseng ka mokgwa o lefellehang habobebe. Ho itshetlehilwe leseding le fumanweng, mofuputsi o kgothalleditse hore mebuso ya lehae e sebetse haholo le batho ba amehang ho tshehetsa dintho tseo basadi ba di etsang ho thusa ho fokotsa boemo ba malapa a bona ba ho se kgone ho fumana dijo tsa phepo e loketseng. Ho ntlafatsa tlhahiso ya tshingwana ya dijo, bathahaselli kaofela ba hloka ho sebetsa mmoho, ha mmuso o hloka ho tshehetsa le ho ntshetsa pele ho etswa ha ditshingwana tsa dijo metseng ya ditoropong ho thusa baahi ba hlokang tshehetso.

Mantswe a bohlokwa:ditshingwana tsa dijo, boemo ba ho kgona ho fumana dijo tsa phepo e loketseng ka mokgwa o lefellehang habobebe, bong, temothuo ya metse ya ditoropong, basadi, matlafatso ya basadi

Isifinqo

Ukuvikeleka kokudla kuyinselele kubantu abaningi basemadolobheni ase-Afrika. Lolu cwaningo lusebenzise indlela esezingeni lokuhlola ulwazi lwabesifazane abalima izingadi zokudla edolobheni laseGoli. Idatha itholwe ngokubhekwa kwabahlanganyeli kanye nezingxoxo ezihlelwe kancane, ngaphambi kokuba zihlaziywe ngokuhlaziywa kokuqukethwe kwendikimba. Okutholakele kuveze ukuthi, nakuba ukulima ingadi yokudla kungakhuthazwa futhi kungaphethwe kabi, kanti nabalimi bavamise ukungakuhlomeli kahle, lo mkhuba usanciphisa ukuntuleka nokungavikeleki kokudla emakhaya. Kusukela kudatha eqoqiwe, umcwaningi waphetha ngokuthi ukwehluleka ukukhulisa izingadi zokudla, ukunciphisa ukungavikeleki kokudla ngezinga elibanzi, kungabangelwa ukungafani kobulili nokungalingani. Ezinye izingadi zazigcwele abesilisa, futhi indlela ababebheka ngayo abantu besifazane yayibonisa ukungezwani kobulili kanye nokungezwani. Okutholakele kuphinde kwaveza ukuthi ukutholakala kokudla ezindaweni zasemadolobheni kungathuthukiswa ngokuvuma nokubandakanya abesifazane kuwo wonke amazinga. Abesifazane badinga ukuhlonyiswa ngolwazi olungcono lwalokho okudingekayo ukuze kuthuthukiswe ukutholakala kokudla emakhaya abo. Ngokusekelwe kulokho okutholiwe, umcwaningi uncome ukuthi ohulumeni basemakhaya basebenze kakhulu phansi, ekusekeleni ukungenelela okuthathwa ngabesifazane ukunciphisa ukungavikeleki kokudla. Ukwenza ngcono izinga lokukhiqiza ukudla bonke ababambiqhaza kudingeka basebenzisane, kuyilapho uhulumeni edinga ukugqugquzela ukulinywa kwezingadi zokudla emadolobheni ukusiza izakhamuzi ezisengozini.

Amagama abalulekile: izingadi zokudla, ukuvikeleka kokudla, ubulili, ezolimo zasemadolobheni, abesifazane, ukuhlonyiswa kwabantu besifazane

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DECLARATION OF ORIGINALITY

I, Pretty Ndlovu, student number 50957562, hereby declare that this thesis, with the title: 'Women and food production in urban areas: A case study of urban food gardening in Johannesburg', which I hereby submit for the degree of Master in Geography at the University of South Africa, is my own work and has not previously been submitted by me for a degree at this or any other institution.

I declare that the thesis does not contain any written work presented by other persons whether written, pictures, graphs or data or any other information without acknowledging the source.

I declare that where words from a written source have been used the words have been paraphrased and referenced; and that where exact words from a source have been used, the words have either been placed inside quotation marks (for shorter quotes) or set off from the text (for longer quotes) and referenced.

I declare that I have not copied and pasted any information from the Internet without specifically acknowledging the source and have inserted appropriate references to these sources in the reference section of the thesis.

I declare that during my study I adhered to the Research Ethics Policy of the University of South Africa, received ethics approval for the duration of my study prior to the commencement of data gathering, and have not acted outside the approval conditions.

I declare that the content of my thesis has been submitted through an electronic plagiarism detection programme before the final submission for examination.

Student signature (30 January 2023)

Dedication

To my late Grandmother Emmah Mpofu, who did not live to see the final of this thesis, and to my son Siyabonga G. Shaba, may you be inspired.

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CHAPTER 1

INTRODUCTION

Food security refers to a state where people have access to food that is sufficient, safe, and nutritious, thereby allowing them to live an active and healthy life (FAO, 2011; van Veenhuizen, 2006). Food is a basic human right, and women's involvement is key to food security (FAO, 2011). An estimated 850 million people are prone to malnutrition, while 2 billion are affected by hunger (Lai et al., 2020). Hunger and poverty eradication are the priority of global organisations such as the United Nations, World Bank, World Food Programme (WFP), and the Food and Agriculture Organisation (FAO). South Africa has joined the Sustainable Development Goals (SDG) of the United Nations with a commitment to improving food security and ending hunger (National Policy on Food and Nutrition Report, 2013). Food security is made up of four pillars: access, affordability, utilisation, and stability. When all four pillars are met, food security is achieved.

According to Blekking et al. (2019) and Lai et al. (2020), urban areas are expected to grow by 60% by 2030, and most of this growth will be experienced in developing countries. These estimations are concerning because African cities are already overcrowded, and this has led to an increase in poverty. It is estimated that about 800 million people will be living in cities in Africa by 2050, and they will need about 70 to 100% more food (Bianca, 2003; World Bank, 2008). Unfortunately, this sharp growth will not be sustained by the urban environment and this rapid population growth will have a devastating impact on urban resources and food security. This is because urban food production is frequently unplanned, and cities lack sustainable means of food production to meet the demand of a larger population (Lai, 2020).

The challenge experienced by people living in urban areas concerning food security is affordability. Urban poverty levels and unemployment rates are very high, and that makes it difficult for all urban inhabitants to have access to a decent meal every day. It is therefore important to look for relevant ways to tackle the food issue at a grassroots level.

Urban agriculture is defined by Steenkamp et al. (2021) as crop production within cities and towns. Urban agriculture has the potential to produce varying food types while supporting all four pillars of food security (Galhena et al., 2013). The United Nations SDG 11 calls for cities to be inclusive safe, resilient, and sustainable, and urban agriculture has the potential to facilitate the achievement of this goal (Mangaduet et al., 2017). Urban agriculture contributes 15 to 20% of the global food supply. It has shown positive results of resilience in times of sudden shocks and global crises that result in the disruption of the food supply chain (Galhena et al., 2013; Lai et al., 2020; Suryantini et al., 2021). Easy access to fresh vegetables from gardens addresses food shortages by reducing long food supply chains and food waste during transportation; thereby maintaining health and well-being (Lai et al., 2020). This calls for measures to strengthen local food production through home and community gardening, to ensure household food security.

In developing counties such as South Africa, fast-economic growth in cities has been associated with an increase in urban population causing urban land-use change. This change is a major concern to urban agriculture (FAO, 2011; WFP, 2011). It adds pressure to the potentially strained urban food systems, threatening the livelihoods of the urban population, particularly women. Smallholder agriculture in backyards, co-operatives and open spaces like parks make a large contribution to the food security of households. Extra produce can be sold to other households at a reasonable price, thus reducing the number of people going to bed on an empty stomach in cities. Urban agriculture contributes more than just food for urban women, it also contributes socially and economically, while it also has psychologically empowering benefits.

Growing one's food is an obvious fix for urban food insecurity, however, urban agriculture has several detractors. Some scholars point out that urban agriculture has been given too much credit, arguing that the urban poor are not able to access the resources they need to produce sufficient quantities and varieties of food (White & Hamm, 2014). Crush et al. (2010) indicate that there is not enough evidence to prove the stated benefits of urban agriculture for the poor. Miccoli et al. (2016) raise attention to how sporadically urban agriculture is practised, and this makes it difficult to plan and organise. Also, there are risks associated with urban gardening if it is poorly managed; this may be due to the chemicals used which can contaminate water

sources and soils (Harvoka et al., 2009). White and Hamm (2014) add that municipal officials are against urban agriculture because it does not follow safe means of production, it is unhygienic, and it takes up city space.

These authors promote a more holistic approach to food security that engages all aspects of the urban food system, and where they do support urban agriculture as part of this food system, they call for a more organised and sustained approach to providing support. Cilliers et al. (2020) for example, argue that urban agriculture is currently not self-sustaining nor citizen-driven; an issue caused by a lack of commitment from governments. Urban farmers could adopt sustainable practices that are more suited to their urban area and undesirable outcomes can be mitigated through the knowledge of experts. Technological advancements could allow for urban agriculture to be practiced in areas where it was impossible before (Cilliers et al., 2020). When well maintained, urban agriculture provides stability as the growing of food can be done throughout the year; rooftops with a hydroponics system can also be used as they are less physically taxing and user-friendly and they save both time and energy. Blekking et al. (2019) highlight that cities are struggling to understand the issue of food security because the relationship between urban consumers and food supply is very complex as cities do not grow their food. City developers need to work with academics and non-governmental organisations (NGOs) to get insight into urban agriculture and its potential. This is where this research is relevant, it provides some insight into how women food gardeners produce food, their challenges, and the extent of their capacity to provide themselves and others with food.

The FAO (2017) states that food security remains a global challenge; it continues to be a challenge because governments seem to be less interested in the findings and the recommendations of researchers (Åhs, 2017; Battersby, 2019). In South Africa, the right to food was incorporated into the South African Constitution. Section 27 states that everyone has the right to sufficient food and the state must take reasonable legislative measures within its resources to realise this right (Battersby, 2011; 2019). In 2002, the national government drew up the Integrated Food Security Strategy (IFSS). In 2013, a broad framework was developed called the National Policy on Food and Nutrition Security. This legislation aimed to ensure that the national, provincial, and local governments provide food security measures at every level. However,

national policies are only effective when the local government implements strategies to execute and manage them.

Food production was traditionally regarded as a rural issue and was measured on a national scale (Haysom, 2021). This is evident when one examines the food production policies of developed and developing countries. These were based on increasing the supply from rural sources rather than coming up with a comprehensive plan to increase food production in urban areas. Addressing food security on a national level led to the neglect of household and individual food insecurity issues. This is exacerbated by South Africa's colonial and apartheid legacy that shaped the current agricultural system. The colonial government (and later the apartheid government) promoted rural commercial agriculture because it was profitable and this led to a lack of food production in urban areas (Battersby & Watson, 2019). The colonial government ensured that Black people did not benefit commercially from this agriculture through the Native Land Act of 1913 which denied Black people ownership. African cities are now battling to reverse these colonial food policies. To date, the democratic shift has failed to address the land question adequately and it has continued to reinforce the large commercial farming structure (O'Laughlin et al., 2013). The effects of these land tenure laws are still being felt. Most smallholder farmers are black, and they do not own land. These farmers find it difficult to access resources to set up farms (Steenkamp et al., 2021). With the high demand for land in urban areas, urban agriculture implementation is a challenge as the main concern is housing. Part of the challenge of urban agriculture is to find new spaces that can be used for food production such as rooftops (Miccoli et al., 2016; Steenkamp et al., 2021).

Urban governance plays a critical role in improving urban food systems, it is rather unfortunate that governance in many African cities continues to be carried out in a mostly uncoordinated and unintegrated way (Battersby & Watson, 2019). Haysom (2015) posits the role of city governance is to ensure processes that allow residents to participate in urban food systems. The need for the government to put measures in place to deal with food insecurity in urban areas is extremely urgent. It requires that policies and practices be empowering and enforced to ensure that everyone's right to food is possible. Currently, the government has implemented several programmes to improve the livelihoods of the poor which include the reconstruction and development

programmeme (RDP), school feeding schemes, and social grants (Tsuuva, 2020). However, these programmes do not allow people to be empowered and become fruitful so that they can take care of themselves. In addition, these programmes do not cater to the whole family; for example, school feeding schemes only feed children while the rest of the family is not fed, and the social grants money is way too little to cover the family throughout each month. Therefore, government interventions must be focused on empowering communities to help themselves, such as by producing their food at the home or through community gardening.

Informal food actors play an important role in food security; however, instead of being promoted as a livelihood strategy for food accessibility, the city continues to clamp m down on them. There is a need to ensure that interventions in urban areas are instituted to realise the importance of smallholder agriculture in closing the household food gap (Crush et al., 2011). Dang and Sampaio (2020) argue that there is a need for the integration of food production forms that provide multifaceted benefits. Accessibility as a food security pillar means that local governments must exhaust all the elements which will maximise the production of food. This requires urban design aimed at addressing this present and future urban challenge (Dang and Sampaio, 2020). Urban agriculture practices fit well in the framework of the Spatial Land Use and Management Act (2013), which subscribes to the principles of sustainable development and land use through existing resources while involving communities.

Despite the women's rights movements, many women still suffer due to the negative effects of cultural norms (Dodson et al., 2012; Prügl & Joshi, 2021). Women contribute about 43% of global food agriculture, with 90% of food production in African countries (FAO, 2012; Dodson et al., 2012; Olivier & Heinecken, 2017; Bowden et al., 2018). In terms of traditional gendered divisions of labour in the household, women are often at the forefront of ensuring food security in rural and urban areas. Thus, in many South African cities, women are engaged in food gardening as a supplement to improve household food insecurity. Regardless of the efforts of the women, they continue to face many obstacles due to gender inequality.

Women-empowerment in agriculture continues to be given less attention in Africa; mainly due to the existing patriarchal legal practices that do not allow women to

cultivate land as they often do not have the right to own land (Prügl & Joshi, 2021). The United Nation's SDGs call for women to be given a platform at all levels so that they can make decisions, not only in food production but in various spheres of their lives (Anderson et al., 2021). Women must be allowed access to all facets of development as this will facilitate a change that will close the gender gap. For women access does not only mean accessing food products; it also means being able to own resources and use them strategically to gain full benefits (Westholm & Ostwald, 2020). Women are central to food security at household and community levels, and empowering women is paramount. The World Bank (2018) reports that women's empowerment will certainly reduce the number of people affected by hunger globally. They also suggest that farming skills be instilled in young women so that they grow up knowing the value of agricultural production, thereby moving towards the closing of the gender gap.

Overall urban agriculture plays an important role as a food sovereignty strategy, especially in impoverished urban areas facing food insecurity and poverty. Although there is much research on urban agriculture, its benefits, and constraints, less is said about the main actors (women) of this initiative in urban areas. This shows how women continue to carry the burdens of care, while their struggles continue to go unnoticed. This study will document the experiences of women gardeners in the Johannesburg Metropolitan Municipality; to unpack the significant role played by women in food gardens, their achievements, and the most significant barriers they face while pursuing gardening. Moreover, policies and interventions should not be gender biased. Women should be at the forefront of all policy processes to improve access to resources and decision-making. Government agents should ensure that women are updated in terms of knowledge and equipped with new technologies as these could replace traditional and labour-intensive methods. All of these issues will help improve the state of women in food gardening and increase food security for all urban populations.

The use of the theory of access and the gendered food systems framework for this study will contribute towards the amendment of existing policies; by bringing to light all the obstacles experienced by women in food production in urban areas. Through gender analysis, gender roles determined by cultural beliefs and other institutional structures in food systems have shown how inequality continues to exist. Addressing

gender inequality in food systems as a whole will empower women in farming; thereby achieving all four food security pillars (access, utilisation, affordability, and sustainability). This research study seeks to point out the struggles of the urban poor. Women, in particular, go through various challenges to make ends meet. If they received support from government officials in terms of resources, such as vacant lots and access to technology, this would be beneficial to poorer urban women as they can produce their food. Concerning management, interventions should provide training and monitoring to people who are gardening to avoid undesirable outcomes.

This study focused on smallholder farmers. There are different definitions of smallholder farmers and this research used the definition by Olutiwayo (2019) who states that smallholder farmers are farmers who grow crops mainly for consumption and sometimes to make profits. They are usually characterised by size, and resource distribution. Gomez et al. (2020) add that these smallholder farmers are divided into two groups, urban gardens and small urban farms. The first is mainly for subsistence and they aim to produce crops for household consumption. The second group is mainly for profit. This study consists of initiatives from both groups, with Siyakhana and UAI gardens aimed at making a profit while the rest of the community gardens are for household consumption. Surplus, however, is sold to community members. There is also one community garden which is farming strictly for charity. Because the study was carried out in an urban setting, smallholder farmers whose aim is to provide for the community are referred to as community gardens while ones for profit are called small urban farms. Community gardens are classified into two groups based on their structure: allotment gardening, where each member is allocated a portion, and groups gardens which are not portioned.

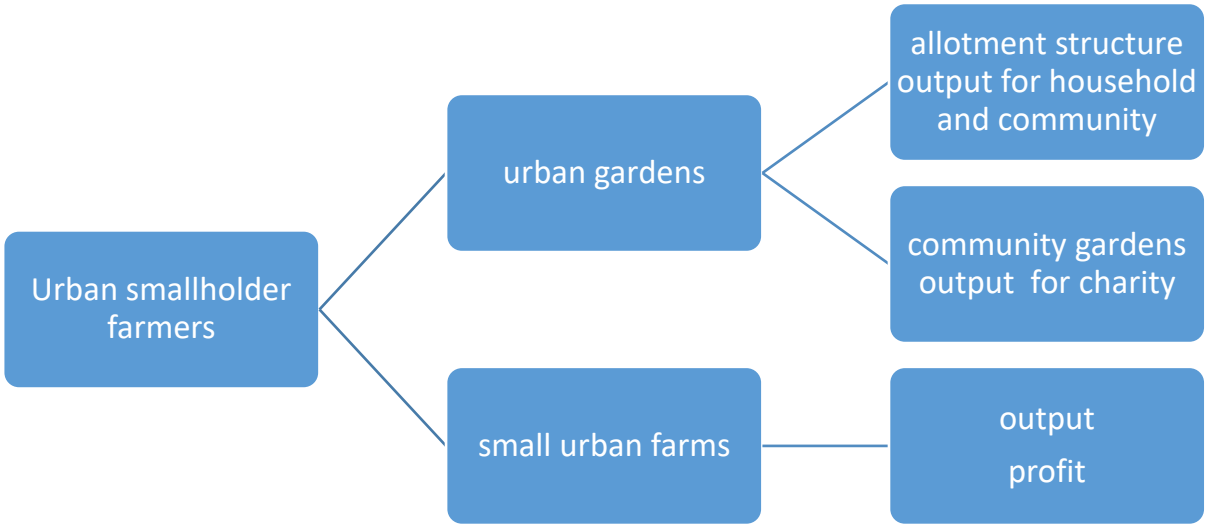

Figure1: Different Types of Urban Agriculture

1.1. Study Location

Johannesburg is the economic engine of South Africa, yet it has extreme poverty and wealth. Currently, urban food gardening is a growing phenomenon in most cities; however, due to land shortages, women are starting to use public spaces to grow vegetables. No formal research has been performed to document the challenges experienced by women working in these gardens. This research will document different approaches to food gardening in different locations in the City of Johannesburg. These gardens are mostly community gardens located in the townships and a few in the inner city.

The inner-city gardens differ from the community gardens because they are more formal with advanced technologies and are run mostly by youths. One of these is the rooftop garden under the Urban Agriculture Initiative (UAI). This NGO runs several rooftop gardens in the inner city of Johannesburg. These gardens run as entrepreneurship development programmes to help those who want to grow sustainable agricultural businesses. It uses customised hydroponic systems which are environmentally friendly and sustainable, suitable for growing vegetables to support local communities. Another is the Siyakhana food gardens located in the Bezuidenhout Valley Park on the east side of the city. This garden is a collaboration of universities, volunteers, and academics to improve food security; especially to improve the nutrition

of people living with HIV/AIDS in the inner city. Siyakhana now also grows food as part of an entrepreneurial programme and sells organic vegetables.

The community gardens were located in three different heavily populated and poverty-stricken townships in Johannesburg. These townships include Alexandra, Soweto, and Cosmo City. These gardens are run by elderly women with the objectives of reducing poverty, and food insecurity and keeping the community surrounding clean and safe.

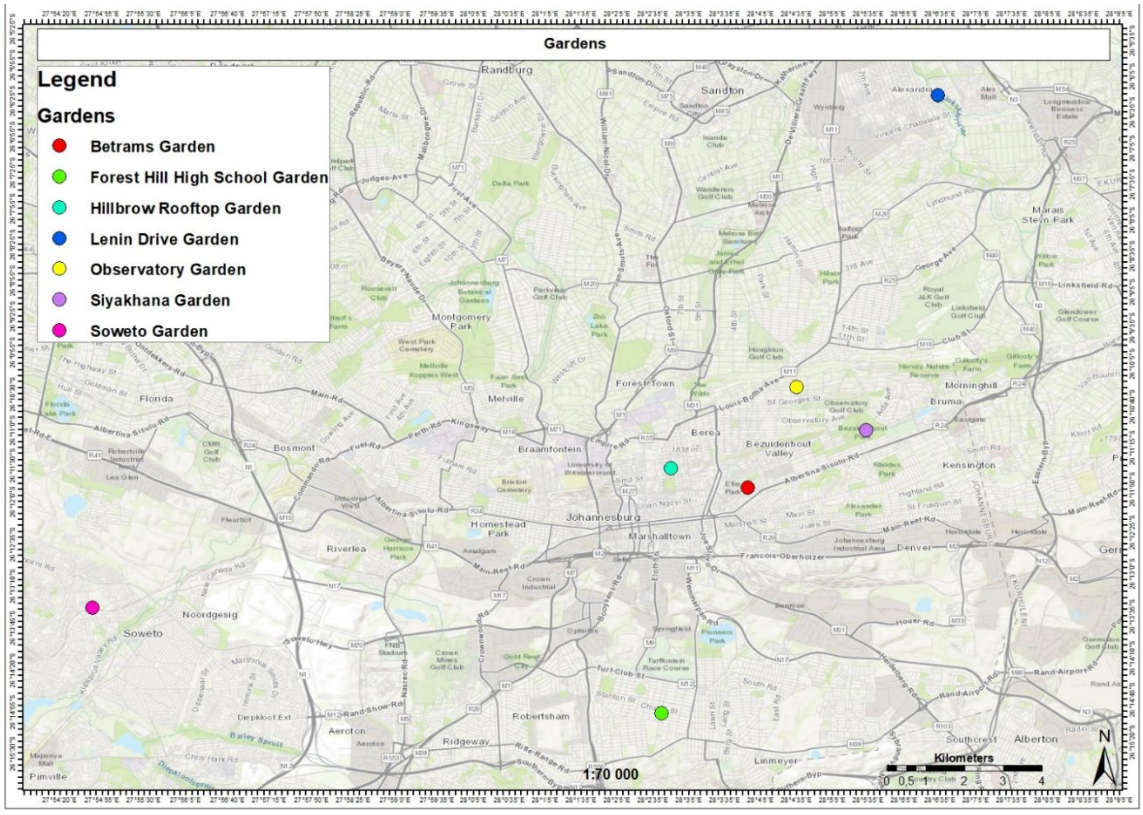

Figure 2 The municipality map showing the study areas within the City of Johannesburg

(Source: Legion Shilaluke (2019) Khanya GIS Consulting Company)

1.2. Research Aim

This research study aimed to assess the success and challenges associated with women in food gardening in the City of Johannesburg Metropolitan Municipality.

1.3. Problem Statement

The rapid population increase in urban areas has increased the demand for food and increased poverty levels. Agricultural research has been limited to large-scale farming, while smallholder farmers' mainly informal farming (food gardens) is not well recognised as a significant strategy to supplement household food shortages. There is still the belief that food insecurity is an issue in rural communities. Scholars in South Africa have found that there is an "absent mandate" regarding food in government policies, and urban agriculture is regarded as a lower priority for funding (Battersby and Haysom, 2019). The consequences of the absent mandate are felt by the disadvantaged group of the urban population, women. Women are at the forefront of household food provision, and they bear most of the challenge to provide food for their families. For this reason, it is important to find out the challenges that they face through a thorough consideration of research outcomes so that challenges are attended to and to ensure that interventions bring positive impacts to women gardeners and the whole urban gardening initiative for example better tools, equipment, exposure to modern farming methods (hydroponics), markets and to improve their living standards.

1.4. Objectives

- To conduct a comparative case study analysis of different types of food gardens in different locations, and to assess how these locations promote or hinder women's food producers.
- To identify the achievements and challenges faced by women in different urban food gardens.
- To assess the policy and economic interventions of the government concerning women and food gardens

1.5. Research questions

- What benefits do urban food gardens have in terms of access to food; improved household income; knowledge production and preservation; empowerment and socializing?
- What barriers do women encounter in urban food gardens and how do women overcome these barriers?

- What kind of resources do women need to maintain and improve food production in urban food gardens?
- How can urban governance structures support women in urban food gardens?
- Do the physical characteristics of the study sites influence food gardening activities?
- Does the location of the identified study sites have any impact on the food gardening activities in each case?

1.6. Significance of study

The quality of life survey report of 2020/21 states that about 25% of people in Johannesburg indicated that they have skipped meals due to a lack of income to buy food, with more children benefiting from the school feeding scheme (Johannesburg, 2021). With the city formulating its food policy to reduce food insecurity, it is important to determine if the implementation of policies has brought hope to underprivileged women (particularly in the inner city). Food gardens have seemingly been one of the undervalued strategies used by women to supplement household food. Most researchers tend to concentrate on the quantifiable benefits of commercial urban agriculture than food gardens and their contribution to the lives of women; while ignoring the challenges that are faced by food gardeners.. This study will highlight an under-researched set of urban food producers, and it will contribute to an understanding of the tactics and strategies of poorer women's urban habitats.

Due to the increase in the population, gender inequality has increased with women outcompeted by men in many aspects and suffering to find means of survival. Although this study is similar to previous studies on urban agriculture, it differs in that it concentrates on women as the main actors in urban gardening and household food providers. The findings of this research study will contribute towards further city planning design; to those that include urban agriculture as part of the empowerment of the poor in the inner city.

Acknowledging the gender difference that is experienced in the main components of the food system requires the transformation of the whole food system through women's empowerment (Johnson et al., 2018). First, gender inequality needs to be highlighted and dealt with so that women and men are treated equally to ensure

favourable outcomes not limited to increased food production but also including diverse dietary outcomes, equity, and sustainable development (Mkandawire et al., 2021). Second, policies need to be redesigned to include all stakeholders and should be based on empirical evidence with new approaches that are specific to the areas in which agricultural development is taking place.

With Gender-Based Violence (GBV) in the spotlight in South Africa, this research will reveal the further vulnerability of women due to food security issues, and that intervention will go beyond safety but also to the total well-being of the women.

1.7. Methodological considerations.

This study is based on a qualitative research methodology. This approach was used because it is exploratory, and it is a tool to identify behaviours and patterns governing social conditions. Case studies, observations, and semi-structured interviews were methods used to gather data. The interviews and participant observation helped the researcher to gain a detailed understanding of each case study. Multiple case studies were used to verify changes in different situations and to document the different experiences of the participants. Data analysis was done through thematic data analysis. Both deductive and inductive approaches were used to identify the similarities and differences in these case studies.

1.8. Outline of the study

This study is divided into six chapters. Chapter two is a literature review that explores the theoretical considerations associated with gender and urban food gardening. In this chapter, the concept of food security is further explained through the four pillars. The theory of access that underpins this research is explored through the question of how accessibility to resources affects women in food production. Lastly, the Gendered Food Systems Framework is explained to show how food systems should be structured to reduce gender inequality. Chapter three provides an overview of the policies that shape food production as well as how the government responds to urban food production (urban agriculture). Chapter 4 explores the methods that were employed to collect and analyse data. Chapter five provides the findings of the study.

It describes each case study and documents the experiences of the gardeners. Lastly, chapter six provides the conclusion and recommendations of the study.

CHAPTER 2

LITERATURE AND THEORETICAL FRAMEWORK

Introduction

This chapter provides a discussion of the theoretical framework and literature about the study and how these are interlinked. This study is based on the Theory of Access. Firstly, the theory is explained in detail to show what access entails and the mechanisms that need to be followed to gain access, and how it is so important in achieving food security. Secondly, the chapter provides an in-depth discussion of the literature which will highlight the importance of women in food production. A literature review is crucial for the identification of gaps in a research field of interest. It is a way of gathering the available information relating to the phenomena and concepts being investigated by the researcher (Snyder, 2019). The literature review in this chapter is integrated, giving broad knowledge on food security, focusing on urban areas, concepts, and contexts concerning food security, food insecurity, and the involvement of women in urban food production.

The literature review also discusses the types of gardening carried out by women, their experiences and the benefits of different gardens. Women's empowerment in agriculture development is discussed with an emphasis on the importance of women's empowerment in reducing hunger and the transformation of the food systems. As part of the concluding remarks, the gendered food systems framework will be used to summarise the factors contributing to gender inequality and how these can be used to improve food security.

2.1 Theory of Access

Access is critical to food security because it constitutes different factors of powers and rights that enable people to use resources to benefit from them (Ribot & Peluso, 2003; McKay & Colque, 2016; Mutea et al., 2020). Access is complex when it comes to food security because having rights to resources does not mean that one will be able to produce food. A shortage of food can occur even when there are enough supplies. Ribot and Peluso (2003) explain that access means the ability to gain an advantage from different things. It also describes how power can be used to access things. Access speaks to one’s ability to derive benefits (be productive) with these resources.

Darma (2020) and Mutea et al, (2020) highlight that one needs to have a combination of both legal and structural mechanisms to be productive. Ribot and Peluso (2003) add that there is a difference between the ability to and the right to; because ability talks of being able to do something. One can have a right but fail to use one's abilities to derive the benefits of that right. The theory of access provides a way in which the combination of rights and powers influence access to resources. It captures how resources are gained, controlled, and maintained. The successful configuration of all these factors in food systems will lead to food security in households.

This theory is relevant to this study because it focuses on a wide range of structural and related mechanisms that people go through to gain access to what they need. This explains how women, especially in urban agriculture where access to resources is a challenge, need to be included in all structures, be it public or private, so that their voices will be heard and validated. In South Africa, the right to food is enshrined in the constitution, and, although the urban poor experience food shortages, they do not have the right to ownership of the resources. This hinders their ability to use those resources to produce food. In this study, the theory of access helps to identify factors that contribute to the challenges faced by the urban poor when it comes to accessing resources. It also explains the role of government structures in maintaining and controlling the rights and powers of people in improving household food insecurity.

Mechanisms for access

Access operates in two ways. The first is rights–based access which includes legal and illegal access, and second, is the structural and relational mechanisms of access (Ribot & Peluso, 2003; McKay & Colque, 2016; Mutea et al., 2020). Access through law means the use of the legal system to ensure rights or to prohibit individuals or groups who do not follow the governing system (McKay & Colque, 2016; Darma, 2020). In this category, one has to have a permit, license, or title deed to own or have legal rights to use a resource. In customs and conventions, rights are gained through social acceptance. For example, in Tanzania women have been fighting for social acceptance (Goldman et al., 2016). Illegal access involves gaining access and benefits forcefully without being sanctioned by any form of law. This means that illegal access can be obtained through violence, theft, and threats (Mutea et al., 2020).

In terms of structural and relational mechanisms, access is controlled by political-economic and cultural frames; which include technology, authority, markets, knowledge social identity, and relations (Peng & Berry, 2018). For rights-based access to be complete, they need to be followed through in all structural mechanisms. The lack of one may hinder the maximum benefits of the resource (Darma, 2020). For example, access to technologies like tractors, water pumps, and cultivators can make farming easier. Access to market institutions impacts one's ability to commercially benefit from a resource in terms of knowledge about where to sell goods; where to get the necessary equipment needed; and being up to date with the value of goods (Mutea et al., 2020). Access to social identity, speaks to where a person belongs; it affects socially vulnerable people like women who are always affected by culture, patriarchy, and gender when accessing resources. Social connections and networks also affect one's ability to own or benefit from the resources. For example, it is easier for a politically connected person to get resources, especially in countries that are rooted in corruption (Darma, 2020).

The theory of access in urban agriculture

In urban areas, agriculture occurs on several scales. Smallholders are individuals and communities that may farm smaller areas collectively. Individuals may also farm the land associated with the residences that they own or rent. All of these scales require access to urban land. Access is dependent on legal property rights and land is the main resource that is crucial when it comes to ownership. Most of the benefits of food gardening are derived from land. When it comes to urban farming, it is mainly commercial farmers who can obtain rights and powers to gain benefits from the resources. Most smallholders (individuals or communities) may not have enough money or the correct paperwork to enjoy these rights (Mutea et al., 2020). It is important to have laws and measures in place that cater for all people to have rights to land and access to other resources to enable sustainable livelihoods. Mutea et al. (2020) add that this empowers smallholder farmers to increase productivity and mitigate the effects of climate change. Myers and Hansen (2018) state that there should be a mechanism in place that allows easy access to resources, local management for the gardeners, and a process of getting permission. Although the theory of access and the administration of benefits are clearly articulated, the system that is currently used by the gardeners is unclear. The food resilience policy of the City

of Johannesburg speaks of centres and food banks where these gardeners can get information (Åhs, 2017), however, these centres are not well known by community members.

The theory of access and women in food production

Gender inequality continues to hinder access to resources for women. Laws supporting patriarchy play a major role in women's ownership and control of the land (Gailie et al*.,* 2019). This is supported by Udo et al. (2020) who stress that women still lack ownership over land in all levels of the society. The theory of access considers gender under access to social identity (Myers & Hansen, 2020), while feminist theories show potential solutions for improved equality. Women who are gardening are not acknowledged by those who are in control of the means of production. Laws that regulate access and the control of resources need to be revised to accommodate everyone, regardless of person’s class or gender.

In South Africa, people take to the streets to protest as their way of communicating their message to the government. It is their right to protest, but in doing so, many may end up damaging infrastructure and disrupting value chains. Access theory, therefore, provides a way in which people must understand different ways of advocating for rights to resources, such as land, without becoming involved in conflicts. To mitigate the consequences that come with illegal access to resources, a dialogue involving all stakeholders needs to be opened. Access analysis helps in making and changing policies and other structural mechanisms to promote equity and justice in resource access. This will present smallholders with some recognition; their challenges are likely to be dealt with at a different level, thus presenting an opportunity of improving agricultural production and food security.

Limitations of the theory of access

According to Mutea et al. (2020), the theory of access does not explain fully how factors in the bundle of rights and powers influence each other. Myers (2020) adds that the influence of these factors depends on their interconnectedness. This means that farmers need to come together to increase their chances of gaining access and for the government to notice them (Mutea et al., 2020). Furthermore, the theory of access does not engage with broader urban food systems overtly. With this in mind,

the theory of access needs to be ameliorated with a clear understanding of food security and issues of access within this theory. The theory of access also needs to be embedded in a broader understanding of the dynamics of the food system. To address these issues, the literature review now turns to a more detailed understanding of the four pillars of food security and the gendered food systems framework.

2.2. Food security

Food is more than what we eat, it symbolises identity, binds people together, and provides sustenance for all (Alonso, 2015; Uhlmann et al., 2018). This means that people need food security for their survival and well-being. Food security is defined as a condition where there is reliable access to nutritious foods that are of sufficient quality at all times. This can either be addressed at a national, local, or household level (FAO, 2009; Coleman-Jensen et al., 2020). Food securityis theorised in terms of four pillars, namely availability, access, utilisation, and stability (FAO, 2009). Trefry et al. (2014) and Alonso (2015) highlight that culture is another food dimension that is not well recognised, especially at the local level in South Africa. Since this study is centred on women, it must explore the effects of culture on food security.

According to FAO (2011), the state of food security globally is under threat. There are major drivers of hunger throughout the world, and these include conflict, variability in climate, as well as economic slowdowns and downturns. Furthermore, the FAO states that the impact of these factors is compounding, resulting in inequality because people of different backgrounds can only cope with or find mitigation measures based on their socio-economic backgrounds. The World Bank (2021) adds that sudden shocks can have an impact on food security. This necessitates ensuring that there are sustainable measures of food security allowing communities to be prepared for any kind of global distress. The number of people experiencing chronic hunger in 2020 increased by about 118 million compared to 2019 (World Bank, 2021). When the world was hit by the COVID-19 pandemic, the situation worsened; with an estimated 272 million people likely to have become acutely food insecure. The World Bank (2021) defines acute food insecurity as when a person’s life or livelihood is in immediate danger because of a lack of food. Developing countries have reported being more food insecure as a result of sudden shocks like Covid19; this has called for strategic measures that can work in the short, medium, and long-term involving all stakeholders (Darma, 2020).

A country can be considered food secure if its production is enough to meet the demands of its population (Oluwatayo, 2019). South Africa is said to be food secure at the national level, but this is not the case at the household level; which is the most vital factor to consider when looking at food security (Boatemaa et al., 2018). Commercial food production can be supplemented by local food production like food gardening. This is because local food production is easily accessible, affordable, utilised, and supported by sustainable strategies for household food security. Gardening is also a strategy to empower women to become entrepreneurs and enable them to deal with sudden shocks.

The localisation of food production contributes positively to food security. It is beneficial to knowledge, tradition, and cultural preservation. Findings by Alonso et al. (2017) show that several interventions to reduce food insecurity have failed in South Africa because they do not consider culture and traditional crops. Furthermore, the culture of all family members being involved in food production has eroded due to western ideologies that have kept youths away from the traditional ways of farming (Trefry et al., 2014). Although western ideologies have some positive benefits like the transformation of agriculture through technological innovations and the empowerment of women, modern practices have eroded sustainable and cultural methods ways of farming.

Since the 1900s, food security has been an issue tackled at the national level (Steenkamp et al., 2021). However, urban areas have been perceived as food secure because food is available in different forms. Despite readily available food, food insecurity is severe at household and individual levels of the urban poor because people lack the income to purchase food. The complexity of food security in urban areas is in their food systems (Knorr et al., 2018; Blekking et al., 2019). The urban environment is cash-based while the accessibility of food is driven by affordability (Crush & Tawodzera, 2017; Blekking et al., 2019). This means that a household needs to have a reasonable and steady income to afford to buy food and enjoy food security. The factors that have gradually contributed to food insecurity in urban areas include high rates of poverty, continued increases in unemployment, and overpopulation. The United Nations (2019) estimate that by 2030 about 670 million people will be living in southern African cities. The interplay between these factors has put a strain on urban

resources such as land and has meant that urban inhabitants are becoming increasingly food insecure. According to Joala and Gumede (2018), the lack of food experienced predominantly in urban areas is a result of poor structural factors that pose limitations on the availability of food. Although there are food insecurity alleviation initiatives and programmes supported by the South African government, there are still limited resources, and this is a barrier in urban areas for poor people's right to food. Furthermore, the poor heavily depend on the government to experience a level of food security that is still mediocre because the social grant is barely enough to cover food for a fortnight let alone a month (Mathebula et al., 2017; Boatemaa et al., 2018; Tsvuura, 2020). In 2008, AFSUN researched food security in eleven poorer cities in the southern African region; three of which were South African cities. Their findings indicated that about 77% of people were food insecure. This shows that there is a need for food systems to be changed to meet the demands of the fast-growing population (Blekking, et al., 2019).

Urban food policies and inequalities affect accessibility at individual and household levels (Joala & Gumede, 2018; Mathebula et al., 2017). The government has made efforts to produce food policies through the approval of the national Integrated Food Security Strategy by the cabinet in 2002. The objective of this legislation is to carry out diverse food security programmes that allow for better access to food (Boatemaa et al., 2018). A study in Johannesburg found that most households in its population are food insecure, with a mere 27% of the population experiencing food security (Malan, 2015). The City of Johannesburg developed the Food Resilience Framework in 2012 to try and reduce food insecurity (CoJ, 2012). However, the city is still experiencing high levels of household food shortages, and this can be attributed to the existing government strategies that look good on paper but fail in implementation and do not yield anticipated outcomes (Battersby, 2011). In a recently performed study by Rudolph et al. (2021), it was concluded that there is no clear knowledge concerning the state of food security in the city of Johannesburg. However, Statistics South Africa (2017, 2018) reported that about 2.2 million of the residents were food insecure. This does not come as a surprise because South Africa has been numerously ranked as one of the most unequal countries in the world; one of the negative impacts of the apartheid system (Boatemaa et al., 2018; Wylie, 2001).

Poverty influences economic access to food in urban areas as food is mainly obtained through buying. This is a challenge because of the high rate of unemployment rendering most people unable to afford to buy food (Battersby & Watson, 2019). According to Rudolph et al. (2012), the issue of food in urban areas is linked to income and the ability to access food through purchasing; therefore, food security will not exist in poverty-stricken households and communities. The way urban areas are designed, there is little or no space that can be used for sustainable food production. As a result, most of the food is produced outside the city; where infrastructural logistics add to the challenges experienced in accessing food due to the added costs emanating from the long value chain that affects food prices (Doss et al., 2018).

The future and stability of the urban poor in African cities depend largely on partnerships between governments, non-governmental organisations, and the private sector in addressing the issue of urban food security. Many of the urban poor are engaged in food gardening to produce their food, however, there is limited knowledge about the contribution of urban food gardening to food security, as a result, urban food gardens are undervalued. Doss et al. (2018), Meinzen-Dick et al. (2012), and Ogundiran et al. (2014) argue that food gardens may be undervalued because they are not only small-scale but are also dominated by women. Furthermore, issues relating to food are neglected by urban governance because food insecurity is merely a notable challenge. Priority is given to service delivery and developments in urban areas because they add to the perceived image of the cities (Battersby, 2011; Haysom, 2015). Battersby and Haysom (2019) highlight the following three issues regarding the invisibility of food insecurity in urban areas: Firstly, urgent problems like unemployment, the informal sector, overcrowding, service delivery, and infrastructure developments are issues that overshadow the food security crisis. Secondly, in policy, food insecurity is mainly regarded as a rural problem that is more visible through the seasons. The third problem is the issue of scale. Food security is usually measured at a household or individual level, and this means that urban food governance is often uncoordinated and unintegrated. There is a lack of support for informal food actors despite their contribution to livelihood and food security (Battersby & Watson, 2019). Cities play a critical role in providing available and accessible food for all of their residents especially the more vulnerable groups of the population: women, children, and the elderly.

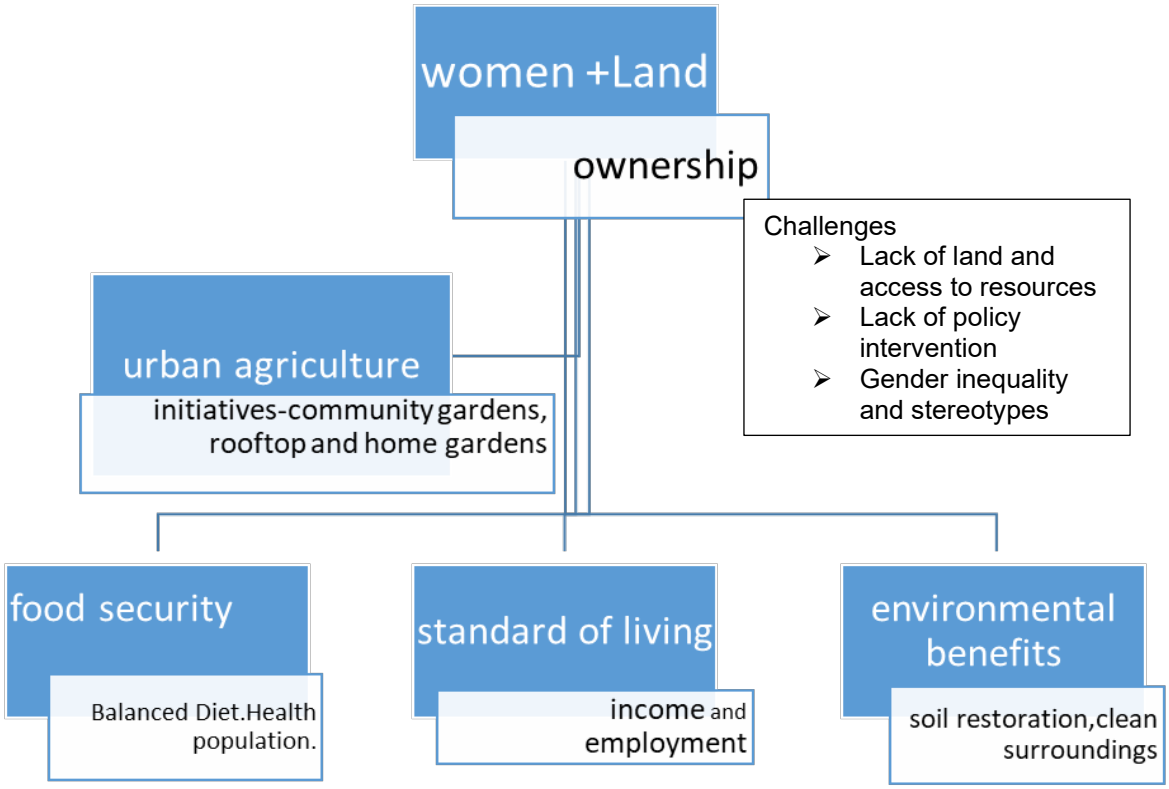

Figure 2.1 Women and Food Production in Urban Areas

Another factor concerning food security in urban areas is gender equality. According to Westholm and Ostwald (2020), gender roles in food production systems need to be reviewed and reconnected for equality. Men tend to benefit more than women in the same system, but women stand out as the principal producers of household food. Overall food security will only be possible if the government does not turn a blind eye to gender-based policies (Molelu, 2014). As illustrated in Figure 2.1 above, women in urban areas do add value to urban agriculture and they should not be marginalised. There is also a need for the government to assist frontline producers who are well-resourced and supported. The Food and Agriculture Organisation (2017) recommends that food security interventions must not be neglected because they have the potential to alleviate the issue of gender inequality associated with food production.

2.2.1. Pillars of Food Security

The four pillars of food security are interlinked, and they are equally important (Peng & Berry, 2018). Availability happens at a national level, accessibility at the household

level, and utilisation at the individual level. Stability affects all the pillars as it speaks to whether there is enough food for the population in the long term.

Accessibility

Food accessibility is defined as the ability to access the right quantity and quality of food needed for a household without challenges (Galhena et al. 2013). Peng and Berry (2018) add that people should be able to access the foods of their choice and culture. Battersby (2019) states that the concept of food access came from the Sens framework, which posits that individuals can meet their food needs through production, trade, ability, and inheritance. Nahak et al. (2021) add that households that have access to resources can cope better than those with limited resources. Sometimes access to a certain resource like land may not mean one will be able to derive benefits from it because it takes more than one resource to be able to produce food; this is evident in developing countries (Darma, 2020).

Physical and economic access also play a critical role in the accessibility of food (Battersby, 2019) as these determine where, how, and with what one can get the quality and quantity of food. Peng and Berry (2018) add that physical access is more challenging in developing countries due to poor infrastructure, communication, and the development of food systems. It is critically important to ensure that the less privileged are taken care of through social protection nets and foods that cater to all cultures.

In urban areas, food accessibility is mostly determined by income (Crush & Tawodzera, 2017). Most households are food insecure because they do not have a stable income to keep up with socio-economic conditions that are more dependent on money to access things. With the sudden shocks of the Covid19 pandemic, for those who were laid off from work, access to food has been difficult for many households, particularly in the townships because only formal shops were allowed to operate.

For easy accessibility of food in urban areas, small hold farmers need support because they operate locally and support informal traders. Informal traders have come to the rescue, especially for the urban poor who are most affected by physical and economic access to food. Informal traders are located around communities and offer food services different from formal shops because they provide longer trading hours, give discounts and sell local traditional foods at affordable prices a quantities.

Availability

Food availability refers to the amount of food that is produced either locally or imported (Peng & Berry, 2018). In South African cities the availability of food is strongly dependent on supermarkets (Battersby, 2019). This is because very few people can grow their food and there is no space for those who wish to grow their food. Battersby and Watson (2019) are of the view that if people cannot access food through buying, they should be able to have food readily available from produce in their gardens. With the shortage of land in urban areas, it is difficult for urbanites to produce their food. This is a huge contributor to household food insecurity for the less fortunate. The explanation of Alonso et al. (2017) is more relevant to this study because it focuses on the availability of food supply at the local level through local production and trading; how local people can access the food and utilise it (processing and preparation); and the level of stability of the local food system allowing it to sustain individuals and households when faced with sudden shocks. Although food availability plays a major role in food security, it is important to diversify and not promote a single type of food. This is demonstrated in Zambia where maize was made available to reduce hunger, but it did nothing to improve food security and nutrition (Battersby & Watson, 2019).

When it comes to food policies, there is a need to investigate all the pillars of food security. Policymakers need to analyse household food availability to make informed decisions that will benefit food security for households and individuals. As highlighted, the poor have limited access to resources in urban food production and urban planners need to allocate land for farming in communities to support food gardening initiatives so that poor communities can produce their food instead of depending on purchasing (South African Cities Network, 2015).

Utilisation

This refers to the use of food to provide an adequate diet to meet the nutritional well-being made possible through biological and non-biological processes (Battersby, 2019; Battersby & Watson, 2019; Galhena et al., 2013). Utilisation impacts food security in urban areas because of the different challenges faced by poor households such as preparation costs and lack of storage facilities. Battersby (2019) found that the consumption of processed foods (such as instant noodles, popcorn in Zimbabwe, and fried dough in Kenya) has risen in cities in Southern Africa. The cost of electricity

means that households prefer buying food that cooks fast and some of these are unhealthy. This also reduces the intake of traditional foods which are more nutritious and require prolonged cooking time. In South Africa, for example, there has been a reduction in the consumption of samp and beans and an increase in genetically modified foods (Battersby, 2019). Lack of storage facilities like refrigerators means that households are unable to buy in bulk which is cheaper than buying small quantities. This also affects dietary intake.

Informal food traders play a vital role in ensuring food utilisation for the poor by providing ready-cooked foods, including nutritious traditional foods, that take time to cook since most urban populations spend time at work or looking for work and they come home late and tired. Hunter-Adams et al. (2019) and Battersby (2019) argues that, for utilisation to improve, it requires a whole set of government departments to intervene and enable households to meet food security requirements. This includes providing electricity at low rates and employment so that poor households may get income to purchase various foodstuffs that are required for well-being. They also argue that the state needs to promote traditional foods over genetically modified foods because of their positive nutritional value.

Stability

Stability refers to a situation where a population can access adequate food at all times without the risk of losing it through sudden shocks and cyclical events (Battersby, 2019; Steenkamp et al., 2021). The concept of stability is vital to food security because it is influenced by the availability and accessibility of food to the population. Factors that influence food stability include prices, seasons, and unstable production (Steenkamp et al., 2021). In urban areas stability varies across income levels of households where employed members have more stable access to food than poor unemployed members in households. Alonso et al. (2017) add that pest management and traditional crop selection play a major role in maintaining food stability. Land should also be allocated to those who want to do gardening to promote stability.

Although it is difficult to maintain all four pillars of food security in urban areas due to the complexity of the urban environment and the inequalities that exist, planners and governments need to prioritise urban agriculture. This means that every household

should be encouraged to produce its food. If every household produces its food with continuity, stability will be maintained, and household food security can be achieved. In Indonesia, for example, the government introduced different measures to reduce food insecurity, by increasing the agricultural budget and stabilizing prices to allow people to try to produce food to increase food availability and access (Darma, 2020). In Zimbabwe, for a household to be more food secure, people have reverted to using gardens to access food and trade with other gardeners to ensure variety (Crush & Tawodzera, 2017).

The limitations of the pillars of food security

Although the four pillars of food security have been widely used and provide a summary of the key concepts, there have been concerns over whether there has been any progress in achieving the goal of food security for all, considering the number of people faced with hunger (Clapp et al., 2022). Since the four pillars were established, cases of hunger continue to rise, and this calls for a reconsideration of other pillars or variables to ensure that there is a sustainable supply of nutritious food. Food security is part of the UN sustainable development goals, but Guine et al. (2021) question whether the pillars actually address these goals. They argue that sustainability needs to be addressed substantively. This view is supported by Neufed et al. (2021), who hold that food production should be based on nutrition and sustainability since hunger is on the rise as a result of political instability and climate change. Clapp et al. (2021) further emphasise that these four pillars gradually emerged over a fifty-year period, with each pillar taking over a decade to develop. Scholars like Clapp et al. (2021) argue that the pillars need to be updated based on the current complexities of food security.

2.3. Urban agriculture

Urban food production depends on the availability of resources such as land, policies, inputs, the urban ecosystem, and the knowledge of how to grow food. Urbanization is, however, happening at the expense of agricultural land, therefore urban designs should be reviewed to incorporate urban agriculture. Richards and Taylor (2012) state that subsistence-orientated agriculture is needed in urban areas because growing food for household consumption increases food accessibility and availability. According to Battersby (2011), the importance of urban agriculture was realised at the 1975 World

Food Conference. It was noted that many African cities under colonial governments had little control over food shortages in urban areas. Rural areas were the suppliers of food to urban areas. In cases of shortages, interventions were only directed on how to boost production and help rural farmers with subsidies. This ensured that food supplies in urban areas are kept safe and protected from contamination. All this was done to limit the spread of diseases. These policies were, however, at the expense of formulating policies that include urban food production in their planning (Battersby & Watson, 2019). Such is a reality witnessed mostly in South African and Kenyan cities today.

Walker (2015) indicates that in the Global North, urban agriculture was never used as a measure to reduce food security but was used for leisure and recreation because their gardening was not limited to growing crops for food but as a way of greening their environment. For example, they planted flowers whereas in the Global South many people do not even have space and time for gardening because they perceive it as a rural initiative. Lately, however, many African cities are slowly recognising the positive impacts of urban agriculture as a source for supplementing household food. Molelu (2014) highlights that in the capital cities of Zambia and Zimbabwe, urban agriculture is a strategy used by women to supplement household food in addition to receiving assistance from the government. Urban agriculture has been researched for decades and it has been concluded that it has remarkable benefits for food security, especially for the poor (Crush et al., 2011). Van Veenhuizen (2014) posits that urban agriculture responds to three urban dynamics. First, it is a response of the urban poor and the unemployed to food insecurity. Second, urban agriculture affords the urban poor and other social classes opportunities and relative advantages in the urban environment. Lastly, urban agriculture fulfils some of the requirements of sustainable urban development.

Urban agriculture has been a strategy used by many of the urban poor to utilise vacant land and grow food. According to Mougeot (2006), urban dwellers have utilised all sorts of available space such as roadsides, vacant lots, window boxes, and rooftops to grow a little and feed their families. Some have even managed to produce surplus and sell this to earn extra income. Furthermore, urban food production has been used by many women. Within the division of labour associated with traditional gender roles, women are often expected to ensure the welfare of children and elderly dependents.

Urban food production allows them to take care of the family and makes it easier to ensure the well-being of household members (Olivier & Heinecken, 2017; Tembo and Louw, 2013).

In South Africa, the urban structure was designed by the apartheid government. Commercial farming was dominated by whites while Black South Africans were excluded from owning farmland (Visser & Ferrer, 2015). Apartheid urban design did not consider food production. Post-apartheid, Jeunnese Park, an active environmentalist in the democratic government, has been advocating for environmental education by introducing urban agriculture into new government policies. It is rather unfortunate that, to date, her efforts have been fruitless due to a lack of action from the government (Åhs, 2017). The traditional bias that agriculture is a rural phenomenon continues to contribute to the neglect of this issue in city planning. The city planning focus is still on modern development projects that exclude urban agriculture (Onyango, 2010; Van Niekerk, 2015).

Research carried out in Portugal concluded that urban agriculture is more sustainable and promising in terms of urban food security and food sovereignty in the deprived fringes of urban societies. In Cuba, government officials have considered urban food gardening a key component of the national food system (Kortright & Wakefield, 2010). Crush et al. (2011) found that urban agriculture has been the source of supplementing food in many southern African cities, however, food production varies from city to city. In Malawi's main cities, Lilongwe and Blantyre, many households have been taking part in urban agriculture. The study of Crush et al. (2011) also shows that relatively higher-income households produce more because they have access to more land and agro-inputs (Mkwambisi, 2008). In Zimbabwe, urban agriculture has been an expanding phenomenon since the 1990s in most low-income households. About 60% of low-income households who were taking part in agriculture claimed urban agriculture as a source of food that they accessed weekly (Battersby & Watson, 2019). In Orange Farm (an informal settlement in Johannesburg, South Africa), most of the population is unemployed and about 89% of households are involved in urban agriculture to provide food for their families (Onyango, 2010).

Notably, the standard of living for households involved in urban agriculture is far better than those not involved. This is due to the added benefit of selling surplus food for

some extra income (Tawodzera & Riley, 2016). Azunre et al. (2019) found that people who produce their food cut down on expenditure, thereby channelling the money to improve their standards of living. Having said this, findings by De Bon et al. (2010) and Zezza and Tascioti (2010) suggest that urban agriculture has a smaller contribution to food security in urban areas because common crops are vegetables that do not last long. These researchers argue that it is difficult to access land for farming in urban areas. Furthermore, municipality water rates are too high for urbanites to carry out backyard gardening. Moreover, there is limited support from government authorities to help boost or encourage those involved in agriculture to do more or to improve. In Cape Town, however, the authorities have tried to help people who are involved in urban agriculture by giving them start-up income and some resources by way of a commitment (City of Cape Town, 2007).

Critiquing urban agriculture

While Miccoli et al. (2016) suggest that urban agriculture, in the form of backyard gardening and community gardening, should bring more food security to every participating household and their immediate neighbours, other studies argue that urban agriculture is a double-edged sword for women who are already vulnerable to its challenges. Urban agriculture has been discredited because it can lead to child labour and truancy (Edet and Etim, 2013). With more women-orientated support interventions and through the enforcement of child labour laws, urban agriculture is an outstanding strategy to improve household food security (Hovorka, 2006).

Urban agriculture has the potential to increase the resilience of cities to different pressures, like the COVID-19 pandemic. The lockdown restrictions enforced by the government to curb the spread of the virus, have hit urbanites hard because urban life is about working. Unfortunately, without work, there is no food for them and their households. Most production and supply chains have been disrupted and most people are struggling to meet their basic food needs. Food is a vital source of health and social well-being. People who are growing fruit and vegetables in urban centres have come out to rescue the disadvantaged population groups with free food that is mostly fresh and nutritious (Suryantini, et al., 2021). Urban agriculture is the best strategy that must be adopted and pursued as it caters for everyone, and its results are evident globally. It can also help in achieving the 2030 sustainable goals (Lai et al., 2020).

2.3.1 Types of food gardens

Home gardens

Home gardening is the use of the land around the homestead for fast-growing crops that are intended to be consumed mainly by the household. Home gardens play a big role in food sovereignty strategies in impoverished areas facing food insecurity and where land is scarce. There is a growing interest in increasing local food production to mitigate food shortages through home gardening. For example, Galhena et al. (2013) argue that home gardening is an easy strategy to meet the demand for household food security and nutrition. Home gardens have been globally documented as a good source of food supplementation in both developed and developing countries. For example, in Cuba, during times of political isolation and economic crisis, home gardens played a significant role in providing food (Buchmann, 2009).

It is important to ensure that women have easy access to land to carry out home gardening. In Bangladesh, home gardens have been welcomed by both international and local non-governmental organisations (Talukdar et al., 2000). Ogundiran et al. (2014) say that in the Eastern Cape home gardening has been a source not only of food but also a source of income; reportedly improving nutrition in many households in the area. Furthermore, they fulfil the social, cultural, and economic needs of communities (Galhena et al., 2013). Home gardening is very important because it allows people to have some food sovereignty in their household and to have access to food whenever they need it.

Community gardens

Community gardens consist of people who come together with the common goal of gardening to improve their lives and those of their communities. In Africa, traditionally, food is what brings people together and, in many situations, families who can afford food or who have enough share with food-insecure families. Modern urban society has tampered with cultural values because food is pricey, which makes it difficult to share. The creation of self-organised groups (community gardens) of urban residents with the same interest, plays a very important role in providing food, with the added benefit of preserving cultural norms and values, and maintaining the spirit of *ubuntu* among people in urban communities.

In South Africa, community gardening is mostly carried out on the outskirts of the cities, and as in other countries, it is predominately women who do the work (Molelu, 2014). Community members who participate in these gardens have revealed that their main reason was to provide food for their families. Although community gardening has always been common in rural areas, poverty in urban areas has led to women reviving their cultural activities as a means to provide for the basic needs of their families. This is an increasingly common trend throughout African cities as a result of unplanned urbanisation (Maconachie et al., 2012).

Community gardens involve diverse groups of people which promote the spirit of *ubuntu* in African communities (Baker, 2004). They provide a platform where indigenous knowledge is also preserved. Community gardens contribute to community development as knowledge and practices are transferred through participation in the food garden (Barthel et al., 2010). Gardening projects provide neighbours with a sense of pride, and they change the way people view their environment. Although gardening was perceived as an activity for the poor, its importance has now been recognised across the world (Westholm & Ostwald, 2019; Suryantini, 2020).

Community gardens promote community cohesion (Filippini et al., 2019); these are strong social connections that create a safe environment whereby members of the community look out for each other and as a result, create safer neighbourhoods. Kondo et al. (2016) highlight that the clearing of vacant land for farming destroys hideouts of criminals in communities thus reducing theft. It also increases a sense of humanity through day-to-day interactions with different people looking for day jobs in gardens (Takyi et al., 2018).

The location of community gardens can also reduce the distance to markets as they are located among the communities. This is advantageous as the produce is mainly perishable, therefore the freshness of the produce is maintained. Community members are also able to buy straight from the gardens, saving time and energy that would have been used to go to the markets.

Due to high municipality rates on water and electricity, most community gardens can turn to sustainable methods like water harvesting, and the use of LED lighting to save energy (Nadal et al., 2018). The community can also use solar energy to reduce environmental impacts (Eberhard & Naude, 2016).

According to Westholm-Ostwald (2019), community gardens have a positive impact on psychological, physical, and social health, due mainly to improved diet. Gardening can be done all year round so that a variety of produce is available, and a balanced diet is maintained even in disadvantaged households. Community gardens alleviate food insecurity in households because the prices are very affordable.

Rooftop gardens

Rooftop gardening is another form of urban food production. This type of gardening is economically friendly because the resources needed are affordable and come with fewer production challenges. It is not labour-intensive, thus saving time and energy for the workers (Dang & Sampaio, 2020). It is regarded as a sustainable strategy because it is less disruptive to the environment and most of the production tools are derived from waste material; making it less expensive and reducing waste that goes to landfills. Roof gardens keep the temperature stable by providing free cooling through evaporation in summer and insulation during winter (Zande, 2006).

Research carried out in Bangladesh showed that rooftop gardening has a positive impact on the urban poor and can help in achieving Sustainable Development Goals (SDGs) (Ferdous et al., 2016). With shortages of urban land becoming more common as space comes at a premium, people can utilise the space on top of their homes to grow crops continuously throughout the year. In Brazil, rooftop gardening has been adopted to reduce food insecurity. It has also been the solution to the shortage of space, and it has revived some parts of the city in terms of liveability and community building. This has reduced crime as abandoned buildings that were previously used by criminals are now used for rooftop gardening (Dang & Sampaio, 2020).

Future urban planning and design should consider rooftop gardening because of its food production potential and low environmental impacts. According to a study by Dang and Sampaio (2020) in Rio de Janeiro, the city's vegetable intake is 50% which is below the World Health Organisation's (WHO) recommended intake of 73-92%. The introduction of rooftop gardening, however, has shown great potential to produce enough for the city's demand to reach the WHO's recommended intake. To maximise this type of gardening in cities, educational institutions need to promote this type of urban farming in their environmental education approach. Learners can practice it at school and home thus increasing their knowledge and producing food for their families

(Dang & Sampaio, 2020). In South Africa, rooftop gardening is currently gaining attention, however, more still needs to be done in terms of creating awareness. The city is full of buildings that can be used for gardening, but there is a need for environmental education to increase knowledge on rooftop gardening to boost food production.

2.3.2 Benefits of Urban Agriculture

There are several benefits, besides the provision of food, associated with the involvement of women in urban food gardens. These benefits include achieving the four pillars of food security, the empowerment of women, the promotion of equity and justice, and the preservation of indigenous knowledge concerning food and cultures. Furthermore, food gardens have economic and environmental benefits.

Social and psychological benefits

There is a relationship between community development and urban food gardening projects. While food gardens provide a primary focus, there is more collaboration and proactive attitudes among the women involved. More projects can be developed by sharing ideas; projects such as sewing, child-minding, and education have the potential to increase the number of women in food production (Davies & Evans, 2019; Gulyas & Edmondson, 2021; Rudolph et al., 2021). This is in agreement with the statement by Hovorka et al. (2009), who indicate that the strength found in women's social networks and cooperatives is the means through which women can improve the agricultural sector in the future. urban agriculture connects people of different backgrounds. Harris et al. (2014), for example, found that many migrants and refugees in urban areas have used community gardening to build relationships and connect with community members. In addition to the promotion of social cohesion, food gardening has psychological benefits. Suryantini et al. (2021), for example, found that many women enjoy gardening, and that the activity helps them to avoid boredom and cope with stress issues.

Economic benefits

Food gardens contribute to household income, offset expenditure and create employment. According to Battersby (2011), community gardens ensure community development due to the sharing of knowledge, tools, and skills among the members of the community. Improved social well-being of all community members and improved

standards of living, in turn, saves the government money on health care and community dependency. The sale of a harvest provides the family with additional income. The production costs of food gardening are low, and the logistics are simpler because the supply chain is relatively short. Fresh and nutritious vegetables are supplied from farms to consumers directly at low prices (Dang & Sampaio, 2020). In Indonesia and Sri Lanka, women go as far as accepting jobs in urban agriculture that have been categorised as men's jobs, thereby increasing economic enrichment, and gaining recognition from men. Promoting urban agriculture can reduce the gender gap and if women get employed in food gardens, even though it may be temporary, it can bring much freedom through food and income (Eigenbrod & Gruda, 2015).

Environmental benefits

The experience of growing food and being in contact with the land has improved the connection gardeners have with their environment. This emotional connection allows women to relax as they find it more appealing, allowing them to forget about mundane things and just enjoy nature's fresh air (Kingsley et al., 2009; Hale et al., 2011). Beyond that, urban agriculture has been used for recreation purposes and rooftop gardening has reportedly contributed to the value of dilapidated buildings (Walker, 2015). Allowing the use of vacant land as gardens can also improve biodiversity. Pollan (2008) adds that home gardens do not use the heavy machinery that is associated with greenhouse gases, and this helps in reducing the use of fossil fuels. Other scholars argue that it is difficult for urban agriculture to reduce emissions because of the amount of ammonia it produces (for example, chicken farming) (Azunre et al., 2019). However, Azunre et al. (2019) highlight that this can be reduced by excluding animal rearing.

Urban agriculture reduces the gap between farms and the market, thus reducing the emissions of toxic gases into the atmosphere. It also helps to prevent soil erosion and replaces the nutrients in the soil. The use of compost aids the soil restoration process while increasing the productivity of nutritious fruits and vegetables (Lai et al., 2020). The United Nations (UN) Sustainable Development Goal 11 states that cities must be “inclusive, resilient, and sustainable” which can be achieved by practising urban agriculture to its full potential. Initiatives like rooftop gardens help maintain the solar radiation balance and increase rainwater harvesting while using very little soil. Most of

the materials used in rooftop gardening are reusable (old tires, empty tins, and buckets).

Dumping waste on vacant urban land causes waste pollution which is dangerous because some waste contains hazardous chemicals. When rain falls these chemicals infiltrate and contaminate groundwater. Heather (2012) highlights that urban agriculture can be used to reduce environmental pollution by using vacant spaces for production rather than dumping.

Food security benefits

Food gardens provide a variety of healthy foods, especially vegetables at affordable prices. Families who participate in gardening have greater dietary diversity, which is good for their health. Children, the elderly, and pregnant women need healthy diets (Suri, 2020) and communities that have home gardens have improved maternal and child nutrition. Moreover, school feeding programmes have introduced gardening at schools and this initiative has provided more diversity in children's meals at school. In India where millions are food insecure and suffer from health problems, the introduction of food gardens has reduced malnutrition, anaemia, and stunting (Suri, 2020). In Cambodia and Western Kenya, the increase in food production through gardening has shown a decline in stunted growth in children and a lower prevalence of fever (Bloss et al., 2004; Olney et al., 2009). A study in Zambia found that, through urban agriculture, the quality of life of people living with HIV and AIDS has improved due to increased nutritious food and diversity scores from gardens (Puet et al., 2014). Participating in food gardens not only provides a balanced diet but also helps with physical health and reduces sedentary behaviour (Suri, 2020).

Mitigating sudden shocks

According to Suryantini et al. (2021), food gardening has proved to be resilient to sudden shocks. A recent study by Gulyas and Edmondson (2021) found that women turned to urban agriculture as the most suitable strategy to cope with natural disasters, especially for the most vulnerable people in cities. However, the study reveals that there is a lack of assessment of the potential of urban agriculture in cases of natural disasters which pose a high risk to the food supply. This is similar to studies by De Klerk et al. (2004) and Mok et al. (2014) as well as that of Lang and McKee (2018), which show how growing fruits and vegetables became important after World War II.

During Covid-19, people turned to gardens and reported to have managed to provide for their families after losing their jobs due to the impact of the pandemic. Some women also cooked food for the poor and homeless from their gardens during the lockdown in various countries. Urban gardening provided benefits to mental and physical health, especially for elderly people, during Covid-19 lockdowns. In Indonesia, where the city of Yogyakarta was hit hard by the coronavirus pandemic, most people used gardening to relax and provide nutritious food to improve their health status (Suryantini et al., 2021). In Japan, elderly women strongly supported urban agriculture, highlighting its therapeutic benefits (Machida, 2019). A recent study by Suryantini et al. (2021) carried out in Yorgakata city, Indonesia adds that gardening helped women to manage stress and boredom caused by the lockdowns. The authors also highlighted that some gardens started during the pandemic, and the produce was available within months. In a nutshell, women have used urban agriculture to reduce household poverty and food insecurity in the urban environment, and that calls for recognition and support in the future.

2.3.3. Challenges of urban agriculture

Contradictory to the above reports, other studies point out that the promotion of urban agriculture increases the work burden on women because of the amount of work it demands (Azunre et al., 2019; Pattnaik & Lahiri-Dutt, 2022). Tasks include the preparation of land, weeding, and watering of the gardens; and these are added to their household responsibilities. There are also chemicals in the environment that can contaminate food plants and affect women's health negatively (Azunre et al., 2019). However, these are effects that can be reduced by promoting responsible farming and ensuring there is compliance with the agricultural sector regulations (Takyi et al., 2018).

According to da Silva (2013) from the FAO, women's food production and security are affected by the inequalities of access to- and control of livelihood assets. These include issues that relate to land, accessibility, utilisation, stability and discrimination in decision-making. Added to that, women experience challenges due to a lack of-, or limited legal access to- rights like land and capital. Furthermore, there may be limited access to knowledge about the use and operation of modern technologies.

Lack of land

The effects of racialised land ownership during the apartheid era in South Africa cannot be overemphasised. The Native Land Act of 1913 dispossessed Black South Africans from their land and placed them on poor agricultural land (Hall, 2014; Oluwatayo, 2019). This was to promote commercial farming. Smallholder farmers suffered because they could no longer produce their food as the land was not sufficient (Du Plessis & Pienaar, 2010). Although South Africa celebrated a democratic government in 1994, it has failed to resolve the issues relating to land even after two decades of its reign. Land redistribution is moving at a very slow pace. According to O'Laughlin et al. (2013), only 7.2% of the land has been redistributed. Mubvami and Mushamba (2006) add that land tenure is the main factor affecting urban agriculture initiatives. Although urban farming is easy to set up along roads, in parks, or in any vacant space, it can only be made possible with permission from the city councils (Rudolph et al., 2021). Most black farmers, women in particular, do not own land. Without any legal right, it is impossible to carry out farming or access other resources such as bank loans to set up an urban farm.

The majority of women, especially in African countries, have limited access to land ownership; this affects food production in those countries. Kiguli (2004) states that in Ghana it is difficult for women to own land, especially in cities, unless they are well connected. Ethnicity, culture, and customs favour men, although those can be broken depending on personal wealth. In Uganda, women who own land do not have the right to sell it. In Nigeria, women are more involved in household food production than men; however, they do not own land and if they do, the land is usually small and infertile (Ejike et al., 2018). Women can use the land but if they have to leave the family or get remarried, they must give the land to a family member. The insecurity of tenure for women affects potential food production in their community, as well as in their country.

Accessibility and women

Gender roles often play a large role in access to resources since women are rendered powerless when it comes to land access in many parts of the world (Lastarria-Cornhiel et al., 2014). Power relations and cultural practices within the family determine the access to food within the household. Despite producing food, women may not be able to access the food whilst men in the household can. Accessibility also relates to resources; with women lacking formal jobs, it is a struggle for them to buy seeds and the tools needed for gardening. Lack of formal jobs may also limit their access to

financial help from the banks as they do not have security for credit. In Bangladesh, women struggle to get money to buy seeds because they are expensive. The challenge is exacerbated because seeds are not available in small packets suitable for home production (Schreinemachers et al., 2015).

Traditional roles which keep women around their homestead still exist in urban areas, and it makes it difficult for the women to move and find better opportunities in other areas away from home (Westholm & Ostwald, 2020). It is because of such realities that supporting gardening would enable women to produce food from their homesteads. Women find access to markets exceptionally difficult in comparison to men; this hinders their chances of earning an income from their surplus produce. The food produced by women is usually subsistence based while the food produced by men is more commercially orientated. This means that women's growing is lower on the value chain, and this limits entrepreneurialism. This is also experienced in the workplace; where men also tend to be in managerial positions and often take over the value chain as profit increases (Westholm & Ostwald, 2020).

Distance and transportation to access the land for cultivation is also a major problem. In Lusaka, Zambian women often struggle to get transport to their gardens because the areas are not easily accessible to commuters (Wilber, 2003). Women walk very long distances to reach the gardens, making it impossible to go to those gardens more often. Also, gender roles such as taking care of household chores require women to work close to their homes (Westholm & Ostwald, 2020). In addition, water is another crucial resource needed to do gardening. The lack of all these resources means that women may not be able to produce the food needed for their families.

Decision-making and discrimination

Women are frequently not allowed to make decisions due to cultural norms governing the separation of power. It is more acceptable in the communities that men be the ones who make decisions on what should be done on the land, and their focus is usually to grow crops that can be sold. Women are then given a small piece of land to cultivate for the family (Kiguli, 2004). Gender stereotypes play a role in the shape of responsibilities. Women may be regarded as homemakers and men as breadwinners and in these instances, women have no say about how the income that they earn should be spent (Tsvuura, 2020).

Currently, South Africa is battling the rise of gender-based violence in urban areas, and this has led to an increase in women-headed households (Vetten & Ratele, 2013; van Niekerk & Boonzaier, 2016). These vulnerable women find it difficult to participate in meetings involving men; and as a result, they are excluded. In cases where men are involved in urban food-growing projects, they tend to hold higher positions and continue to oppress women in their projects.

2.4. Women and urban food production

Research by Boserup in the 1970s established a growing call to include women in development (Gordon, 1996). Gender in development became a burning research issue due to the need to understand the interrelationship and power differences between men and women (De Klerk et al., 2004). The role of women in agriculture has been highlighted as a central issue within this theme. In 2007, the World Bank found that women play a significant role in agriculture around the world when compared to men. In developing countries, the contribution of women to agricultural activities is about 43% (FAO, 2011). In some countries women contribute far more, in Accra for example, about 75% more women are involved in finding ways to access food compared to men (Gyampoh et al., 2014). In addition, there are more households headed by women in many African cities because more men tend to migrate. This migration can be sustained, and the female-headed households left behind are frequently food insecure despite informal strategies to provide safety nets (Gladwin et al., 2001).

The City of Johannesburg's 2017 Food Security Survey, through the Household Food Insecurity Access Scale (HFIAS), revealed that there is higher food insecurity among women compared to men (Rudolph et al., 2021). This means that, gender and gender relations are critical when trying to understand urban food security (Crush et al., 2011). Women have the right to be equal partners in the agriculture sector (FAO, 2001). Women are described as being at the frontline of food security because their main objective is to provide adequate food for the family, but their access to resources for food production is often limited. To support them, Westholm and Ostwald (2020) argue that there needs to be a shift in focus to women for gender equality, as gender equality also influences productivity and the value chain. Similarly, the FAO (2011) estimates that if women received equal opportunities, there could be as much as a 30%increase in agricultural productivity. This could reduce food insecurity by 17%.

2.4.1. Women's empowerment in food production

Batliwala (2007) defines the empowerment of women as a process in which women become agents of change, and they are free to make and exercise choices that were previously denied to them. SIDA (2015) provides entry points that can be used to improve the contribution of women to food security: access to technology, land, financial services, and equal participation in labour markets. Berik and Kongar (2021) extend this by highlighting the importance of individual access to funds, land ownership, employment, and political representation to promote women's empowerment. Empowerment is multidimensional and is frequently presented in four axes: political, economic, psychological, and social. It also exists at different levels in society (Habib Sultan & Yahaya, 2018).

Women empowerment is currently the main challenge that world organisations like the UN, the FAO, and the WFP are trying to put on the developmental agenda (Sachs et al., 2021). This research highlights the institutional failures affecting women in developing countries. Many women are still using traditional methods instead of technologically advanced gardening, which would save them time and energy. For example, in Bangladesh, innovative practices and new technologies enabled women to earn a better income and gain status in their communities (Sachs et al., 2019). Land is another major impediment to food production. Women are often denied the right to own land; which is important in food production (Mubarak et al., 2020). Guerra-Reyes and Hamilton (2017) highlight that any form of violence and discrimination needs to be removed to allow women to maximise their potential as human beings. With the current food system, women are calling not just for the elimination and integration of changes in the food system but also for full support in their means of food production. Empowering women and recognising women's rights has led women in Bangladesh to take full control and make decisions concerning home gardens (Akter et al., 2017). Bonis-Profumo et al. (2021) performed a study in Timor-Leste and found that women who were empowered in agriculture, had children who were healthier with different dietary intakes. By contrast, male-led agricultural production may not be diverse because men are more concerned with cash crops than actual household food security.

In cases where women are trained in how to improve their gardens, the results show that for women to produce more from their gardens, they need help to access different knowledge-sharing platforms, training, and resources (Bushamuka et al., 2005). The Botswana government, for example, has been assisting women who are involved in urban agriculture by offering financial assistance. In Kenya, urban agriculture has been supported as an economic strategy for women (Horvoka, 2005; Gallaher et al. 2013). In South Africa, most of the empowerment of women has focused on economic and professional women with very little on agriculture, although the current trends are beginning to include agricultural empowerment (Patel et al., 2015). The Integrated Food Security Strategy in South Africa, for example, calls for a rights-based approach to food security that will ensure gender equity, where women will be well recognised and given equal opportunities (Battersby et al., 2011). In the city of Cape Town, South Africa, NGOs have been helping women to sustain agriculture and this has helped a lot of women to create networks to assist with problems of food security, safety, and rights (City of Cape Town, 2007; Olivier & Heinecken, 2017).

2.4.2. The Gendered Food Systems Framework

Proceeding from the women in development approach and in recognition of the importance of an institutional approach, the Gendered Food Systems Framework (see figure 2.2) summarises the factors that need to be considered when implementing food policies and interventions to transform food systems. The framework both reiterates and extends previous conceptual frameworks and connects gender with broader research on food systems. According to Quisimbing et al. (2021), the main components of the framework are value chains, food environment, and consumer behaviour. These are influenced by five drivers and domains of gender inequality: biophysical and environmental factors, technology, infrastructure, political and economic, factors, socio-cultural, and demographics. These drivers are also shaped by structural gender inequalities, shocks, and gender vulnerabilities.

Consumer behaviour concerns personal choices relating to food and these choices depend on the food environment. Different factors that could influence the choice to relate to income, culture, affordability, taste quality, and the availability of food. The food environment is linked to the four pillars of food security, but extends them, providing a more complex framework. de Brauw et al. (2019) explain that the

opportunities and challenges that affect food choices are both personal and external, hence the food environment is positioned between consumer behaviour and the value chain since it influences changes in income and prices. Value chain activities are production, processing distribution, storing, and marketing, and these feed into the food environment. Value chains are affected by all drivers of the food systems and the transformation of the value chain costs should be kept to a minimum so that food prices do not escalate and become unaffordable.

These three main components of the food system affect individual diets (de Brauw et al., 2019) and play an important role in determining household food security. Removing gender disparities gives women a greater chance to make better choices for buying and producing diverse food for their families. As Haysom (2016) reveals, in South Africa, the food system value chain does not work for the poor because there is a lack of engagement between locals and authorities. Wegerif (2020) adds that the food sector is owned by corporations that do not consider the living standards of the poor.

Empowered women can make decisions on choices of foods that they want to produce and purchase, and they can also access different areas without being controlled by patriarchal laws. In urban food production, the increase in the number of plots women can buy could lead to job creation and poverty reduction (Quisumbing et al., 2021b; Rudolph et al., 2021).

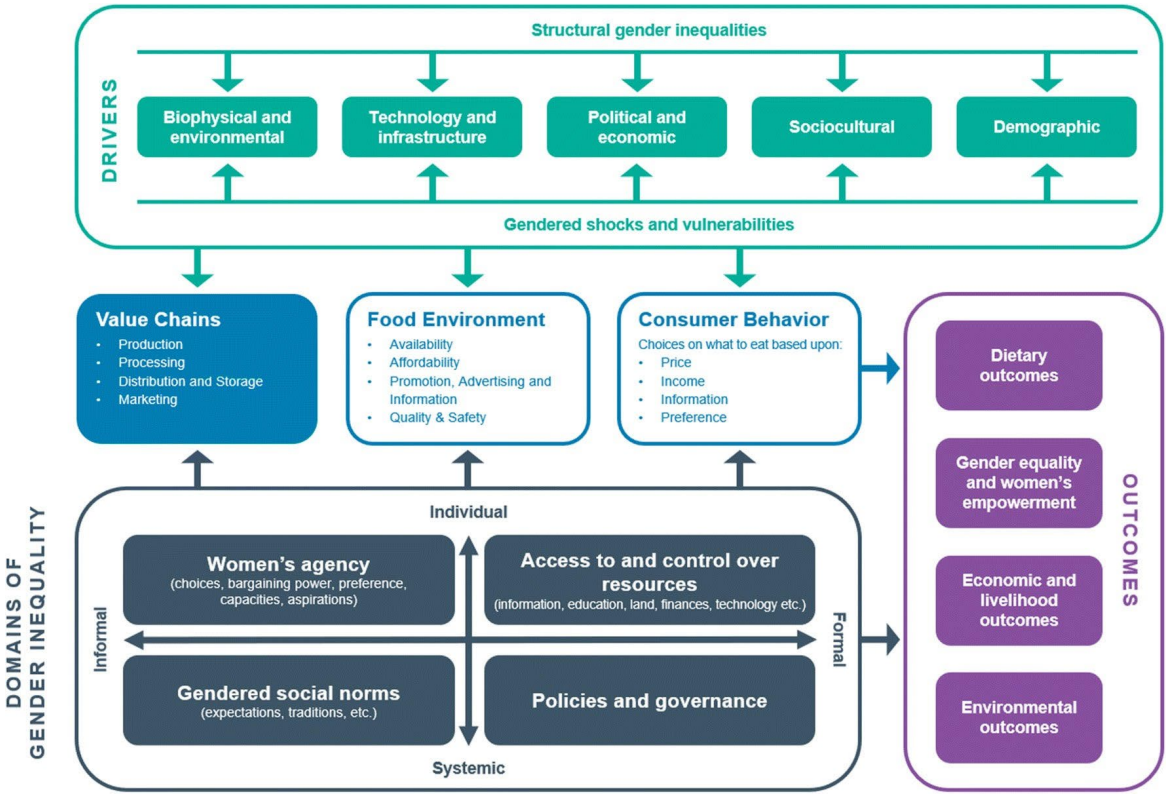

Figure 2.2 Source: Quisumbing et al. (2021)

Drivers of the food system

The three main components of the gendered food systems framework are driven by several factors. The socio-cultural and demographic drivers have been discussed previously, but the gendered food system framework extends these by considering how they relate to biophysical and environmental factors; technology and infrastructure; and politics and economics.

Biophysical and Environmental Factors

Biophysical and environmental factors include fertile soil water, a conducive climate, arable land, flora, and fauna. All these factors are important because they allow farmers, especially smallholder farmers, to achieve high productivity (Deville et al, 2002). To extend the previous discussion of land in this chapter, a study by Deininger et al. (2015) confirms that in many cases, men are given first preference compared to women when it comes to land ownership. Fertile soil promotes growth and with soil degradation and erosion, smallholder farmers are in danger of productivity decreasing because they cannot buy fertilisers to neutralise their soil. Climatic conditions also need to be favourable for successful farming. Increased rainfall causes floods which

destroy crops and high temperatures affect crop growth. Although food systems contribute to biophysical and environmental factors there are several measures to reduce these impacts. Gender norms affect how women contribute to those measures and how they adapt to the impacts (Huyer, 2016; Johnson et al., 2018; Quisumbing et al., 2021).

Technology and infrastructure

Technology and infrastructure can play an important role in agriculture; keeping farmers updated with what is happening around the world. Technology and infrastructure drivers facilitate food trade (de Brauw et al., 2019). It is also important to have better infrastructure to improve agriculture. For example, good roads connect with farms, markets, businesses, and farmers. Technology-centric approaches may help to promote gender equality by saving women time and energy. However, according to Njuki et al. (2016) and Huyer (2016), it has been difficult for women to access these technological advancements. For example, as many women are unable to access decent education, it is difficult for them to keep up to date with these advancements.

Politics and economics

Political and economic drivers influence local to international trade, food prices, and conflicts that influence production and the value chain (de Brauw et al., 2019). Politics influences food policies and systems because they bind ethics, culture, policies, and the environment. That being said, women's political empowerment in agriculture is vital because it involves all stakeholders, and ethnic groups and gives them a chance to participate in decision-making and implementation (Habib Sultan & Yahaya, 2018).

Economics relates to activities in the food system in terms of sales, income, and markets and how these contribute to the well-being of people. Women contribute to the economy both formally and informally. A study in Cape Town found that the local economy is still unequal, racialised, and highly gendered in favour of men and whites. Although there are improvements in the lives of professional women, it only promotes white women (Caesar & Riley, 2018). Economic empowerment is the only way in which all women can enjoy the benefits of projects that will improve their living standards and this can be done by sharing revenue gained in communities and shared networks (Habib Sultan & Yahaya, 2018).

Women continue to suffer through all the drivers of the food system. Mkandawire et al. (2021) stress that the focus of the food system should not be on one factor, but on how one factor can affect or be affected by other factors in the food system. The authors add that women face challenges in the whole food system, and one needs to look at broader gender roles, responsibilities, and relations that influence their participation.

Domains of gender inequality

The domains of gender inequality are the second set of factors influencing the main components of the gendered food systems framework. These factors are either formal or informal and they can take place systematically or at the individual level. These domains include women's agency, access to and control over resources, gendered social norms, policy, and governance. As gendered social norms, access, and control over resources have been discussed in previous sections, they are only noted here.

Women's agency

This involves the choices, bargaining power, preferences, and the capacities that women have in the food system, be they formal or informal. These are influenced by the status of women in their households or communities (Njuki et al., 2021). To reiterate, there is improved livelihood, nutrition, and well-being when women are more involved in household decision-making. Njuki et al. (2021) and Diiro et al. (2018) found that in communities, where empowered women participate in leadership positions and agriculture, productivity is higher. However, at the food system level, more needs to be done to increase women's participation (Njuki et al., 2021).

There are major challenges to exercising women's agency. Issues of gender violence and harassment that is poorly handled, and though there is limited research on gender-based violence in food systems, it is a problem that needs to be addressed. Women stay in violent relationships because they do not own assets producing food (Njuki et al., 2021). There is formal legislation to combat this, but legislation and practised law can often conflict with each other. For example, the different meanings of joint and personal property rights can differ from legal meanings (Pradhan et al. 2019).

Policy and Governance

Policy and governance refer to laws and regulations that maintain how people in societies and institutions interact with each other. These sometimes result in inequalities. For example, many women are paid less than men for doing the same job. These inequalities are also experienced in food systems and affect household food security (Kassie et al. 2014). According to Oxfam (2019), the rise in food insecurity has led to global intervention, however, national and local policies still fail to address the structural deficiencies of food systems. When it comes to policies and governance, Battersby (2019) notes that there is weak governance of the urban food system. In response to this, different urban municipalities globally have signed the Milan Urban Food Policy Pact to ensure the development of sustainable, resilient, and inclusive food systems. The G20 countries have also called for innovative agriculture policies, science, and sustainable development. In line with these initiatives, the African Development Bank launched its 2016-2025 strategy for agricultural transformation. These are all intended to reduce poverty, hunger, and malnutrition (Fan et al., 2017). There are, however, gaps in policy implementation and this affects women's economic opportunities as most agricultural investments do not benefit women farmers. States remain vital players in food security governance and factors that contribute to women's capacity to work in the food system need to be addressed (Mkandawire et al., 2021).

Outcomes of a gendered food systems framework

There are four outcomes associated with the gendered food system framework. These include dietary outcomes; gender equality and women's empowerment; economic, livelihood; and environmental outcomes. Dietary outcomes relate to the nutritional status of food available to individuals and their communities. The value chain can be improved using innovation and fair treatment of the women and other actors in the system. These kinds of shifts can improve the production, processing, distribution, and marketing of food products (de Brauw et al., 2019). This should in turn promote the food environment, so that safe and quality food becomes abundantly available at reasonable and affordable food prices. Consumers are then able to make better food choices because they have diverse dietary foods.

Studies have shown that gender inequality is one of the main factors contributing to food insecurity, with women bearing the burden of household food shortages (Mkandawire et al., 2021). Gender equality and women's empowerment results from the elimination of challenges experienced in the roles of women and men in the drivers and domains of gender equality. With empowerment and gender equality, women can make decisions that could make food production more lucrative. This can be achieved through education, agricultural innovation programmes, decisions that will improve crop varieties, and control over food production without the fear of discrimination (Njuki et at., 2021).

Improved economic and livelihoods are a result of empowered women who are taking control of their participation in the food system. Taking charge in decision-making and income-generating activities allows women to have preferences on food choices, education, and technological advancements to improve the lives of their families and communities (Njuki et al., 2021).

Limitations of the gendered food systems framework

According to the gendered food system framework, women and men differ in how they access resources. These differences are strengthened by social gender norms which also affect the mobility of women (Njuki et al., 2023). The gendered food system also argues that women and men respond to shocks and stress differently, with women having less access to resources to mitigate their vulnerability. For example, proponents of the gendered food systems framework argue that through empowerment, women are able to get more information on how to adapt to climate changes (through climate smart agriculture for instance) (de Pinto et al., 2020). This concept of empowerment is central to the gendered food systems framework, however, there is limited evidence documenting the outcomes of interventions to promote the empowerment of women in the food system, nor how these interventions can be improved (Njuki et al 2023). In some cases, women's entrepreneurship fails because their food businesses are small, and they do not generate profit. Women may become overburdened and fail to maximise their potential in the food system because of too many responsibilities. To address this, Malapit et al. (2019) and Wolf and Frese (2018) argue that for these income generating activities to be effective, men should be included in women entrepreneurship programmes.

Despite the limitations found on the gender and food systems framework, Njuki et al. (2023) stress that the outcomes of the framework suggest positive results for dietary intake, access to resources, independence, and the reduction of institutional barriers to food security. This is supported by findings from Buller et al. (2018) and Leese et al. (2021) which reveal that empowered women in food systems can own assets, increase their status, and can leave harmful relationships.

Conclusion

This chapter reviewed the literature on food security in urban areas. This review revealed that the state of food security in African cities is most affected by overpopulation which has led to unemployment and poverty. History has shown that urban agriculture is an effective strategy used in many countries to reduce urban food insecurity. Sustainable methods of urban agriculture should be practiced. The forefront of this research is to document the experiences of women in urban food production through gardening. The literature reveals that urban gardening is predominantly an initiative of women, and gender inequality issues play a big part in hampering women who are trying to maximise their potential. In addition, women often lack support from authorities which makes it difficult to access resources.

Food insecurity remains a deep-seated problem in many of South Africa's households and there are indications that this may continue. Women bear the brunt of this crisis as they are frequently at the forefront of providing food to more vulnerable people. These tensions are exacerbated by the legacies of apartheid, notably in issues of land ownership, poor infrastructure, and reduced access to different factors that could empower women. The issue of women in the food system is frequently seen as an "add-on", but to effect the gendered transformation of the food system in all its aspects, women need to be taken seriously and substantive engagement with the issue through all levels of governance is essential. To explore this issue of governance, in the next chapter, I examine different approaches to food security in South Africa and more specifically, in Johannesburg.

CHAPTER 3

GOVERNMENT POLICIES AND FRAMEWORKS

Introduction

Urban planners have tended to neglect food production in the planning of cities as it has traditionally been regarded as a peri-urban or rural activity. Urban food insecurity, however, calls for revisiting urban policies on food production to address this issue. This chapter gives an overview of the state of cities in the world and how population growth in urban areas has led to food shortages. It also explains the policies that the South African government has established post – 1994. Lastly, it stresses the need to establish food policies that empower women because they are more affected by household food shortages.

Although cities were never designed nor planned for agriculture, they provide markets for agricultural produce. Battersby and Watson (2019) state that cities are dependent on food imports, and most food policies were based on the regulation of prices to ensure that urbanites were able to afford basic food. With population growth, the demand for food increased and it affected food systems, resulting in a need for cities to be planned and reconsidered from a food perspective. It is worth noting that cities have the resources to for sustainable agriculture production. This is because they have levers that control almost all of the sectors of production outside the city (Brand et al., 2019). Currently, food is at the core of the urban functioning system due to the increasing food demand that has caused a gap between food availability and accessibility.

Over the last two decades of the food crisis, some cities like Mexico City, Rosario, Accra, and Nairobi have developed strategies to deal with food insecurity (Brand et al., 2019). The same study found that local governments have formed food policy councils into their structures that have implemented local food strategies. Food policy councils are a government model which consists of actors from both the public and civil society. These aim to tackle local food issues. The benefit of localizing food is that it helps increase productivity while reducing long supply chains, thus making food locally accessible at affordable prices.

Although the localization of food policy aids in the availability of- and ease of access to food to local people, it is criticised as a local trap (Born & Purcell, 2006). It does not guarantee food security sustainability especially if it only applies to one city. However, other cities in the world which have used this local food policy have been praised by civil society mobilization. This is because the introduction of local food policy has also improved other local government processes (Block et al., 2012). The other challenge is that the food issue is complex and it needs the different sectors of government to work together (Mah & Thang, 2013). There needs to be a clear mandate to ensure accountability in those sectors that are inefficient.

Increased food demand means that there is a need for new sustainable food systems. According to Filippini et al. (2019), political concerns in several cities have influenced local governments to prioritise food through the development of an Urban Food Policy (UFP). The UFP is aimed at providing sufficient food for the current generation while making sure that the environment is not compromised for future generations. The processes of policy-making should provide extensive plans that are formulated within the sustainable development framework. The plans should be made while being mindful that the interventions should not be at the expense of the other. One of the main steps in developing UFP is to explore and understand the food systems in the city and try to connect urban food production and urban food systems (Morrison et al., 2011).

Governments have faced challenges for decades concerning the management of the agricultural sector in cities, and this is due to a lack of coherent policies. In addition, agriculture has always been viewed as mostly commercial; carried out far from the cities (Cohen & Reynolds, 2014). For an UFP to be effective there must be strong governance which will ensure a holistic approach, and it should include both private and public actors (Filippini et al., 2019).

The connection between population growth and food production in urban areas needs a comprehensive and adaptable plan that will be conducive to resource access. However, Steenkamp et al. (2021) note that the literature on urban agriculture shows that town planners have neglected evidence that shows the importance of urban agriculture in improving urban food production. Urban planners are more concerned

with the development of vacant land to accommodate the rising population as well as other non-agricultural developments. The lack of incorporation of urban agriculture in planning has resulted in people struggling to access food. The call for UFPs in cities was to encourage local institutions to acknowledge urban agriculture as the main strategy to improve urban food security. The UFP provides a framework that local institutions can use to regulate urban agriculture, especially small-scale farmers; giving guidance and legislation on what to farm and where, as well as introducing other fiscal policies such as a tax on the produce (Meenar et al., 2017).

In 2015, the cities of the world also came together to sign the Milan Urban Food Policy Pact (MUFPP). The policy was developed to help cities refocus on food issues (MUFPP, 2020). The policy focuses on more than just food security; it is also concerned with the health, waste, and education of future generations. In South Africa, under the banner of the Agriculture and Food Security priority (part of the agenda 2040), Johannesburg has been chosen to improve food production through local agriculture (Filippini et al., 2018). The policy aims to achieve food security by empowering urban farmers from an individual level to a community level. Currently, however, the policy's impact post-implementation is hardly notable because few urban agriculture initiatives have been established (Åhs, 2017). At a national level, South Africa is food secure; however, the situation is different at a household and individual level where food insecurity is dominating (Boatemaa et al., 2018). This situation has resulted in diet-related disease problems such as obesity and stunted growth among children (StatsSA, 2017).

Joala and Gumede (2018) highlight that own food production is one of the channels through which adequate and nutritious food is realised in South Africa.Government should ensure that there are support measures in place to alleviate poverty and hunger for all; through the implementation of frameworks that tackle food issues at the household and individual levels, such as gardening. There has been increased research on how Urban Agriculture should be prioritised in policy-making, as a tool to tackle food shortages in urban areas (Battersby & Watson, 2019). The policy-making processes should prioritise women by involving them throughout the process and nominating more women representatives. Women empowerment programmes should be included in urban food policies. In so doing, women should be able to gain access

to resources to produce their food thus increasing availability, accessibility, utilisation, and stability.

3.1 Establish and control policies to empower women

To enable women's potential in food production, Galhena et al. (2013) recommend that all stakeholders, the national government, and international organisations should come together and to develop policies based on three broad areas which include:

- Increasing women's physical and human capital. This includes education which will help the women to understand modern technology and new information because the world is ever-changing, and this will enable easy access to resources.
- Improving women's abilities to generate income. For example, if women are given the chance to access loans, they will be able to do their urban agriculture at a larger scale. This in turn will increase productivity and the surplus can be sold to generate income.
- Ensuring the protection of women's health and nutritional status. Women are also vulnerable to diseases and safety net programmemes should be developed in a way that reduces the energy and time women spend in gardening activities.

The local government should develop by-laws that will improve local food systems. These laws should ensure that zoning allows the carrying out of food gardening in the city, especially in areas where the urban poor reside. In South Africa, most gardening consists of only vegetable growing and there is very little diversity and traditional crops are not prioritised. There is a need to incorporate livestock farming as this can boost the income and variety of foods. Roseland (2012) states that the city of Vancouver changed its by-laws and allowed the keeping of beehives and chickens; a move that brought positive changes to the whole city. These different policies should be drawn up in consultation with communities. For example, in Brazil the bylaws allowed citizens to come up with their own local food and agriculture policies. Government that only regulated them. Pimbert (2009) states that food policy should be left in ordinary people's hands; with supportive roles played by the government, non-governmental organisations, corporate monopolies, economists, and agriculturalists should play a supportive role.

3.2 Provision of resources: land, capital, and knowledge

Gulyas and Edmondson (2021) reported that a lack of institutional support is the main problem affecting policy-making on urban agriculture. The local government should support non-state organisations and groups to help the population gain access to resources. NGOs can offer their capacity, knowledge, and skills to gardeners to help them improve their gardening capacities and provide new technology. This will save both energy and time for the gardeners. Wegener (2009) states that this will increase the value of knowledge and skills that can be brought to the initiative. Easy access to inputs such as seedlings should be made available at a reasonable price. Governments should provide land that is available and not used by the rest of the community. To curb the burden of high municipality water charges, climate-smart agriculture can be employed through the drilling of boreholes for irrigation instead of using municipality water.

The government should support and facilitate women in the food gardening industry as they do with large-scale farming. Community-based agricultural programmemes should be gender-sensitive and responsive so that women can work freely. Moreover, food gardening is mainly for home consumption, but surplus can be sold to generate income that can be used for other household expenditures. The government should therefore ensure that markets are easily accessible to sell their surplus.

3.3. Food policies in South Africa

According to Koch (2011), the history of food policy in South Africa dates back to 1912-1946 when the country was hit by famine. The colonial government's food policies were also based on food supply. The Native Affairs Department in 1926 were tasked with providing food supply to vulnerable areas. In 1948, the country entered the apartheid period, and the apartheid government-enforced policies based on segregation and discrimination. The policies were anti-Blacks, and they undermined the provision of food to segregated townships. From 1948 to 1994, Blacks continued to suffer starvation as food relief for school children was cut. Although this caught the attention of the international media, the apartheid government denied any reports of food insecurity (Wylie, 2001). The apartheid government policies also denied any participation of Black people in politics or any economic mainstream which was going to uplift them in townships (Koch, 2011).

Post-1994, food security was one of the burning issues in democratic South Africa. The democratic government implemented its first food policy through the National Treasury that reversed the apartheid government policies. School feeding was reintroduced as well as zero-rating of staple food like maize (Boatemaa et al., 2018). Due to the complexity of food, different government sectors were given the mandate to try and resolve food issues. The first food policy was published by the Department of Agriculture Fisheries and Forestry (DAFF) in 2002, to eradicate hunger, malnutrition, and food insecurity; while the Department of Health established the Integrated Nutrition Programmeme the same year. Boatemaa et al. (2018) summarised policies from 2002 to 2017, implemented by different government departments. These policies were based on the improvement of rural food production and improving the food supply.

Koch (2011), argues that despite the post-apartheid policies aimed at reversing the effects apartheid, the situation is still dire three decades post-democracy. The democratic government is failing to honour its constitutional mandate because the government did not decentralise food issues to local levels (Joala & Gumede, 2015). Local governments are the duty bearers of food rights, but section 4 and 5 of the constitution allows for the national and provincial departments to deal with food security; this makes it difficult for local government to implement and evaluate as they do not have full control of the programmes (Koch, 2011).

South African policy implementation problems and mitigation measures

Food systems are dominated by agro-industrial agriculture despite its failures to meet demand. Mabhaudhi et al. (2019) state that in South Africa too, agro-industrial agriculture (commercial farming) is promoted over the indigenous and traditional crops but, prices remain high for most of the population leading to severe household food insecurity. This has led to a dichotomous food system where the technologically advanced commercial farming food system is promoted over smallholders. The use of new technological advancements in agriculture has also led to the neglect of traditional crops, especially in underdeveloped countries. Traditional crops are more sustainable and connected to cultural heritage and indigenous food production. Promoting traditional crops, however, should not mean changing them but preserving them for future generations (Mabhaudhi et al., 2019).

A recent study by Kushitor et al. (2022) reviewed about 91 policies on food systems and found that agriculture is one of the most emphasised domains. However, there is confusion on which parts of government are responsible for the different aspects of the food system and how these cohere with each other as there are no specific rules for coordination across departments nationally. Local governments are familiar with the population they serve; therefore, the state should decentralise the food mandate (Åhs, 2017). According to Joala and Gumede (2015), however, the national policy was underfunded and did not prioritise urban food production; this made it difficult for municipalities to respond to food insecurity. Only, Cape Town and Johannesburg have implemented food policies to deal with food insecurity (Åhs, 2017). Cape Town implemented the Urban Agriculture policy in 2007 to deal with poverty, while the City of Johannesburg (CoJ) implemented the Food Resilience Policy in 2012.

Johannesburg's Food Resilience Policy

This policy was to deal with issues of food security at the local level with urban agriculture as the main strategy to deal with food insecurity. Building on the 2006 policy of the provincial government, the Gauteng Agricultural Development Strategy (GADS), it was developed in 2011 and coordinated by the department of Human and Social Development. The implementation projects were aimed at providing spatial information about the city, coordinating and supporting urban agriculture as well as establishing Food Empowerment Zones (Malan, 2015; Joala & Gumede, 2015).

The food resilience policy was implemented under the banner "A city where none go hungry" (CoJ, 2012). The policy provides the following:

- People grow their gardens in their backyards, vacant places, and rooftops where they live.
- Access to resources, training, and assistance for those who wish to carry out gardening in cooperatives.
- Provide a market for small farmers who wish to sell their produce.
- Provide Agri Resource centres and connect small farmers to improve their status through providing services such as training and innovations, capacity building, and packing houses.
- Network for food for waste or food exchange.
- Assistance to the food insecure through food banks and food parcels.

Although the food resilience policy has been implemented, about 41% of the Johannesburg population is still living in poverty and is food insecure (CoJ, 2012). This policy is well planned on paper but there is very little that has been done in practice. To date, this policy has not shown any signs of achieving its mandate. Rudolph et al. (2021) highlight that the CoJ is still under extreme food shortages; with many households living below the poverty line. Accessibility to resources is still a challenge because structural mechanisms of access are not changed to cater to the less fortunate who live in townships.

Active participants like researchers and non-governmental organisations (NGOs) feel unappreciated when they research the government because their findings are often not incorporated into policy (Godfrey et al., 2010; Åhs, 2017). According to Godfrey et al. (2010), the frustration of researchers is caused by a lack of feedback from the government after the submission of their research reports. Although the Johannesburg policy was implemented to deal with food security, the policy's main focus is on restaurants and food banks (Åhs, 2017). There is little focus on the production of food. It is important to implement policies with initiatives that will use productivity as the main objective. Although productivity is due to access and conflict over ownership of resources, it also influences the availability and costs of farm produce. The policy should foster linkages between urban agriculture and the retail food system (Malan, 2015), also the supply chain should be short so that time and energy are saved (Hesterman, 2011). According to Malan (2015), small-scale farmers need to be well-recognised through administrative support that will ensure the strengthening of the farmer's support systems.

Urban agriculture could be improved in Johannesburg if farmers' organisations are strengthened, and all stakeholders are involved in the policy-making process (Malan, 2015), as well as the promotion of their food production (Joala & Gumede, 2018). Small-scale farmers and individuals need to be well briefed on how to access the resources, and get training on new farming technology to be up to date with the modern world. Gulyas and Edmondson (2021) add that the fact that scientific knowledge is promoted over non-scientific knowledge makes local communities be looked down upon, and this results in them not being well represented during policymaking. A recent study by Rudolph et al. (2021) noted that in Johannesburg,

food planning interventions are under-budgeted and this results in them being under-resourced. Most food planning usually deals with providing food parcels, however, since food parcels are not sustainable, communities need to be uplifted so that they are able to look after themselves in the long term.

Conclusion

In this chapter, policy interventions at the local level were reviewed and applied to improve the state of food insecurity in urban areas, highlighting the history of food policies in the global South. With the increase in population, there has been a need for policies to focus on food security through urban agriculture and involving women in food policy formation processes. The constraints of policies are mainly due to poor implementation and lack of collaboration with other sectors; however, these challenges can be mitigated.

There is a big challenge for local governments to provide space and other resources to improve local food production. The state has to legislate the right to food through a clear legal framework on food policies, including transparency and easy access to information by citizens.

CHAPTER 4

METHODOLOGY

This research is based on the view that social reality is a continuously changing structure influenced by social actors. An intensive research design was followed because of its emphasis on the description of a phenomenon in more detail. It also allows for the appreciation of the most important elements of a physical or a social system; with the overall description coming from the recognition of elements of the study and possible linkages found (Clifford et al., 2016).

The research followed a qualitative approach because it gives a detailed understanding of human behaviour and the reasons behind such behaviours (Creswell, 2014). According to Padgett (2016), qualitative methods have an inherent attraction to researchers because they are rapport-driven, and they do not presume value-free inquiry. Qualitative methods enable the researcher to obtain quality and detailed data from a complex social context. Neuman (2011) states that the researcher tries to express the attachment of people to their surroundings and the inner lives of people in it.

The research strategy applied was a multiple-case study because it was performed at different locations and it gave a detailed description of a phenomenon that exists in a real-world context (Du Plooy-Cilliers et al., 2014). The main aim of a case study method according to Gomm et al. (2006) is to represent a case authentically by exploring the experiences and perspectives of the participants. A case study verifies real-life situations by continuously describing how the activities in different locales occur, gaining an understanding of participants' experiences.

4.1. Participant Observations and discussions

Participant observation is a data-collecting method whereby the researcher observes the activities of the participants as well as the physical qualities of a social situation. This gives the researcher a feeling of the scene under study (Laurier, 2010). Jamshed (2014) adds that observation is a suitable method for a research study that involves different sites. During observation, the researcher participated in different garden activities that included weeding, clearing the land for planting, and watering the

vegetables. Through engaging in participant observation, the researcher was able to familiarise herself with the gardening environment and managed to establish rapport with the participants. Chatting with the gardeners while helping them with their work permitted them to open up freely about their experiences. The involvement in the activities also enabled the researcher to experience the challenges faced by the gardeners. During participant observation at the Urban Farm in Alex, for example, sometimes weeding was done using bare hands which caused some skin irritation as some weeds cause skin rashes and some organisms found in these weeds bite. The hoes that were used were old and no longer appropriate causing blisters on the hands. Clifford et al. (2016) state that participant observation allows the researcher to answer a question like what things are relevant to the study in the situation s/he is participating in, and the reasons why those things are of importance to the participant. It also provides descriptions of how ordinary and extraordinary things are accomplished by people and with what tools. Through participant observation, processes, practices, norms, values, reasoning, and technologies can be easily described in depth. All activities were recorded through field notes which were later analysed.

4.2. Semi-structured interviews

Interviewing is the most common data collection method used in qualitative research and this research study has adopted the semi-structured method because of the method's effectiveness when it comes to the exploration of participants' beliefs, perspectives, and feelings about their livelihoods (DeJonckheere and Vaughn 2019). Semi-structured interviews are in-depth, conversational interviews and they allow the participants to answer questions freely (Jamshed 2014). The researcher formulates the questions and selects and recruits participants who were going to be part of the research. Gill et al. (2008:1) state that "semi-structured interviews provide a guide prepared by interviewers on the questions to be asked in a different way to different participants, it also defines the areas to be explored and questions can be changed to gain more information". The guiding questions that were used in this study are attached in appendix (v).

Given the nature of interviewing participants, the interview information was recorded, with consideration of potential ethical issues (DeJonkheere and Vaughn 2019; Clifford

et al., 2016). Notes were recorded in writing, and they were kept safe so that the researcher could refer back to them and verify data.

4.3. Selection of participants

The study used a non-probability volunteer sampling method in different locations. Different urban food gardens in Johannesburg were used as a sampling frame. According to Fowler (2008), a sampling frame is also dependent on those individuals that have a chance to participate in the study. With this in mind, the number of participants in this research was forty; the different numbers of women varied from one garden to the other. Most of the women gardeners were between the ages of 45 and 70. The Siyakhana garden was dominated by youths between the ages of 20 and 30, who were completing their academic requirements. The UAI is was also dominated by youth who had finished their academic studies and were pursuing farming.

4.4. Data collection methods

This study was carried out in different gardens around the city of Johannesburg. The same questions were asked in each garden. Table 4.1 summarises how the information for this study was obtained. It describes the information and data needed to answer each question.

4.5 Data analysis

Data were analysed through thematic content analysis. Thematic content analysis identifies, organises, describes, analyses, and reports themes that are found in the dataset (Nowell et al., 2017). Thematic analysis also allows the researcher to obtain an idea of the data based on the frequency of the themes within the whole data collected (Alhojailan, 2012; Braun & Clarke, 2019). This study used both the deductive and inductive approaches of thematic analysis. The deductive approach has its themes shaped by preliminary data, and research questions while the inductive approach is shaped by new information that arises from raw data (Roberts et al., 2019). Thomas (2006) indicates that the inductive approach should be used in conjunction with the deductive method because it allows themes to be derived from raw data, unlike using the deductive alone. This approach improves the credibility of the study. After analysing preliminary and raw data, the themes were then coded. Clifford et al. (2016, 650) state that “coding is a way of evaluating and organizing data to identify and understand meanings”. Coding exposes groups and patterns between

key factors, and it helps the researcher develop themes that are closely related to the conceptual structure of the project. Zhang and Wildemuth (2005) suggest the following steps for thematic content analysis:

1. Preparation of data.
2. Defining the coding unit to be analysed.
3. Develop categories and a coding scheme or conceptual framework.
4. Testing the coding scheme on a simpler text.
5. Coding all text.
6. Assessing the coding consistency.
7. Concluding the coded data (data interpretation).
8. Reporting of the methods and findings.

The aim and objectives, as well as the themes which emerged in the literature, were used to analyse the materials. It is important to find the similarities and differences between the existing literature on the topic and the data gathered. It is also important to compare the different locations and gardening types.

4.6. Credibility

Credibility refers to the accuracy with which the data from the participants was interpreted by the researcher. The researcher needs to be immersed in the data and make use of triangulation; which is the use of more than one research method, and the use of different data sites, at different times, and with different gardeners to increase the credibility of the data (Du Plooy-Cilliers et al., 2014; Nowell et al., 2017; Korstjens & Moser, 2018). Nowell et al. (2017) add that observation should be done more than once to understand the environments under study. In this study, the different research methods used were participant observation; the taking of field notes; and interviews. The researcher spent time with the participants to understand them and gain insight into their lives. The use of these approaches ensured that the researcher was open to new useful information from the raw data without only relying on the themes from the literature.

Table 4.1 A summary of data collection according to research questions

Research question	Information required	Data required	Data collection method
What benefits do urban food gardens have in terms of access to food; improved household income; knowledge production and preservation; empowerment and socializing?	Experiences of women working in the gardens. Experiences from women in other parts of the world.	Advantages of working in the gardens.	Interviews with the women at the gardens. Literature review on food security, women empowerment.
What barriers do women encounter in urban food gardens and how do women overcome these barriers?	Experiences of women working in the gardens.	Disadvantages of working in the gardens.	Review of the literature Interviews with the women working in the gardens
What kind of resources do women need to maintain and improve food production in urban food gardens?	The type of gardening. The area where they are doing the gardening.	Where do they get the resources? Are the resources enough?	Observation. Interviews with the gardeners.
How can urban governance structures support women in urban food gardens?	Policies on gardens establishment. The process of making a garden.	Local government funding to gardeners.	Review urban policies. Collect data on the views of the gardeners.
Do the physical characteristics of the study sites influence the food gardening activities?	Spatial information of each garden. Demographics	Location of the gardens. Who works in these gardens? How many people work in each of these gardens?	Information about the area Interviews with the gardeners and managers Observation
Does the location of the identified study sites have any impact on the food gardening activities in each garden?	Comparative analysis of the three gardens visited. How much do they harvest? What is the aim of the garden?	Overview of the Location of the gardens Impacts of the gardens on the community	Interview the managers of the gardens. Find out from the previous studies and analyze trends. Observations

4.7. Ethical considerations

Research must be based on a strong ethical foundation. The researcher was guided by a professional code of conduct during the study. These included ethical protocols ranging from participation, informed consent, confidentiality or safeguarding of personal information, and access to field sites (Du Plooy, 2014; Cilliers et al., 2014; Creswell, 2014). Ethics strengthened and guided the questions that the researcher

asked the participants; how the research was done; who was consulted; where and the order in which the survey was conducted (Resnik, 2011). The scope and how the results of the study have been used are also underpinned by ethical considerations (Babbie and Mouton, 2001).

This research was approved and given ethical clearance by the UNISA ethics committee (reference number 2020/CAES_HREC/020). Before carrying out the interviews, the participants were given a permission letter from the municipality and an information sheet with a brief of the study. The researcher also read out the consent form which provided a brief description of the study. This was done to accommodate some of the participants who indicated that they were tired and could not go through the information. Others were illiterate. The participants were also assured about the ethical principles of the study. That the study was for academic purposes, and they were free to discontinue the interview at any time.

4.9 Limitations and mitigations

Most women in South Africa are exposed to many dangers and this has an impact on their confidence in participating in the study; questions that ask personal information such as the level of education, breadwinners, and well-being of the household may have lead to gardeners withholding crucial information. To address this problem, the researcher managed to establish rapport with participants during participant observation. Documents like the permission letter from the city of Johannesburg, and the information and consent form were given to participants to provide clarity and information on how the interviews were going to be conducted and this helped build trust and confidence as well. The participants signed their willingness to participate in the study. In addition to giving a brief explanation of the study, the researcher also explained and assured them that confidentiality would be maintained in form of pseudonyms. Some of the gardeners asked that they should not be recorded, and this was respected.

Covid-19 Pandemic

This study began before the outbreak of the Covid-19 pandemic, which caused serious challenges due to pandemic regulations. Some of the proposed gardens were closed down completely, while only a few gardeners were able to work. This caused a delay because gardens were often closed or had only a few gardeners working. However,

different gardens around the city that were open were visited to reflect the experience of gardeners in the city of Johannesburg. The strict pandemic regulations like those of lockdown level 5 prohibited the researcher to conduct data collection as face-to-face interviews. To overcome this limitation the research was conducted during level 1 and Covid19 safety regulations were observed during the interview. These included the use of sanitisers, the wearing of masks, and social distancing.

Conclusion

Women gardeners managed to share their experiences during the interviews. With semi-structured interviews, they were able to relax and talk without a filter so that their views are heard. Through participant observation, the researcher was able to experience first-hand challenges faced by women by helping women gardeners in weeding and watering their vegetables. All the ethical procedures were followed during the data collection phase and limitations were mitigated to provide data that is credible and trustworthy.

CHAPTER 5

PRESENTATION OF THE FINDINGS

This chapter presents the empirical findings of the study. Although several gardens were visited around Johannesburg, only a few gardens were selected for the study. The majority of the gardens were community gardens. There was one rooftop garden. The findings are mapped as follows: first, each garden is presented separately starting with the background of the garden; second, the participants' voices discussing the benefits and challenges; in the third part, the participants' views of the measures that need to be implemented to improve the garden and their situation are presented. Although women were the prime participants, men were also found doing gardening and their input was important for analysing the attitudes of men towards women in gardening.

5.1 157 Lenin Drive Urban Farm

The 157 Lenin Drive Garden is in Alexandra Township in Johannesburg (see figure 1). It was formed by a group of women who came together because they saw a piece of land that was used as a dumping site by the community and criminals were using it as a hiding place. Alexandra is a well–established township that has attracted residents due to its location close to employment opportunities causing it to be one of the most poverty-stricken townships (Rudolph et al., 2021).

The size of the township is approximately 800 hectares, and the current population of the township is about 700 000 which is 10 times more than what was designed. This explains several socioeconomic problems in the area (Rudolph et al., 2021). According to Statssa (2011 census), about 25% of households do not have any form of income and 34% of households are female-headed. Based on April 2022 prices, the extreme poverty line shows that one person needs about R663 to buy food. With the high number of female-headed households, Statssa (2018) states that women are at high risk of falling into poverty, with only 2% likely to escape poverty. This is confirmed by Mushongera et al. (2022), who posit that multidimensional poverty correlates with income and women face challenges to entering the labour market. The people of Alexandra are considered to be food insecure (Dallimore, 2021). This is evident in the poor and inadequate infrastructure, overcrowding, informal settlement, and backyard

buildings. Alexandra is adjacent to Sandton, one of the wealthiest areas in South Africa and it is a good example of the high levels of inequality in South Africa.

Alexandra has a mix of formal and informal housing. The area is bisected by the Jukskei river. On the west bank of the river are formal structures that have existed since the early twentieth century, and hostel accommodations. On the east bank of the river, some houses were built as part of the post-apartheid reconstruction and development programme (RDP). Both areas have been infilled with informal backyard structures and there is very little land for backyard gardening. While the west bank has always been severely congested, on the east bank, residents continue to build shacks inside the small RDP yards. These are used as a way of generating income by renting them out.

Description of the site

In 2011, the land at 157 Lenin Drive was derelict. Community members were using it as a dumping site to deal with inadequate waste removal services. A group of women approached the City of Johannesburg Metropolitan Municipality and proposed the idea of a garden for various reasons: to provide food for their families; to reduce crime in the area; and to stop illegal dumping that pollutes their environment. The garden was formed in 2012 with over 100 community members.

The members of the garden were given training at the early stages of the garden.

> …we had a mentor who was training [us] and other organisation like Trees for Africa, and other people who see us from the website come and volunteered for a day.
>
> (Participant interviews, November 2021)

The resources to start the garden were provided by the City of Johannesburg. The garden has two tunnels that protect plants from poor weather. The members of the garden are allotted a piece of ground within the tunnels so that they can benefit from the advantages of planting inside the tunnels and maintaining output in winter. The City of Johannesburg also provided work suits, gumboots, tools, and seedlings.

> …In the beginning, the city provided us with some resources like Jojo tanks, fence and they promised to provide they will fix the water so that we do not struggle, as it is we cannot water the crops at the same time because the pressure is low and we do not have enough watering pipes.

(Participant interview, November 2021).

There is one rainwater collection tank (Jojo), and a packaging house where customers who buy in bulk can pack the products that they have ordered. The Lenin Drive Farm has one shared mobile toilet, located near the gate which is far from those gardeners whose portions are at the far end of the garden.

Figure 4.1 A picture of the tunnels (left) and a shade erected for holding meetings (Source: Author)

Figure 4.2 A mobile toilet (top left), the security guards' wooden house (top right), and the main entrance gate (bottom left) (Source: Author).

Participation and Governance

The membership of the garden has dwindled since 2012, due to a lack of funds for the monthly fees. Many of the original members of the garden expected to be paid and left when they realised that there was no salary.

> We were about 100 when we started this garden. It seems most of the people thought since the government is getting involved, we are going to get paid, and the officials who came when we started gardening promised us some money to buy equipment and people thought we were going to get paid. Seeing that there was no payment they slowly left one by one, as it is we are 13.
>
> (Participant interviews, November 2021).

Currently, there are thirteen members: twelve women and one man. Ten women and one man were interviewed in the garden. The ages ranged between 45 and over 60 years. All participants reside in Alexandra, close to the garden. Some participants have formed and registered further cooperatives with different names. These have been formed as subgroups of the members of the garden or with family members. Although the main garden is known as the Lenin Drive Garden. The gardeners also hire seasonal workers to help with digging, planting, and harvesting. Most of the people that are hired temporarily are migrants.

The garden operates as a cooperative, while members also form and register other cooperatives and private companies of their own within the main cooperative. A non-governmental organisation assists with the registration of cooperatives.

> We also have youths who have an organisation that helps us with paperwork, especially on our co-operative, these co-ops are like a board and they benefit from one portion owned by the main member.
>
> (Participant Interviews, November 2021)

The collective holds meetings and shares ideas and challenges which are then taken by the garden community leaders to the officials assigned by the municipality. There is no formality in working in this garden, members come at a time set personally and leave at a time suited to them. The leaders do not monitor how the members work in the garden because each member has their allotment, and they plant whatever they want in their portions.

Benefits

Several benefits relate directly and indirectly to improving food security for the garden participants and residents of Alexandra. In terms of direct improvements in food security, the garden provides an easily accessible and consistent source of nutritious food for the participants. Part of the produce is also donated to nearby needy families. The harvested produce is also sold to street vendors, who provide easily accessible food at a lower price. The indirect improvements were found in improved health and the building of knowledge and skills. The garden also provided seasonal workers with a temporary source of income, enabling them to buy more foodstuffs for their households.

The main benefit of the garden for the women that work in it, is that vegetables are always readily available and accessible to its members and members do not have to buy them. The garden is also easily accessible, as most of the gardeners are residents of Alexandra, they stay close to the garden,

> I stay close to the garden, my house is a few meters away, and sometimes when there is no water, I just fetch water from my own home and water my vegetables.
>
> (Participant interview, November 2021.

This garden is located close to transport and the Alexandra Mall, making it accessible to street vendors who buy in bulk to sell in their stalls close to the mall. Selling surplus

harvests to vendors also improved food security as it provided an income source for the purchase of other foods. Surplus vegetables are sold to gain an income which the gardeners use to buy other foodstuffs and other things that they need.

The Lenin Drive Garden also provided financial recognition to those that worked and planted a range of crops. One of the women highlighted that, through working hard in the garden, she was able to raise a lump sum of money that she used at the new farm which was given to her by the City of Johannesburg (COJ) as a reward.

> I came with the vision to grow organic herbs to educate the community. I am an entrepreneur, so when I do things, I do it with a business mind. I grow herbs medicinal and culinary herbs. I got a reward from COJ because they saw I was doing a great job. They gave me a three-hectare [piece of] land.
>
> (Participant interviews, November 2021)

While this kind of reward-giving enabled women to move up the commodity chain and make a greater profit, it also enabled them to employ others. The women of the garden hire people especially during the land preparation time because there is a lot of digging. The work is temporary, and the gardener's price is negotiated according to the length of the beds. The gardeners pay with the money they get from selling vegetables from the garden. These temporary workers indicated that working in this garden provides them with income because jobs are now scarce, and some have been laid off from work due to the Covid-19 pandemic. Most of the hired workers are migrants from Zimbabwe and Malawi and the piece jobs they get from the gardens have enabled them to survive through the pandemic and also send some back home to their families. Both the temporary and permanent gardeners agreed that there is money in gardening if one is patient, one respondent said that they can go home with R100 to about R300 in one day which helps improve the situation in their households.

The garden not only improved food security in terms of improved income and direct access to food. It also acted as a safety net for the surrounding community. Ubuntu is one of the foundations of the garden and the women donate food to disadvantaged people in nearby homes. Furthermore, if any community member needs food, they do help.

> Besides getting food for my family and selling it, I do donate some of the vegetables to old age homes around. We also give some vegetables to the needy like child-headed homes.

(Participant interviews, November 2021)

> I donate to three organisations, for senior citizens, children with disabilities... For indigent burials, the councilors come and collect once a week to help child-headed families.
>
> (Participant interviews, November 2021)

The garden provides the members with fresh nutritious vegetables and increases dietary diversity. The members also agreed that they do not go home without produce and, even though they might not be able to buy other foods, they do not go to bed with empty stomachs.

The direct benefit of a stable food source is the improvement of nutrition in the households of the women gardeners as well as the beneficiaries of the garden. A few women mentioned that an indirect benefit of the garden is improved physical health through exercise. Working in the garden is difficult, but it is a form of exercise for them.

> We are gyming here in this garden, this walking up and down helps our bodies to be fit and reduces high blood pressure.
>
> (Participant interviews, November 2021)

Since most gardeners are middle-aged, they find it more rewarding to do some work than to stay at home doing nothing.

> This garden has helped us in this pandemic, we were able to use these herbs to keep our bodies strong.
>
> (Participant interview, November 2021)

This garden provides great benefits to the gardeners and the community at large. These benefits go beyond food which calls for government support to maintain stability and increase production. This calls for a look at the factors that hinder gardening at the Lenin Drive garden.

Challenges

With all the problems that come with cooperatives, Lenin Drive Farm is no exception. Different people have different ideas, and it may result in disagreements or unavoidable clashes between the members; with some becoming spiteful. One of the main disagreements is the issue of labour. For example, the garden was not initially conceived as an allotment garden, however, as conflicts emerged around how much

effort different gardeners put into maintaining crops, this model became a means to deal with them.

> We were not supposed to do the portions but some people do not work, and I am an entrepreneur so I work harder to make money.
>
> (Participant interviews, November 2021)

> We were working together but it didn't work because we were not putting in the same effort. After all, others just for two hours others want to work [consistently]. Luckily enough I got a bigger space because I work hard. Some of the portions are registered some are not.
>
> (Participant interviews, November 2021)

> The issue of portions, however, also was caused by disagreements where other members will work as they please but when it comes to harvesting, they want a fair share.
>
> (Participant interviews, November 2021)

The allotment system, however, also had its problems. Those who are allotted portions far from the entrance of the garden are at a disadvantage when it comes to buyers.

> Do you see where my portion is at the back and people do not come down to me, I can also go for a week or a month without anyone buying from me?
>
> (Participant interviews, November 2021)

Conflicts around labour also emerge with hired labour. Some of the women who cannot manage to work in the garden hire temporary labour to work for them, but other members do not let hired people work freely in the garden.

One of the benefits of collective gardens that is frequently cited in the literature is the promotion of social cohesion through socializing. In the Lenin Drive Garden, the ad hoc nature of the work makes socializing difficult. Members come at different times, and they work separately in their allotted portions. The time for socializing should be during meetings when members get together, but I observed that some members do not even attend the meetings. They say the meetings are a waste of their time.

The research participants also raised several issues regarding the governance of the garden. Their first issue related to the availability of representatives for the garden. This garden is led by women who are involved in politics, and they are always attending party meetings and spend less time in involvements of the garden

> Our representatives are with the ANC women's league, and they have many activities which make it difficult to focus on the garden. At the same time, they can't employ someone who will maintain the garden, and this is so frustrating.
>
> (Participant interviews, November 2021)

The second governance issue relates to the relationship between the local government and the gardeners and more specifically to a lack of ongoing support. Initially, the City of Johannesburg donated tools and work clothing to the gardeners and promised to help them with money to buy other inputs and working gear. This support quickly dried up,

> The officials launched this garden well and told us that since we are planting vegetables, we need money to buy mealie-meal, they gave us vouchers but after that, they never came back.
>
> (Participant interviews, November 2021)

> The city of Johannesburg is full of promises, but they do not fulfill their promises…as for me, I don't have the time because I will wait forever.
>
> (Participant interviews, November 2021)

In some instances, the support from the local government was very limited. The City of Johannesburg, for example, agreed to support the women with security. Although very few gardeners expressed problems with security, they said that the security provided by the City of Johannesburg was erratic. The guards do not come every day because they guard other places like municipality offices and clinics.

Another issue with local government is related to issues of inefficiency. Extensive bureaucratic delays on the part of government officials impaired the women's chances of getting help from other organisations because of a lack of proper paperwork. For example, one gardener commented:

> There is an organisation that is also promising to help but we still struggling to get the lease from the City of Johannesburg, because this organisation says it cannot help if they do not know who is responsible for the payment of services like water and electricity.
>
> (Participant interviews, November 2021)

In conclusion, Lenin Drive garden shows that women are more dedicated to providing food for their households. This garden serves the community by providing vegetables to the needy, donating to the less privileged, and selling vegetables at low prices to the community. The garden may not produce enough nutritious food for a complete

diet, but gardeners always have something to eat every day. The involvement of the Department of Social Development is minimal because gardeners do not have enough resources needed. Although challenges are inevitable, interventions are needed to increase production which will provide food security and improve the standard of living in the community.

5.2. Siyakhana food garden

Siyakhana garden is found in the suburb of Bezuidenhout Valley (also referred to as Bez Valley). It is surrounded by other middle-class suburbs like Kensington, Cyrildene, and Bruma. On the west side of the garden are the far poorer suburbs of Yeoville and Bertrams. The garden is in the Bez Valley Park, which was formerly part of a farm that was donated to the city of Johannesburg by the Bezuidenhout family.

Description of the site

Siyakhana is an organic food garden that operates as a cooperative. It is about 4 hectares, and it has 9 permanent employees, and the rest are casual workers plus students. Of the 9 permanent employees, there is only one woman. Eleven participants were interviewed. Women students from the Tshwane University of Technology (TUT) and 5 women volunteers we interviewed. The women who were volunteering stated that they started as regular customers and because of a lack of jobs, they came to look for employment. They were told that they could start by volunteering and that if employees were needed at a later point, they would get first preference.

Figure 4.3 Siyakhana Garden (Source: Author)

The garden operates formally because most of the operations strictly follow rules and regulations. There are schedules, timesheets, and produce sales documented, and all their certificates of operation are attached to the wall in their reception office. Gardeners have protective clothing strictly for working in the garden. The gardening activities start from 08h00 to 15h00 from Monday to Friday while on weekends they start from 09h00 until 13h00. Only casual workers work on weekends. Volunteering women only work on two days of the week, Monday and Friday. They start work at 8:30 am and knock off at noon. Sometimes when there is more work, they are called to work from 8 am to 3 pm for an amount of R100 a day.

Although Siyakhana is a community garden, it offers agricultural skills to anyone who wants to learn more about farming. Students are allowed to improve their gardening skills through practical work. To gain more knowledge about Siyakhana, one of the members of management was also interviewed. He said that Siyakhana started in 2005 under the University of Witwatersrand, and students were then allowed to volunteer. The produce was then donated to schools and food-insecure people in the surrounding communities. The involvement with the university ended over the years, and it was then registered as a cooperative in 2016. Although some of Siyakhana's harvest still goes to charity, it became a profit-making garden. The garden now supplies restaurants, schools, and nearby communities with vegetables.

The manager proudly emphasised that all the produce from Siyakhana is certified as organic. This certification does not allow them to use any artificial fertilisers, and it is renewed every year upon inspection. The garden, however, struggles during the winter season because the area is very cold. This is because only 10 types of vegetables are grown in winter. The garden currently has only 2 tunnels which are inadequate. These tunnels only take 3 beds each, which means that only 6 types of vegetables can be grown. During winter it is frosty and working in the garden is very difficult; as a result, only a few casual workers come. Things take a different turn in summer when the garden produces more than 25 different types of vegetables, herbs, and fruits.

Figure 4.4. Two tunnels are used during winter (Source Author)

The garden has only one permanent salaried employee who is a woman. She works as a bookkeeper. When asked why they do not have more women in their garden, the manager said that they are willing to have more women, but they are limited due to budget and lack of machinery that can make the tasks easier. In terms of funding, the government keeps on promising them, but nothing happens. The manager also indicated that he has stopped attending municipality meetings because he does not find them fruitful, and he would rather work in the garden. Furthermore, Siyakhana does not receive government funds. He reported that they survive through donations from an NGO because they have seen how the garden provides food for the schools.

Figure 4.5 The Siyakhana Garden

The Board of the price list on the side is different operating documents/certificates (top left). Bulk packaging (top right). Shaded area for meetings and rest (bottom left and right). (Source: Author).

Participation and governance

The Siyakhana food garden has only one woman who is permanently employed. All of the students who participated in this study were students from Tshwane University of Technology (TUT) and they were doing the practical component of their studies which takes 6 months to 12 months. The students said they choose Siyakhana because they were given a stipend and it offered them the practical work needed for them to graduate in their Agriculture course. Most of the students came from Limpopo while only one came from KwaZulu Natal. There were also women volunteers from the surrounding area between the ages of 30 and 40. These women are volunteering with the hope of getting employment. Although these women stay in Johannesburg they were originally from outside the city, and some were migrants.

Benefits

One of the main benefits of Siyakhana garden is income and it is experienced differently by the gardeners. Student participants said that working at Siyakhana provided income in the form of a stipend. With the stipend, they can pay rent since they are far from home, and they can buy food and other necessities without asking their parents. Some even said they sent some remittances back home from the stipend.

Volunteers said that they do get asked to come for piece jobs and get paid. Even though it is not sufficient, they managed to get other foodstuffs to complete a meal or other household necessities. Participants applauded Siyakhana for producing different types of vegetables organically which are very healthy. The compost is made from weeds, tree branches, grass, and tree leaves. They said that making compost also made them realise how useful leftovers and other materials they used to throw away. The experience showed them that they should change how they do things at home, by making their small gardens using empty tins just for family consumption.

Figure 4.6 Organic compost and three types of vegetables in a shade (Source: Author)

Participants have acknowledged how Siyakhana has helped improve their knowledge. They feel empowered because they develop more than practical growing skills, but also entrepreneurial and business skills. One respondent said,

> I can recommend Siyakhana to other people because this garden provides training, and it offers other valuable skills. They organise classes to teach us Microsoft skills, entrepreneurial and business skills so when I live here, I can be able to go home and start my own business.
>
> (Participant interview, November 2021)

They also said that now they can start their gardens from scratch including land preparation, sowing, weeding, and harvesting because Siyakhana allowed them to be involved in every step of gardening.

All participants mentioned that at Siyakhana, they are all treated well, and they feel at home. Although most of the women came from TUT, they came from different backgrounds and first met each other at Siyakhana. The friendly environment means

that the garden offers all gardeners, including casual and permanent employees, an opportunity to work well together. One respondent said:

> I come from KZN and most of the people here are not Zulu speakers, but they are so accommodating to me by speaking Zulu. The people here are friendly. Both my colleagues and the other people we found here are so helpful, it's like we have known each other for a long time.
>
> (Participant interview, November 2021).

The herbs that are produced in the garden are very helpful, especially during the cold season, to prevent colds and flu. They also revive the African methods of treatment and with the Covid-19, some people mentioned that herbs such as ginger, lemongrass, and *umhlonyane* were widely used to prevent the virus. Although it was not scientifically proven, most households believed it helped them.

Challenges

When asked about the challenges they face in the garden, the majority of the participants were happy to work in the garden, but a few mentioned that they are facing challenges with the permanent members of the garden because they do not accept change and when they give suggestions they are not implemented or acknowledged.

> Sometimes when we discuss if we say something they always say no because we have book knowledge, we cannot tell them how things are done and things are changing they do not want to change they stick to what they know. It becomes difficult to reason with them.
>
> (Participant interview, November 2021).

Siyakhana does not have security guards or any other security system and it has experienced several crimes. One of the respondents recounted one of these,

> One day some community members came to pretend like they are buying and later demand more than they pay for and threaten to hurt them if they don't [get it]. We couldn't do anything but give them what they wanted.
>
> (Participant interview, November 2021)

The women expressed concern about their safety and the safety of others in the garden. The respondent added that one of their gardeners, a man, was once hurt by thugs in the evening trying to steal vegetables.

Although this garden does provide workers with gardening clothing, not all gardeners get this benefit. It depends on whether you are permanent or casual. This is a concern as volunteers are not catered for.

> No, we are not given anything, I think the reason is that we are doing this of our free will.
>
> (Participant interview, September 2022)

The participants, especially the students, mentioned that they feel let down by the government as agriculture students because, after they finish their studies, they just stay at home with no jobs or opportunities to further their studies. The government keeps promising to give resources to young farmers but, even if they apply, they are always rejected, or they do not get a response.

Participants also mentioned that Siyakhana is not well known by people. This was also mentioned by the manager. Bez Park holds a Parkrun on Saturdays, and most people play social soccer in the park, but as the garden is tucked away, so most do not know about the garden. To demonstrate this lack of knowledge of the garden, one respondent said she stays in an area less than a kilometer from the garden but people in the area do not know that there is a big garden called Siyakhana. There is no clear road that goes straight to the garden. People who manage to come to the garden always complain about the road because it needs to be reconstructed. The manager said that they have asked City Parks to help with the road, but they turned them down without any valid reason.

The target market for Siyakhana is now increasingly, middle-class people. Prices of the products are higher than what is sold at vegetable markets, and combo boxes that are sold do not cater to the surrounding community because it consists of different vegetable that only a few people eat.

> If you look at the combo box it has different types of onion and leeks, and our people just need common vegetables it is expensive it cost R220, and a bunch of spinach is R15.
>
> (Participant interview, November 2021)

Figure 4.6 Vegetable selling

A variety of vegetables for a combo box (left); A scale to weigh an R15 bunch and a board with prices (right) (Source: Author)

Figure 4.7 A newly made bed before planting (Source: Author)

The management also mentioned that it is difficult to trust the government because they always promise to help them, but everything ends in applications. Stating that they have given up on waiting because, since the garden started, the CoJ Metropolitan Municipality has given them only a few tools (now five years old) that need to be replaced. Other workers in the garden shared their concerns over the tools that they

use, they said the tools are old and they are no longer sharp; when they are digging, they take time to finish a simple bed and they end up with blisters on their hands.

Participants mentioned that, for Siyakhana to be better, the main members should not look down upon students; a common treatment the students receive because they do not have practical knowledge. Students who come to Siyakhana have new knowledge that can also help the garden to improve. This is because things are evolving globally and locally, and it is often the younger generation that is more open to learning about new ways of performing tasks. This kind of knowledge may be beneficial to the garden and other members.

Participants highlighted that it is important for Siyakhana to improve on marketing so that the garden can be well known by people in surrounding areas. They said that most of the people who come to the garden come from far and it is mostly white people who come to buy combo boxes and fertiliser. They mentioned that the signposts of the garden should be big enough so that people can easily read them from afar. The manager also said that there should be a straight, clear road from the gate to the garden.

Siyakhana is an organic garden and, as a result, prices are much higher than the ones for supermarkets. This is a reason why most poor people in the surrounding areas prefer buying from the supermarket to buying at Siyakhana. The combo boxes are sold at R230, which is much higher than an average family in the community to afford.

The Siyakhana garden is very big and, if the government can provide them with the help they have promised, this garden has the potential to improve food security. Lack of funding is a challenge for Siyakhana, and that is one of the reasons why the garden has only five permanent members and the workload is too much for them. This is a negative factor contributing to the garden producing fewer vegetables. The manager also added that, during summer, they harvest a lot, and sometimes food gets spoiled. Therefore, they need processing machines so that they will be able to process fruit juices and other vegetables and sell them during winter when the product is less. There also needs to be a distribution center for excess vegetables so that poorer community members in the area can access vegetables that are otherwise dumped.

Most of the student participants showed interest in working in the garden and they said that they would recommend it to other learners after they finished their training. They have stated more benefits than challenges in the garden because they do not work in the garden for survival. The management, however, highlighted several challenges due to a lack of resources and commitment from the government. Siyakhana food garden has great potential to produce more food to reduce food insecurity and poverty, provided that the government and other stakeholders work together to provide some of the needed resources. Volunteers also added that since they are told that the garden is waiting for funds, if these funds come, this garden could help in employing people from the surrounding neighbourhoods and this could help reduce crime.

With all being said, Siyakhana overall does not serve poor communities with food security because of its prices. This garden is more beneficial to students and other people who want to gain knowledge and experience in farming. During observation, I noticed that this garden was more popular in the academic world because most of their bulk buyers were wealthier schools and middle-class people. Although there were people who use the park for different sporting activities like park running and soccer none of them were aware that there is a garden in the same park which shows that their target market may be exclusive.

5.3 Observatory Community Garden

The Observatory community garden is located at Sacred Heart College, a private school in the Observatory suburb. This garden was formed by community members in 2021 to help the needy during the sudden shock that was caused by the Covid-19 pandemic. This garden is about 400 square meters. It is, however, located in a very rocky area and this is a challenge to the gardeners.

Description of site

The suburb of Observatory is one of the old suburbs (established about 100 years ago) and lies between the suburbs of Kensington and Houghton, in the northeast of Johannesburg. The suburb is occupied by middle and upper-classed people, and it is next to Yeoville, which is now impoverished, overcrowded, and fast deteriorating (Benit-Gbaffou, 2006). Community members, most of them women, came together and asked the school for a space to do gardening to supply community kitchens in and around Yeoville. There are no permanent members of the garden. Anyone in the

community who has time can come and work in the garden. Their work is voluntary and charitable. The garden grows mainly spinach, chomolia (widely farmed in Zimbabwe and Zambia), beans, and sweet potatoes. Members bring their tools to work in the garden and water is provided by the school.

Participation and governance

The name of the garden is called Observatory CAN. Members communicate via a WhatsApp group chat to say when they are going to the garden. They have one dedicated member who informs them if there is anything needed. For example, during the rainy season when many weeds grow, more people are needed. This garden has about 10 active members who are the stakeholders in Observatory CAN and the convenors of local food kitchens. The school provides refugee learners around the community with classes. These learners have also joined the garden, and some have shown keen interest in gardening and have joined the garden WhatsApp group to show their commitment. This garden harvests 10kgs of vegetables every week depending on the season, but the school has given the gardeners more land which means that the harvest will increase as well.

Benefits

The benefits of this garden are mostly felt by nearby community food kitchens because this garden was established to help the needy. Every weekend the garden provides food kitchens with vegetables and these kitchens provide meals to the homeless and poorer community members. Most of these kitchens are run by churches and they also provide impoverished homes in the area with food. The gardeners are also free to take vegetables whenever they want.

Members of the garden expressed that they get physical exercise when working in the garden. They also enjoyed the psychological benefits because the garden just gives them satisfaction.

> We come to the garden when we are free, this is a form of refreshing myself, trying to get some fresh air out of the house. Sometimes instead of taking a walk I come and do gardening, it is a form of exercise.
>
> (Participant interview, October 2022)

Challenges

Gardeners expressed that lack of land is the main problem because the school gave them just a small portion which is not enough to cater to a large number of people or kitchens. The space that they were given is very rocky and it's difficult to cultivate given that these gardeners have to provide tools for themselves. The other challenge is that the members are inconsistent since they do not report to anyone.

> The problem that we experience here is that the land is small, we cannot harvest enough as we would want to, this space is rocky, so it is difficult to work [and] one gets tired very easily and we get sores on our hands. That's why people are not that committed.
>
> (Participant interview, October 2022)

Observatory CAN is a charity garden, and its purpose is mainly to help poor people close to their suburbs. Members work in the garden of their free will and enjoy the personal satisfaction benefit of gardening as an activity as well as the eudemonic benefits of caring for others. I spent some time working in the garden with CAN as I live in one of the surrounding areas. From my participant observation, the experience of gardening at the Observatory CAN garden is quite different from that of the other gardens observed. Although the members were allowed to take vegetables, during participant observation none of the members went home with any. There was a strong sense of connection through the collective purpose of the group and the garden plays an important role in assisting marginalised and vulnerable people.

5.4. Bambanani Food and Herb Cooperative project/ Fountain of youth garden

The Bambanani food garden was one of the inner-city urban farms located in Bertrams. Bertrams is one of the oldest suburbs in Johannesburg named after its founder Robertson Fuller Bertrams in 1889. This suburb was known for its calm and friendly ambiance, however, that has changed. It is now considered one of the most dangerous neighborhoods in Johannesburg. Poverty, drugs, and dilapidated buildings are the norm in the area. Although there was development to upgrade the area associated with the Soccer World Cup in 2010, not much has changed. Poverty, overcrowding, and unemployment persist. While this garden was one of the more successful endeavours that I found during this research, it was closed soon after I had completed my research there.

Description of the site

This garden was founded by Refiloe Molefe (also known as Mama Fifi) in 2006. Because of poverty and household food insecurity in the area, Mama Fifi approached the City of Johannesburg's local council to ask for permission to use the piece of land was granted (van Niekerk, 2022). In time and with the help of the community and NGOs, the garden became productive and well-known. Its main foci were feeding children and giving gardening education and skills to the youth. It also attracted academic institutions like the University of Johannesburg, Witwatersrand, and the Tshwane University of Technology to train their students in agriculture (van Niekerk, 2022).

This garden was mainly organic, the reasoning that the organisers wanted the community to reduce their intake of genetically modified foods. An organic garden was also easy to start up for community members because they could use household waste as compost instead of buying costly fertilisers. The garden received some resources from an organisation called GIDARD although it was not enough. Two tunnels were used during winter as some crops die of frost. There was also a packing house that was used to pack vegetables for sale and processing (make juices from spinach, ginger, carrots, and beetroot).

Figure 4.8 The welcoming board for the Bambanani garden (Source: Author)

Participation and governance

This garden was run informally and there were no permanent employees, casual ones due to a non-existent budget. The workers were paid as they come, and most of the people only came during holidays and weekends because they had other commitments on weekdays. The garden also accommodated young children during weekends and school holidays because they aimed to instil a farming culture in young kids as well. The management stated that the garden operated throughout the year; however, the production was lower during winter because some crops are affected by the frost, and only the crops planted inside the tunnels survived.

Figure 4.9 Gardeners planting vegetables outside the tunnels (Source: Author)

Most of the participants that I managed to interview were unemployed, but they survived by doing piece jobs in the garden and other places. They were between the ages of 19 to 30 years, and they seemed to be literate, although they did not disclose their level of education.

Benefits from the garden

The gardeners mentioned that farming is the only way to fight poverty because it is through farming that the garden can provide them with nutritious vegetables that keep them healthy. One gardener mentioned that, since he had been working in the garden, he had never visited the doctor just because of organic vegetables.

> As it is, I don't even want to get vaccinated because I know that my immune system is strong because I don't eat the junky you guys eat, I eat healthily. I look like a person who goes to the gym I am fit because of gardening.
>
> (Participant interview, November 2021)

Most of the produce of the garden was sold to the community at low prices. Being located in a poorer area with a lot of homeless people around, the garden also had a kitchen that operated on Tuesdays and Thursdays to help feed the poor. This humble initiative started during the Covid-19 pandemic because the community was food insecure due to layoffs at work. One of the gardeners said,

> As a gardener, I feel that my role and the little that I do is beneficial to the community through this kitchen.
>
> (Participant interview, November 2021)

This garden was open to anyone willing to help or anyone willing to gain knowledge and skills in urban farming. An example of the outcome of this is that a few women in the community who had asked for seeds, later came back to inform them that they had managed to grow a small garden. This garden was helpful and saved them a lot from spending on vegetables.

This garden provided skills for the youth, and it had partners who helped with the community kitchen. The University of Johannesburg also brought about 20 volunteers who helped with cultivating and watering crops. While I was working in the garden, primary school learners came and were given lunch money. This encouraged children to come to the garden, not only for incentives but to learn more about gardening at a young stage. Despite the garden selling vegetables, those community members who could not afford them were given them for free.

Challenges

The garden was not funded, therefore, there was a shortage of funds to pay the workers. In these circumstances, the workers did not come again, and this hurt the daily activities in the garden. In addition, the workload was very high due to the lack of permanent workers and the lack of sophisticated machines which could have saved time and energy.

One of the main challenges was that the community was not helpful, and they did not want to work. One gardener said that,

> We live in a society that believes the government should take care of them. For you to see that the community is used to free things to come on Tuesdays and Thursdays because we cook you will not believe there will be a very long queue to get free food. If you tell them to come

> work, especially these homeless people yoo they can even burn this garden [in anger].
>
> (Participant interview, November 2021)

The manager emphasised that they needed support from the government in terms of funding and expertise. Additionally, the government should be more on the ground to see the challenges faced by inner-city gardening as opposed to the status quo where the government only donated resources, like tools, without teaching people how to use them. Furthermore, like Siyakhana, these resources were not replaced when they became old and broken.

The gardeners also said they wished to get funding because everything needed money. They believed that the government should not let other organisations like NGOs be the ones helping with gardening, because their funds were not enough.

One gardener indicated that sometimes some of the officials who were in charge of overseeing urban gardening were not well experienced or skilled. They only have theoretical knowledge, which is not practical. For example, one gardener said,

> I wish farming can be implemented in schools. It is supposed to be a must for every black child because farming is practical. Again, the issue of land expropriation is very difficult because farming is the only way to improve our lives and if it is not taught, the land will be taken but no one will be able to use it…we know where we going to take land but we don't know what we will use it for.
>
> (Participant interview, November 2021)

The Bambanani cooperative showed great potential for producing enough food to reduce food insecurity in surrounding communities. However, due to a lack of permanent employees and dedicated community members, its harvest produce was very little. Like other gardens, the manager also highlighted that a lack of resources and funds was a major factor contributing to the poor performance of the garden. One outstanding thing that the garden was doing, however, was that it acted as a safety net during the difficult times of the pandemic. It continued to serve the community by cooking for them and giving them free vegetables.

In summary, the Bambanani garden was beneficial to the community by providing food and knowledge to both children and adults. The community of Bertrams received cooked meals during the sudden shock of the pandemic and this shows how important the garden was for the community. Although during participant observation, I noticed

that very few community members were willing to come and help with gardening despite receiving get cooked meals on Kitchen Day. This shows how difficult it is to improve household food insecurity as stressed by the Theory of Access – sometimes having a resource does not mean one can benefit from it. While the garden was available for all to participate in, people were reluctant to get involved to produce their food.

In 2022, despite having served the local community for 16 years by providing affordable organic vegetables, nutritious juices, farming knowledge, and food for community feeding schemes, the City of Johannesburg demolished the garden to build a Multi-purpose Centre. Mam Refiloe argued that she was not consulted, and she did not have time to prepare an argument against the closure of the garden (van Niekerk, 2022). This is an instance where the community was not consulted about the decision to close the garden. If we go back to the idea of the Gendered Food Systems Framework, one of the core components of an equitable food system is the participation of urban citizens in decision-making processes. In this case, the community was not engaged. While the garden had its problems, it served an important function and could have been refurbished and reorganised to continue providing marginalised and vulnerable members of the community with much-needed care.

4.5. Urban Agriculture Initiative (UAI)

The UAI is an NGO that works with local farmers in the inner city to localise urban food systems in a way that is environmentally friendly, profitable, and sustainable. This was a mechanism formed to empower the urban population through the promotion of rooftop farming in the City of Johannesburg. Under the UAI, farmers are provided with resources and technical support, while ensuring that the food produced has a market soon after harvesting. Farmers in this organisation are provided with entrepreneurial skills so that they work towards improving their lives through job creation, poverty alleviation, and food security. This NGO was established in 2018, and it is currently running 6 gardens with 2 nursery farms. The garden has 8 gardeners of which only 2 were women.

The UAI runs several gardens and most of its farmers are young people who have finished their studies in different academic fields. Rooftop gardens are usually based

on hydroponics and are far less labour-intensive than any other urban production method. Most of the gardens only had one farmer to maintain them. I visited a few rooftop gardens but chose to focus on the Outreach Foundation because of its location in the inner-city Hillbrow area. Hillbrow is a densely populated area of high-rise apartment buildings. A large number of households live in poverty, and it considered to be a crime hotspot in Johannesburg.

Description of the site

The Outreach Foundation is an NGO that provides support and development to people living in the inner city of Johannesburg and the surrounding areas. This foundation helps to empower people with skills that will help them to sustain themselves. This site was chosen because there are a lot of women who come to the Outreach Foundation for training in different manual work programmes. These women also get to be involved in rooftop gardening whenever more hands are needed, and this helps with the sharing of knowledge and awareness. All the resources of this garden are provided for by the UAI organisation.

Figure 4.10. The signpost of the outreach foundation (Source: Author)

This garden uses hydroponics, and each tunnel can produce about 3600 plants. Usually, only one person is responsible for the whole garden. The technical supporter only visits the garden if they face challenges with maintenance, and when they need to observe what needs to be done for the gardens to run properly. The women

highlighted that this garden initiative has the potential to provide food security because of its high productivity over a short period.

Figure 4.9 Outreach foundation garden (Source: Author)

Participation and governance

The Outreach Foundation is mainly operated by one man, who reports to the technical manager. Women from the Outreach Foundation occasionally help in the garden whenever they need extra help during harvesting. The technical support manager of the Urban Agriculture Initiative (UAI) is a woman, and she communicates all the information about what needs to be planted and where there is a demand for crops. I spoke to some of the short-term women workers, and they said that this type of urban farming is very important and advantageous to women because it is less physically taxing. The maintenance of the garden is also less time-consuming than traditional methods of gardening (in terms of weeding and pest control for example) and this could give them time to take care of other responsibilities. One of the participants indicated that he only spent two hours a week in the garden to maintain it.

Despite these advantages, this initiative is dominated by men and there are very few women involved. The manager did indicate that women have shown interest to join the initiative when they hold meetings locally and the hope is that more will join in the future, provided they get funding. The garden produces all year round, but they plant according to the client's demands in all of their gardens. The Outreach Foundation garden, however, has a section of plants planted in bags with soil, and this produce is sold to its members, and some are sold to the community.

Benefits of the garden

Training in different methods of farming is beneficial. The community associated with the Outreach Foundation help during harvest time, and this helps them to see how the hydroponics system works so that they can erect them on their own at home or in another suitable place. There is a higher output of produce than ground farming and it is far more compact.

When asked about the produce, gardeners said that most of the produce from the bags is sold to the staff and the community. Besides that, they grow plants for big supermarkets. Some of the produce from the bags is used for the Outreach Foundation's charity kitchen.

> Farming using hydroponics is usually all year round and it takes up to 6 weeks for most of the crops to be ready for harvesting. Different types of crops are planted beside the main crops we grow for specific customers.
>
> (Participant interview. November 2021)

Figure 4.11 A tunnel of hydroponics and plants in bags (Source: Author)

Challenges

Rooftop gardening seems to be gaining momentum to accommodate more women but some of the inputs are expensive and there is a lack of funding. Here, as in other gardens, applications are submitted to the government, but these are not granted or have been in the system for some time (applications for assistance had been pending for 18 months at the time of the interview).

> Since we started here, he has been sending funding applications every year but no response from the government's why more women do not know about rooftop gardening.
>
> (Participants interview, November 2021)

Unfavourable weather conditions such as frost do affect seedlings, and some of the machines are complicated. The gardens also need more people to harvest to avoid a situation whereby they fail to deliver to their customers. There was little money to pay permanent salaries and relying on casual workers can be risky.

Ownership of property also affects rooftops. Gardeners expressed concerns over the future of rooftop gardening because some gardens were closing. They said since the buildings they operate in are owned by companies, when they decide to sell the building all their planning and operations are affected. This frequently happens because the new owners decide they do not want gardens on their properties. One of the main measures stressed by technical support is planning.

In conclusion, UAI gardens provide a different type of gardening that is beneficial in terms of harvests and labour and can reduce food insecurity when promoted. This garden has huge harvests in a short space of time in limited space. This garden is less labour-intensive. The garden does serve the community to an extent, but as most of the harvest is sent to formal retail shops, it is neither a priority nor are the fruits of the hydroponics earmarked for the local community. As an entrepreneurial initiative, the gardens have indirect benefits for the community. There is great potential in rooftop gardens as small-scale business ventures, and these could very well be managed by women to improve their food security both in terms of growth and in terms of selling the produce. It is also less labour-intensive and uses up spaces that would generally be open in the city. The drawbacks are the inputs are more expensive and the growing requires some skill. The produce from the rooftop gardens does have the potential to move women food producers higher on the commodity chain, however, and the food system (including retail buyers and government) needs to support their entry into the more profitable aspects of the food chain.

5.6. Soweto Orlando Garden

The Soweto Orlando Garden is located in one of the most well-known and largest Black townships in the country. Soweto is located in the southwest of Johannesburg with a population of about 3.5 million. Soweto is diverse with all indigenous groups

represented. Women account for up to 57% of the population. With the marginalization of all townships during apartheid, Soweto is still underdeveloped and under-resourced (Briedenhann & Ramchander, 2006). Like many other townships, Soweto comprises formal and informal housing with the population growing exponentially. There is a high crime rate, poor service delivery, and unending service delivery protests.

Description of the site

Like the Lenin Drive Garden in Alexandra, the site of the garden was a dumping ground. This garden has an area of approximately 800 square meters. This is a poorer area and access to infrastructure is very difficult for the residents, so this garden struggles with resources like water. Food insecurity is high and there is a shortage of land in the area. Most of the urban poor in the area are unable to supplement their food intake by producing food around their residences. For these reasons, a group of women resorted to growing on the dumpsite which is a risk in terms of pollutants. The garden is cultivated seasonally because the gardeners depend on rainfall. They start farming during the rainy season which is from October to May.

Participation and governance

This garden was formed in 2000 by a group of about 10 community members. The group consists of nine women and a man. Most of the gardeners in this garden are elderly women between 40 to 80 years of age. Although the gardeners are elderly (some are not even sure when they started), these women are bound by Ubuntu and they always welcome new members. The garden runs as an allotment garden with each member having their portion of the garden. It is managed by the gardeners without the interference of any organisation or government which makes it difficult because there is a lack of resources and proper tools. However, some of the gardeners indicated that they felt that working with government lead to unfulfilled promises and other problems.

Benefits

The garden has a direct impact on household food security for the gardeners. They take produce at no cost and sometimes they sell to the community to get some income.

> The main person who started this garden is my mother, I then continued after she passed away. I started in 2017 because of poverty. I am not working [and] this will help me to feed my kids. I am a single mother my husband passed away. So, life has been

> difficult for my kids. I then decided to come and grow vegetables to provide food for them.
>
> (Participant interview, November 2021)

They do have regular customers (street vendors) who buy the vegetables for resale. The gardeners who started, in the beginning, were farming only for their household consumption and were sharing with other community members until they started to sell and realised that they could gain some income through this garden. The gardeners explained:

> At first, we were giving [the produce to] people and one day my fellow gardener was like I want to start selling for R5 a small bunch, but now we sell for about R25, and sometimes a big paper bag can go up to R150. There was a time when the rains were good. I managed to sell a lot. My children told me that since I am selling, they gave me a box to put the money in every time. I sell 'til May when we do the final harvest. When they opened [the box], they counted up to R10200. With this money, I managed to upgrade my home.
>
> (Participant Interviews, November 2021)

> Pumpkins we charge depending on how big it is, starting from R10-R20. But for pumpkin leaves, we sell for R10 for the community when they want to eat and R60 for a big bunch for those who are stocking. While the other gardener said I sell to the locals and street vendors buy in bulk to go sell in other far places. I sell a crate for R75. On a good day, I can sell it for about R200. We cannot save money because when you sell you have to go and buy what you don't have in the house.
>
> (Participant Interviews, November 2021)

There are no fixed prices in this garden and trade is informal. The prices are based on the customer and how they are connected and relate to the gardener. Sometimes the gardeners allow the customers to serve themselves and then charge them depending on how big the portion is. The portion starts from a bunch that fits on the palm of a hand to a small plastic bag and sacks as shown below in figure 12.

Fig 12 Different packages indicate different prices (source, Author)

Most gardeners do see the benefits of the garden in providing food for their families. They all agreed that they had social time during their lunchtime to chat about their livelihoods, and if there is anyone who is having problems, they all help by giving each other advice. There is also knowledge sharing as the place is of people with diverse cultures including some foreigners who provide seedlings and share with them. Some of the gardeners highlighted that the current cost of living is very high, and the garden provides some relief. One of the participants indicated that she was a single mother and she had battled to find employment. Her joining the garden has meant that she is relieved because she is now able to feed her children with a stable source of food and she can afford extras.

> Even though my kids do not want to come and work in the garden I am thankful to God for this garden because now when they ask for money to buy data, I can be able to give them. This helps to keep them occupied at home [rather] than to be roaming the streets and getting involved in unlawful activities.
>
> (Participant interview, November 2021)

The garden provides a social space and a safety net. The garden has a direct benefit in terms of food security. The women are motivated by a sense of Ubuntu and so do include people as gardeners if they ask to join. The gardeners also sometimes donate vegetables to those who come and ask. When the gardeners have overwhelming household commitments, they do not come to the garden every day. In this case, if one member is absent, the other gardeners sell her produce and give her the money when she comes the following day.

> Now we sell to a lot they are people who come stock and sell in other places like Bara and Johannesburg CBD. We do help a lot especially when someone is not around. And when their customers come to buy, I can be able to sell as you see this woman was giving me money for someone who is not around.
>
> (Participant interview, November 2021).

The gardeners also shared their knowledge bases of growing. They come from different areas of the country with diverse cultures. This diversity means that there is a rich knowledge base to draw upon.

> Since we are from rural areas, we…[plant] crops that can survive without constant watering, though I once planted tomatoes and school kids stole my tomatoes since the garden is not fenced.
>
> (Participant interview, November 2021)

One of the participants expressed how this garden has been “so helpful” since she lost her job due to the coronavirus pandemic. She is a middle-aged single mother and when she lost her job, she approached one of the gardeners that she knew and asked for a portion to plant so that she could get some food for her children.

> Even though no one is working at home, I depend on this garden and even if I sell some of the vegetables, I can't see the money because I have to pay the loan sharks.
>
> (Participant interview, November 2021)

Challenges

There are several challenges associated with the informality of the garden. When asked why they hadn’t registered the garden as a cooperative so that they could receive assistance from the government, the gardeners indicated that some of them do not have the proper documentation.

> They once asked us to come and register, but the fact [is] that we have people who come from other countries. So, they are afraid that they will take the land. Some of the gardeners are given seeds because they are registered but we are not registered that’s why we don’t get help.
>
> (Participant interview, November 2021)

There is no security of tenure. The land used does not legally belong to them and the municipality can come anytime and evict them. The land could also be taken over by someone who wants to use the land for their benefit. One of the founders of the garden shared that the land was once taken away from them by people they did not know who

used it for a grass project. Since they did not have legal rights over the land, they could not fight for it, but just stopped gardening.

> There was a time they came and take the land to make green grass, but they failed to maintain it after they left we came back and started our gardening.
>
> (Participant interview, November 2021)

This garden does not have a fence or any proper means of security. To mitigate this, a large portion of the garden is planted with pumpkins. The reason that they plant this is that pumpkin does not grow high, unlike maize which they believed would be stolen or used by criminals to hide.

> One day we found a trail of a car. It's like the thieves came and took maize and when corn is removed the plant dies. Unlike pumpkins, it can continue to bear vegetables [leaves and flowers] and pumpkins.
>
> (Participant interview, November 2021)

The gardeners also mitigated the lack of fence by making use of wild plants to encircle and hide the pumpkins. All of the gardeners stressed that they would love to plant a variety of crops, but without water, they are limited to pumpkins as they can survive without too much water.

Fig 13. The Pumpkin garden shows how the garden is fenced by wild plants. (Source: Author)

Women in this garden share the same problems and they wish that their local councillor could help them like other surrounding gardens. They need a fence so that they can lock up and prevent thieves from easy access at night. One gardener expressed that if the councillor supports them, they would give them the legal right to use the land without fear that it can be taken away from them at any time. When they did approach the councillor about the invasion of the grass growers, the councillor did not show so much support besides telling the community members to stop being jealous and let these gardeners do their work freely.

The garden is low tech, and the gardeners buy their tools to plant and cultivate. Some of them thought that they could use a tractor because when the rainy season starts, they depend on casual workers who charge R400 to prepare the land and R300 to weed. One gardener said,

> I depend on these Zimbabwean people to do the job for me because they come looking for piece jobs and are hardworking. The other gardener said people charge up to R700 to clear the land and plant one portion which is too much for us that's why we end up doing it ourselves.
>
> (Participant interview, November 2021).

The price of the help is not fixed, however, and depending on the season and demand, the price can go up dramatically. One of the participants said that after she calculated everything with weeding the costs could go up to R2000.

This garden is occupied by elderly women who expressed concerns that their children do not want to do gardening. Some even said that children these days don't know anything about farming which is very concerning because it seems that the issue of food production and its potential in improving living standards is far from being achieved if children are not taught at a young age farming skills.

In conclusion, the Soweto-Orlando Garden is an example of an informal garden that receives little assistance. The garden provided direct food security for the members of the garden in terms of vegetables and profits from the sale of produce. It acts as a cushion in their precarious lives. The garden also aids migrants with an income who may not otherwise have access to stable employment, thus improving their household food security. The garden was an example of how diversity can benefit gardens with a range of different indigenous knowledge bases being shared to improve production. This is a garden that speaks to resilience. The women came together to overcome the

challenges of food insecurity. The existence of the garden is precarious, however, and there is no stable tenure. Despite these issues, the women continue to work the garden and return to it as a vital resource in their lives.

5.7 Forest Hill School Garden

The Forest Hill School Garden is found in Rosettenville, an old suburb in the south of Johannesburg. The size of Rosettenville is about 229ha and according to Statssa had about 17 319 residents in 2011. This suburb is small and surrounded by Kenilworth, Turffontein, and La Rochelle and is close to the CBD. Like many of Johannesburg's suburbs, it has changed in demographics. Rosettenville was occupied by mostly white Portuguese immigrants, between 1924 and 1972 (Kankonde & Nunez, 2016). After democracy, these immigrants were largely replaced by migrants hailing from the rest of Africa. While the area has never been particularly wealthy, it has become heavily populated and there are pockets of poverty and deterioration of infrastructure and housing stock.

Description of the site

Forest Hill High school had a large unused piece of land attached to it when a community member approached them to ask if they could use it for food gardening. Currently, there is only one founding member and most of the gardeners do not know when the garden started. The community members portioned the land amongst themselves, and each member decides what they want to plant in their portions. This garden has various stakeholders. These include the City of Johannesburg, the Department of Social Development, and the Department of Agriculture. This garden is operated by both South Africans and immigrants. The garden operates throughout the year but during winter there is less production of vegetables because of the cold and some crops dry up. Although this garden uses municipal water for watering, it is largely dependent on rainfall. At the time of data collection, the crops in the garden did not look healthy. There had been shortages of water the gardeners were only able to water their crops once a week.

Figure 14: Crop health (Source: Author)

Figure 15: Garden infrastructure

Benefits

This garden serves the community with vegetables, mealies, and potatoes depending on the season. People from the community, especially the elderly, come and ask for vegetables the gardeners do not hesitate to help. This also shows that there is humanity (Ubuntu) among the community members.

> I live in this community, and I know the problems and how people suffer so if the elderly people come to ask for vegetables I cannot deny them, also the community members do come and help so that they get the vegetables for those who do not have money to buy them. The community also benefits because the vegetables are sold at very low prices, some even say they do give community credit.
>
> (Participant interview, October 2022)

For hardworking gardeners, this garden can generate a small (yet inconsistent) income, and some can pay rent with their profits. As one gardener put it, “even though the money is small, and we get it once in a while, it helps us to pay rent”. The majority

of gardeners said, however, that the money is too little. They cannot do a lot, only buy mealie-meal and other basic things.

The food garden does have a direct impact on food security and offers a reliable source of food to the households of the gardeners. Some of the gardeners mentioned that they do not go to bed hungry because they can always come and get the vegetables. Since the garden is under the school, it also provides the school kitchen with vegetables every Friday. This is an important source of nutrition since many of the school children come from poverty-stricken backgrounds. They also donate vegetables to orphanages around the community.

Challenges

This garden uses the water from the school which rations it out. There is only one pipe. Each gardener gets a turn to water their produce once a week. The gardeners expressed concerns over this arguing that the reason for poor production is the lack of water.

> Vegetable needs to be watered often. That's why you see that it is drying, and the vegetables don't look healthy. I water my crops every Thursday, as you see it is very hot after 2 days the soil will be dry, and I will have to wait.
>
> (Participant interview, October 2022)

Although the garden is inside the fenced schoolyard, it does not have security, so people do come and steal.

> This is an open space you cannot rule out stealing because thieves break in into our homes while we are there…[Moreso], the garden.
>
> (Participant interview, October 2022)

The membership of this garden is a mixture of locals and foreigners, and this is a source of conflict. Some South African gardeners are xenophobic and complain that foreigners should not work in the garden. This has led to foreigners being excluded in all matters which include the garden stakeholders.

> I am from Zimbabwe and the other two people next to my portion are not from here. We are always ill-treated, there are groups in this garden that hold meetings. Some say they get help from the government, but we also work in the garden like them. They don't want us to get help. Others are jealous because we are hard workers, and you can see the difference between our portions and theirs.
>
> (Participant interview, October 2022)

The Forest Hill High School Garden does offer a stable source of food for a range of vulnerable communities in Rosettenville. The gardeners are even able to collect small amounts of profit from the garden. It has access to infrastructure, even though water access is somewhat problematic, and it has the support and input of the government. This garden, however, is an exemplar of the kinds of political exclusion that can occur within the food system, amongst women gardeners. This results in a double exclusion in food production. In the next section, I explore this kind of exclusion through examining the attitudes (and the effects thereof) of men toward women in gardens.

5.8. Men's attitudes to women gardeners

The attitude of men towards women gardeners remains a serious challenge. In this section, I have aggregated the response of the male gardeners in all of the gardens. How men view women gardeners relates to ideas of inadequate labour capacity and the distribution of resources such as land and equipment. One male respondent expressed his dissatisfaction with working with women.

> I don't want to work with women. However, there are those women that are hard-working, but most of them do not want to work. They want to be paid without working. But yes, farming is difficult for sure, and it needs a hardworking person.
>
> (Participant interviews, October 2021)

> Women do not realise how farming works, this is a job that needs commitment you cannot have a good harvest if you do not work hard the problem of women can come today and spend two, or three days without coming to the garden, it doesn't work like that.
>
> (Participant interviews, October)

When men were asked why few women are working in the garden. Most of the respondents highlighted that women in their areas do not want to do gardening because it is a dirty job, and it is hard. Some also blamed the lifestyle which women live.

> These ladies consider working in the garden dirty because most of them care too much about looks, they have nails and a manicure that's the reason they don't want to work dirty jobs.
>
> (Participant interview, November 2021).

Women were also considered weaker by many of the men and incapable of heavier garden work. Garden work, they argued, also exhausted women to the point that they were unable to complete their care duties dictated by the gendered division of labour.

> Imagine you go home, and you cannot even do your duties as a woman just because you are tired from the garden this can also cause fights with your man (laughing).
>
> (Participant interview, November 2021).

Some of the men said that they do need women to join them, but this would either require investment in machinery or they would need to find work for the women in processing work. This would of course require funding which was not available at present.

The issue of gender roles shaped by culture and society also was highlighted as some men were saying it is a women's job to do gardening because it is not considered work. During observations, a few men accompanied their partners to help in the garden. Those that did come usually sat and had drinks while the women worked. This confirmed that the men devalued the hard work done by women in gardening. Some male gardeners expressed their support for the empowerment of women, yet they felt that the issue of women's empowerment now overshadows them.

> We are going to have a society full of a problem because if women get jobs, you will turn on us and say we do not provide for our families. It is wrong to look at one side of the coin because to solve a problem we should look at both sides because all genders need to work together. We cannot say 50-50 then we leave men behind in other programmes.
>
> (Participant interview, November 2021)

To think through these responses, it is important to return to the domains of gender inequality in the Gendered Food Systems Framework. On the one hand, gendered social norms relegate women to caretaking roles in the home and the community meaning that women are at the forefront of food insecurity. With this in mind, many women have started or joined community food gardens. The work that they do in these gardens is undervalued despite its direct and indirect contribution to improving access to nutritious foodstuffs. Despite significant contributions and outputs, women are characterised as incapable and unreliable by many of the men associated with the gardens. In some cases, there was an issue with the control of assets. Women were either excluded from ownership or could use assets on a limited basis. This was particularly of concern in the rooftop garden which required far lower physical input. On the one hand, where these attitudes were the most profound, there were few women involved in the gardens. On the other hand, in gardens that were dominated

by women, there was a higher degree of cooperation and support and the women found ways to overcome challenges that gave rise to employment to further marginalised members of their communities (such as migrants). Finally, the empowerment of women was regarded as threatening, and projects focused on the support of women were seen as exclusionary and treated with suspicion.

Conclusion

In examining discussions on the efficacy of food gardens to improve food security, one of the main contributions of this research is that urban food gardens are far from homogenous. The gardens that formed the basis of this study can be grouped on several intersecting continuums.

The first is the ubuntu continuum which indicates the extent to which the gardens donate food to the surrounding community. All of the gardens did this to a greater or lesser extent, with the gardens run predominantly by women offering more in terms of donations to those in need. On this continuum, the work of the township gardens, the Bertrams' inner-city farm, and the Observatory CAN Garden was notable. Most of the gardens located in the townships (Lenin Drive Garden and Soweto-Orlando) are operated by elderly women pensioners to reduce poverty and household food insecurity. These gardens were formed on dumpsites by community members. The Observatory CAN Garden is different from all other gardens because its main purpose is to provide for the needy. The formation of the garden was a result of the Covid-19 pandemic and the Observatory community decided to give relief to the poor through gardening. However, the gardeners promised to continue with the initiative post-pandemic.

The second continuum relates to the function of the gardens. Some were more orientated to providing food directly to households while others like Siyakhana and the UAI rooftop gardens were more concerned with educational purposes. Students from academic institutions came there to do their practical work. They also offer educational lessons to young children from the surrounding schools as well as members of the community who want to learn how to farm.

The third continuum relates to government support and intervention. Some of the gardens received full support while others were still awaiting a response to their

applications. Some had received support, but this was not sustained. Others preferred not to have government assistance. Furthermore, there were instances where gardeners were excluded from government stakeholder discussions.

Finally, the attitudes of men toward women are a great concern for future strategies to improve empowerment. There is an argument that men should be included in women's empowerment programmes while encouraging them to accept the intrinsic value of women as human beings who are free to achieve their potential as equals to men.

CHAPTER 6

DISCUSSION AND CONCLUSION

Introduction

This chapter provides a discussion of the empirical findings, and how they link to the literature and theory. In the first section, there is a summary of how the gardens t are distributed and run. Second, the gardens are discussed in terms of the four pillars of food security. This is followed by a discussion on how government policies affect urban agriculture and food security in Johannesburg. Last, are the conclusion and recommendations.

6.1. Comparative case study analysis

Location, formation, and motivation

The gardens visited are located in different parts of Johannesburg from the inner city, old suburbs, and different townships around the city of Johannesburg. The gardens in the townships were both formed from vacant land that was being used as a dumpsite by their communities. This reveals how scarce land is in urban areas. This land, however, may pose issues in terms of yield and could be regarded as a health hazard. Townships are overpopulated and they are poverty-stricken areas with most of the people living below the poverty line. In terms of demography, gardens in the township are operated by elderly women with the main purpose of providing food for their families. These women do play an important role in providing temporary employment and donating to those in need. Furthermore, membership to these gardens is fairly open.

Several of the gardens that were visited are in the inner city and its immediate surroundings. Bambanani was located in Bertrams, near the CBD and the Outreach Foundation rooftop garden is in Hillbrow. Both serve(d) impoverished communities. The Siyakhana food garden is located between a low-income and middle-class area. While it has a history of providing welfare to poorer communities, it is increasingly oriented towards entrepreneurialism. Similarly, the Outreach Foundation gardens are oriented to retail. These gardens hold a very different position in the urban food system. The Siyakhana Garden and the Outreach Foundation also provide a valuable educational space for students to explore and experiment with different farming

methods and innovations. Bambanani in Bertrams provided farming education for young learners from primary schools in the area as well. Nearby Siyakhana is the Observatory CAN Garden. The members of the garden are volunteers who are committed to providing food to refugees and other marginalised communities. The motivation for these gardeners is the eudemonic happiness that comes with caring for others.

Most of the gardens that were visited specialised mostly in herbs, leafy vegetables, a few beans, fruits, and potatoes (see Table 6.2).

Table 6.2 Summary of the key findings

Garden name	Type	Founder	What is grown and other activities
Lenin Drive Urban farm	Cooperative	Alex community members	➢ Herbs ➢ Spinach, cabbage, onions, beetroot, potatoes, fruits, lettuce ➢ The garden donates to the needy
Bambanani/ Fountain of Hope	Skills development center	Refiloe Molefe in 2006	➢ Spinach, onions, cabbage, lettuce ➢ Cooks for the community twice a week ➢ Process vegetables to produce juice, sauces ➢ Provide skills for youths and the community
UAI: Outreach foundation rooftop gardening	Skills development center	Urban Agriculture Initiative	➢ Growing is based on the client's demand
Siyakhana	Co-operative	Wits/ Michael Rudolph 2005 2016 it registered as a cooperative	➢ Leafy vegetables, onions, fruits, carrots, herbs, lettuce, green beans ➢ The gardens provide computer literacy ➢ Provide farming skills development
Observatory CAN	Community Garden	Community members	➢ Spinach, green beans, sweet potatoes, mealies ➢ Donate vegetables to the needy
SOWETO	Co-operative	Community members	➢ Pumpkins
Forest Hill Garden, Rosettenville	Co-operative	Community members	➢ Leafy vegetables, maize, tomatoes, potatoes ➢ Provide vegetables to the school kitchen ➢ Provide vegetables to orphanage homes around the community

The day-to-day running of the garden

The gardens in the inner city are run differently. Siyakhana and the Outreach Foundation are more formal. There is a schedule with times to start and to knock off. There is also a clear management hierarchy. In these gardens, everything is planned and recorded. Planting and harvesting follow a schedule. When the vegetables are ready, sales are recorded to monitor how much the garden is producing and making in terms of profit. The rooftop gardens are hydroponic and rely on expensive inputs and expertise. While Siyakhana operates with traditional tools, tertiary students potentially bring innovative urban farming techniques into the garden.

The other key difference is between the initiatives is whether they are operated by community members or by an organisation. All gardens that are operating under UAI organisation are well-resourced and managed, compared to cooperatives that depend on funding from the government. The Soweto-Orlando Garden which is operated by women without the help of any organisation also showed potential to reduce food insecurity for the gardeners and some of the community. While there is no security of tenure, the gardeners demonstrate collective ownership and determination. They are responsible for providing for their families and they work extra hard. Overall, all these gardens experience similar problems and the participants mentioned that they need resources, especially financial resources, for their gardens to improve and produce more food for their communities.

Food security in gardens

Food security is a matter of the grave for most low-income households like the ones in townships, the inner-city, and old suburbs like Rosettenville. All gardeners in these areas indicated that the garden produce is a source of food. Most of the gardeners are elderly and depend on social grants and they said the money is not enough to take care of the whole family because their children are not employed. Social grants are inadequate to take people out of poverty and hunger because most households have more than five people depending on one income (Maluleke, 2015). The high unemployment rate coupled with the impact of the Covid-19 pandemic that has led to more retrenchments is contributing to food insecurity in many households in urban areas. Notably, women have been more active in identifying vacant land that can be

used to produce food because women experience food insecurity more than men (Statistics South Africa, 2018).

There is a serious need to address food insecurity in Johannesburg, these interventions should be strategic and should involve all the stakeholders (Rudolph et al., 2021). According to Rudolph et al. (2021), there are specific factors that need to be considered to achieve food security. These factors also speak to the empirical evidence of the study.

The first factor relates to enhancing economic participation and supporting the development of multiple livelihood strategies. Improving food availability and accessibility is the second factor. Engel et al. (2019) argue that urban agriculture is dominated by the elderly and this finding was reinforced in this study, especially in the gardens located in townships. The lack of youth may result in low production levels and more is needed to attract youths. If food gardens, like these, are identified as a formal means of food production, they should receive the attention they deserve in terms of funding and awareness. This may make gardens more attractive to younger people with a positive impact on unemployment. The third factor relates to the improvement of food utilisation. This could be achieved by providing research into understanding and monitoring food, security, promoting awareness of healthy eating, and working with informal vendors on the importance of healthy and ethical food practices stressing the importance of selling a variety of nutritional foods than selling only vegetables.

6.2. Gardens and the four pillars of food security

6.2.1. Accessibility

Accessibility in food production entails being able to get the resources needed to produce food and consumers being able to get the right quality and quantity of food of their choice. Accessibility of resources of production includes natural resources such as land, and water, and human resources such as capital, knowledge/technology, and markets while accessibility to consumers involves physical and economic factors. In this research, these factors included access to land; water; knowledge and technology; markets, and the accessibility of products to consumers.

Land

The issue of land affects smallholder farmers across the world (Oluwatayo, 2019). Mutea et al. (2020) regard land as the most important natural resource that is needed for agriculture. For people to expand from home gardens to community gardens, they need land. All the gardeners who participated in this study pointed out that land is a problem in urban areas. This lack of land often leads to women gardening on low-value land which is also dangerous and risky to their health because of toxic chemicals found in the deposited waste (Oluwatayo, 2019; Westholm & Ostwald, 2020). For example, gardens like Lenin Drive in Alex and Soweto-Orlando were established on dumpsites.

Goldman et al. (2016) posit that access to land, especially for women should be prioritised as this will increase their potential in deriving maximum benefits from land productivity, hence reducing poverty and hunger in communities and households. Horst et al. (2017) argue that it is pointless to come up with strategies to improve agriculture when people have no access to land. Many of the gardens had been built on government land. Some of the gardeners did say that they were concerned about this, especially in more informal garden settings. The case of Bambanani in Bertrams being closed down without any process of consultation or attempt to improve the functioning of the garden is of concern. There needs to be a more sustained public participation process in the gardens to maintain them.

Water

Water for irrigation keeps growing crops throughout the year. Most of the gardens use municipality water for irrigation except for the Soweto-Orlando Garden which depends on rainfall hence they grow their crops in season. Siyakhana garden expressed the challenges they faced due to this. They said that the water pressure is usually low and that it is difficult to water different parts of the garden at the same time. The same was pointed out at the Lenin Drive Garden and Forest Hill gardens. Gardeners resorted to taking turns watering their vegetables. To mitigate this problem gardeners stressed that it would be better if they get boreholes instead of municipal water. This also goes with the purpose of organic gardening where all the resources should be natural.

Knowledge and Technology

Technology is a major challenge in this modern era because it needs to be understood in all aspects so that the transition from old to new does not reinforce existing gender

and power imbalances (Huyer, 2016). Community gardens are run by elderly people who need to be educated about new farming systems and technologies so that they are up-to-date with production techniques and skills. Lack of technological adoption especially among smallholder farmers is a contributing factor to poor productivity (Malan, 2015).

Huyer (2016) states that technology is a tool to empower women. With it they are able to find ways to adapt to climate change issues; keep themselves informed; make informed decisions and; increase their agricultural produce sustainably. Where smallholder farmers are illiterate and do not have technical skills, it is difficult to be up to date with the modern era (Oluwatayo, 2019). Women at the Lenin Drive Garden said that they depend on a group of young people to help them with the filling of their documents, but this can be avoided if the department of social development provides educational classes to these women so that they can operate computers. Although gardens in the inner city like Siyakhana have youths with technological knowledge, they are not capacitated with finance and machinery to process food. To mitigate all these problems, all empowerment programmes need to have educational classes to help women to be able to learn more about farming in the modern world. All technological tools should be demonstrated especially cell phone apps so that the gardeners are current with farming information.

Markets

Access to markets is difficult for gardeners because there is little assistance to smallholder farmers when it comes to information about markets. The gardeners were less informed on market channels including prices, quality standards, and supply and demand (Gomez et al., 2020). All of the community gardens sell to local informal traders, and none are supplying formal retail buyers. With this situation, the chances of growth are very low. Although Siyakhana had started processing some of its output, there is no continuity because its products do not meet the quality standards to compete with big companies. This is also because of a lack of information about product specifications and necessary equipment. The notable exception was the Outreach Foundation in Hillbrow which had a higher position in the value chain and supplied on-demand to retail concerns.

Accessibility to consumers

Physical accessibility in food refers to how one obtains food. This speaks to the location of shops and gardens. All gardens are situated among communities because they are operated by locals. The Lenin Garden is located next to Alexandra Mall which makes it very convenient to the community and other people from the surrounding areas who visit the mall. This means that this garden is more exposed to people who come to buy produce.

Urban communities, especially in townships, are dependent on informal traders because they are found on every corner and are more easily accessible than formal supermarkets (since most people do not have cars, they need to buy in smaller quantities at convenient locations). Gardens have shortened the value chain by making vegetables and herbs easily accessible. This also helps in reducing prices because informal traders do not need to spend on the transportation of their goods. This points to another important point of accessibility, affordability. Most gardeners expressed that they are not employed and that they depend largely on social grants. Participating in food gardens has contributed to improved accessibility because they do not buy vegetables and herbs anymore. Blekking et al. (2020) also state that informal employment is used by many urban dwellers to supplement their income. Some of the casual workers in Alex and Siyakhana confirmed that they use money from working to supplement their households. Furthermore, gardens still generated food and income during the sudden shock of Covid-19 and were a safeguard against inflation.

6.2.2. Availability

Food availability is when production is effective and efficient in meeting the demand (Oluwatayo, 2019). Although the gardens meet a smaller demand because of their sise, they play an important role in household and individual food availability. This improved food availability may not mean full food security, but it does reduce poverty due to income that comes from selling surplus. Some gardeners said they cover other household expenses from garden income while one woman from the Soweto-Orlando Garden said she managed to buy a Jojo tank for her home in Limpopo, indicating that the benefits may have a far-reaching positive effect on food security.

6.2.3. Utilisation

Peng and Berry (2018) explain that adequate and healthy food is essential for good utilisation. Food utilisation for gardeners can be measured by assessing whether they can diversify their diets or not (Oluwatayo, 2019). This involves how food can be accessed and prepared and the state of health of people who are eating the food. Factors that influence the state of nutritional health include safe water, sanitation, and nutrition education, hence food quality, safety, and sufficiency are paramount to food utilisation (Peng & Berry, 2018; Oluwatayo, 2019)

Gardeners indicated that food from the garden plays an important role because they get fresh vegetables whenever they want. There is, however, a limited range of produce (see table 6.2). Although it does not happen every day, there are times when they sell and manage to buy another foodstuff to complete a balanced diet. This shows that gardening has the potential to increase the utilisation of food if it is promoted and supported. Community gardening is important to local food systems because its benefits are more felt at individual and household levels. This improves food security overall which makes improved utilisation more likely (Galhena et al, 2013).

Culture determines how food is prepared and processed (Alonso et al, 2018). Since most of the gardens grow exotic vegetables, a lot of traditional food processing and preparation are slowly fading away. The other problem that affects food utilisation is the time it takes for preparation, and with the high cost of electricity, people have resorted to buying processed foods. To improve the utilisation of foods, traditional foods need to be promoted, gardens need to grow traditional foods so that they preserve culture and improve their dietary intake because traditional foods are known for their nutritional benefits (Alonso, 2015; Alonso et al, 2018). Traditional knowledge of how to prepare and grow traditional foodstuffs needs to be retained and passed down to younger generations.

6.2.4. Stability

As indicated by Steenkamp et al. (2021), stability is achieved only if productivity is maintained at a high level and people can access food consistently. With the current situation in most of the gardens, it is impossible to achieve stability. To improve stability, gardeners need to be educated on how best to do gardening. The government also needs to support smallholder farmers with resources and an

institutional framework that will ensure women's voices are heard. There needs to be easy access to finance and agricultural education and training. Promoting traditional food crops is a good strategy because they are more resilient and they are not time-demanding like exotic crops (Alonso, 2015).

The gardens cannot be regarded as a stable food source and in this, they fail to contribute to food security. All the gardens also produce mainly vegetables, and more food needs to be bought to complete a proper meal. However, there is greater potential for gardens to increase production and reduce food insecurity if local government commits to serving the people by providing easy access to all resources.

6.3. Government Policy and Interventions concerning Women and Food Gardens

Food is one of the most important basic needs, and this is why food is enshrined in the South African Constitution. Local government is a duty bearer of the right to food (Malan, 2015). Municipalities are responsible for the establishment of food policies at the local level; hence the city of Johannesburg formulated its policy to tackle food security issues. Siegner et al. (2018) promote the idea that, in order to improve urban food security, planners should do thorough research and call for measures that include disadvantaged communities. Policymakers in the US have adopted food justice in their planning because it highlights the problems that are experienced in the food system. This should be applied in South Africa as well. South African policies adopted during apartheid were anti-Black and the local food system is orientated to exotic foods. Again, the promotion of indigenous crops serves to reverse this legacy.

Urban agriculture is a practice that needs to be well-executed, and that requires commitment from the farmers, the community, and the government. Based on the empirical evidence, most gardeners have lost hope of the government's support of urban agriculture, gardening in particular. Women who are doing food gardening feel excluded and that the lack of assistance means that they are failing to maximise the potential of gardening to improve their lives. Urban agriculture policies should put gardens at the forefront because they have the potential of achieving food security.

The City of Johannesburg (CoJ) with its Zero Hunger Policy, still shows few signs of action on these gardens. According to Åhs (2017), the CoJ policy implementation was not open for scrutiny by other parties; this shows that it was one-sided. These study

findings indicate that the city is failing to achieve its goals, and there is a need to critically assess its policies and make amendments that speak to the state of urban farming. According to White and Ham (2014), municipal governments have the power to develop approaches that improve the lives of the local people. It is possible to achieve this through urban farming. If appropriate strategies are developed and effectively implemented, they will improve productivity and reduce food insecurity.

Kesselman (2017) found that Johannesburg's Food Resilience Policy has remained theoretical since its establishment. For example, most of the gardens in the city have been unproductive due to a lack of monitoring and evaluation. Gardeners are demotivated and city officials do not visit the gardens to encourage gardeners and assess the problems they are facing. If officials do come to visit the gardens, they often do not follow up to monitor progress and encourage the gardeners. The gardens often lack resources like water and electricity. The Food Resilience Policy also speaks to Agri-resource centres where communities are taught about gardening, access to resources, and training (Malan, 2015; Mazenda et al., 2021). All of the gardeners and their leaders complained that sometimes it is useless to attend these meetings because there are empty promises.

Ntshangase et al. (2018) argue that the role of commercial agriculture in South Africa's economy has declined, which means that subsistence farming is potentially a refuge for households' food security. The findings of this research have exposed serious challenges experienced by smallholder farmers in Johannesburg. Malan (2015) says that smallholder farmers in the city face exclusion because their issues are not understood making it difficult for positive results from practice. The experiences of the gardeners in this research are in line with this finding. Siegner et al. (2018), posit that urban agriculture is not going to solve all the problems as there is little research on how urban farming impacts food production especially in poor communities. They add that is important to first understand factors that may hinder accessibility and distribution to these communities as well as how these factors can be overcome. Structural challenges continue to exist which make it impossible to redress inequalities through food production because the privileged continue to gain at the expense of the poor (Horst et al., 2017).

Although urban agriculture is slowly being recognised through the support given to the community gardens in the form of funding, knowledge, and training, an awareness of urban agriculture encourages more people to join community gardens (Malan, 2015; Siegner et al, 2018). All these need to be evaluated to maintain sustainability. Interventions to poverty and food shortages should promote own production, but the findings reveal that the process is moving at a snail's pace. There are few food gardens in Johannesburg, and this shows that the city is doing little to encourage home production. Despite the Department of Agriculture allocating funds to promote smallholder farmers, the findings of this study show that there is a serious crisis when it comes to funding at the gardens. Those who did receive funds stated that it was once off, and they were not enough to cover all the needs for a proper garden to function.

In poverty-stricken townships, land comes at a premium. Most of the poor are living in very congested places where there is no space to even do bucket farming. When they come out of their houses they go straight to the roads. As Soga et al. (2017) highlight, it is difficult to maintain the well-being of an overpopulated area; this is evident in townships like Alexandra and Soweto. More needs to be done in terms of finding new ways of farming which are space efficient. During the research data collection, I observed that there are currently very few gardens operating in the inner city. When it comes to rooftop farming very few people are aware of this type of farming. The hydroponics farms that were visited were mostly run by young people, with the eldest gardener being 35. Hydroponics, however, is a good option for the elderly because it does not involve digging and it saves time and energy for the elderly. It is arguably be too expensive to set up a proper hydroponics garden and there needs to be more research and training on how to make rooftop gardens viable for inner-city dwellers. There are many ways in which people could do rooftop gardens including using empty plastic bottles and bags.

Based on the gender framework, women are the main actors in the food system who are capable of reducing food insecurity at individual and household levels (Njuki et al., 2016). However, women’s roles are often overlooked, and they are often underpaid at many levels of the food system. The promotion of women’s empowerment in agriculture needs to focus on the whole food system because research has shown

that women have different preferences on crop variety and household nutrition intake. It is important to engage men in these programmes to avoid further conflicts and harmonise the relationship between men and women in food systems.

Gender analysis provides a better understanding of food security aspects which include the food system as a whole from production to the consumers (de Zeeuw and Drechsel, 2015). The findings show that the existence of gender inequality in food systems needs to be attended to with proper planning. The food systems framework provides clear factors that contribute to the challenges experienced by women to provide food for their families.

6.4. Achievements and challenges faced by women in different urban gardens

Women in urban areas are faced with serious problems when it comes to access to quality and enough food. First being a woman is a factor of concern because it is difficult for women to access resources. The shortage of land is also a challenge that affects food production (Malan, 2015). Women in food gardens applauded the gardens because of their benefits in difficult times. This is supported by Lai et al. (2020) who state that food gardens are an alternative source of food when the food supply or value chain gets disrupted. Although gardeners in the current study said they were no longer working in the garden as they used to, they indicated that the garden helped them a lot during the pandemic. Some complained that their children had lost jobs and they depended mostly on the food garden. This adds to the importance of these gardens to mitigate the impacts of sudden shocks.

6.5 Conclusion

The state of the gardens provides a clear indication that food security is far from reach. The scale of the gardens means that when it comes to food availability, these gardens do not contribute as much as one would like in terms of variety (see Table 6.2). This means that it is impossible to conclude that these gardens provide food security for the communities or even the gardeners themselves. Because most gardeners do not have extra income to buy other foodstuffs, they depend on inadequate social grants. There is a need to plant crops that will provide them with a balanced diet.

The consensus is that urban gardening is mainly a women's job, however, with the current situation of unemployment, men are now entering into urban agriculture (Engel

et al, 2019). This research has found that this could lead to the further marginalization of women. Some of the gardens have more men than women now. Stereotypes also continue to hinder the participation of women. This vulnerability of women has meant that women are pushed to utilise any vacant land in their areas. This not only impacts the quality of the food produced but also puts women in a vulnerable position in terms of their safety. The elderly women in food gardens are working with old tools which also causes health problems. There is a need to introduce new technology like solar-powered water pumps, and sprinklers to urban agriculture, this will help reduce the physical burden on women.

For urban agriculture to be effective, what is grown, where the food goes, and who is benefiting needs to be monitored. This study found some gardens do not produce for the community. For example, Siyakhana is not well known by the neighbouring communities. Most of the produce from the Outreach Foundation goes to supermarkets and, according to the manager, they grow for the clients. This research found that urban agriculture continues to be marginalised as a strategy to reduce food security in urban areas. If there is no monitoring and evaluation of a project, it cannot be successful.

According to Åhs (2017), Johannesburg's Zero Hunger Policy was aimed at helping individuals and groups who want to be involved in urban agriculture, however, the garden managers indicated that they do not get the support they need but only promises from the government that are never fulfilled. Besides funding, proper training and accessibility of resources at subsidised prices can play a critical role for many poor urban populations. As highlighted by Boatemaa et al. (2018), policies on food in South Africa are not well-coordinated and they continue to oppress women. There is no gender sensitivity when implementing programmes, and most gardens are still using traditional methods that involve manual digging and watering using cans.

The outcomes of Johannesburg's food resilience policy show that there is more to be done. The empirical findings of this research suggest that most of the empowerment zones continue to benefit those who are relatively more privileged. For example, Alexandra township gardeners, like many others, do not have knowledge of agri-resource centres and hubs Little seems to be done in terms of raising awareness of new strategies that will be beneficial to elderly gardeners. One of the aims of the FRS

policy is to provide capacity building for food transformation which will provide food processing to these gardeners. Of more than 10 gardens visited only the, now-closed, Bambanani processed their produce, and this shows that there is a huge gap that needs to be filled. Policies are well written on paper, but the evidence on the ground says otherwise. Follow-up needs to be done to ensure that these policies are actually helping to reduce food insecurity. In the context of this study, the policies of the City of Johannesburg aimed at promoting agriculture to the disadvantaged are ineffective as most of the gardeners continue to live in poverty and gardening is doing little of significance to improve their standard of living (Mazenda et al., 2021)

Food insecurity in Johannesburg is extremely high with women, youths, and the elderly being the most vulnerable (Rudolph et al., 2021). This means that firm action needs to be taken immediately. Taking into consideration that these actions need to provide stability and sustainability, action plans should include:

1. A clear mandate. The conflicting performance of different government actors needs to be sorted out immediately. The findings revealed that gardeners do not have a single department that they can resort to or hold accountable for their lack of service delivery. Again, it confuses gardeners when different government actors come to ask for their registration documents and later do not deliver on promises. This can be done though encouraging gardeners to have leaders who will be in contact with the department responsible for urban gardening and do all of the administrative work required.
2. Holistic and participative interventions. All interventions should include all relevant factors of the food systems to ensure all imbalances are eliminated. There should be strong stakeholder engagement in policymaking, and it should not be autocratic. To fully include the local communities in the food system structure, a bottom-up approach will be meaningful because gardeners are the main actors that need to be incorporated.
3. The elimination of inequality. Gender should be at the core of policy implementation to close gender gaps. Women should be involved in all leadership roles throughout the food system to ensure equity. The findings of this research showed that the most affected people are not involved in

governance. They need to tell of their experiences and raise their concerns, so the policies are constructive and focused on eradicating hunger and poverty.

4. Cultural inclusivity. Gaps in food security can be bridged with transformative policies that promote indigenous crops as they are more sustainable and nutritious (Kasimba et al., 2018). This can be done by allowing different gardeners to share their own traditional crops rather than relying on exotic crops.
5. Development of township economies. The Integrated Development Framework (n.d.) stresses that food production should be viewed as part of urban infrastructure and not an isolated process. This means that local food economies should not be disrupted. They should be developed and integrated into the local economy through infrastructure that supports existing spatial configurations.
6. Regular monitoring and evaluation. There should be continuous monitoring of those programmes to ensure long-term continuity and to evaluate if these programmes achieve targets. This can be done through training one gardener who can keep other members up-to-date with what is needed to be done rather than waiting on officials who promise to come and never show up.

The most striking thing about the women in the gardens that I visited, was their commitment and hard work. These are women dedicated to their families and their communities.

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8. APPENDICES

(i). List of tables

List of Figures

(i). Ethics clearance

UNISA

UNISA-CAES HEALTH RESEARCH ETHICS COMMITTEE

Date: 27/01/2020

NHREC Registration # : REC-170616-051
REC Reference # : 2020/CAES_HREC/020
Name : Ms P Ndlovu
Student #: 50957562

Dear Ms Ndlovu

Decision: Ethics Approval from 23/01/2020 to completion

Researcher(s): Ms P Ndlovu
50957562@mylife.unisa.ac.za

Supervisor (s): Dr T Dirsuweit
dirsutc@unisa.ac.za; 011-471-2752

Working title of research:

Women and food production in urban areas. A case study of urban food gardening in Johannesburg

Qualification: MSc Geography

Thank you for the application for research ethics clearance by the Unisa-CAES Health Research Ethics Committee for the above mentioned research. Ethics approval is granted until the completion of the project, **subject to submission of yearly progress reports and the relevant permission letter. Failure to submit the progress report will lead to withdrawal of the ethics clearance until the report has been submitted.**

Due date for progress report: 31 January 2021

Please note the points below for further action:

1. Unisa has a standard consent form that must be used to obtain consent from participants. The researcher may not use any other consent form, and is requested to submit the corrected draft consent form to the Committee for record purposes.
2. The researcher must obtain permission from the municipality for the research. The letter must be submitted to the committee before data collection may commence.

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Preller Street, Muckleneuk Ridge, City of Tshwane
PO Box 392 UNISA 0003 South Africa
Telephone: +27 12 429 3111 Facsimile: +27 12 429 4150
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(iii). Permission to conduct the research study

City of Johannesburg
Department of Corporate & Shared Services
Office of the Group Head: Group Human Capital Management

6th Floor, B Block
Metropolitan Centre
158 Civic Boulevard
Braamfontein

PO Box 1049
Johannesburg
South Africa
2000

Tel +27(0) 11 407 6926
Fax +27(0) 11 339 1878

www.joburg.org.za

06 September 2021

Dear Ms P Ndlovu
MSc Geography
Student Number: 50957562
Unisa

Ref: Permission to conduct research study

This letter serves to acknowledge receiving the letter requesting permission to conduct research in the City of Johannesburg under the title **"Women and food production in urban areas. A case study of urban food gardening in Johannesburg".** Iam aware that the study entails the collection of information from the City and participants through semi-structured interviews, by city officials and observation participation in section 79 committees, IDP sessions and other critical fora of the city.

The research study is promoted by the City of Johannesburg because it helps both students and practitioners to gain an understanding of the sociology of the City as it evolves and contributes towards the building of developmental local government.

I, Lineo Mabuse, as delegated authority of the City of Johannesburg Municipality (the City), hereby give permission to the primary researcher, Ms P Ndlovu to the following:

- To collect and publish information about the City is publically not available, for the research project titled: **"Women and food production in urban areas. A case study of urban food gardening in Johannesburg"**
- This authorization is based on mutual understanding that the City's name can be revealed in her/his project; and
- The information provided by the employees or any other means (such as company's archived documents or reports) of the City is purely for academic purposes and cannot be used for any other purpose.

Please note that on completion of the study, a copy of the research report should be submitted to the City of Johannesburg in honour of your commitment.

I urge you to present this letter of permission whenever you come across officials and participants in the research study. I thank you for choosing the City of Johannesburg to conduct the study.

Kind Regards

Mabule

7th September 2021

Lineo Mabuse
Acting Deputy Director: Employee Relations and Development
Tel: (011) 407- 7147
Cell: 079 407 4934
Email: LineoM@joburg.org.za

(vi). Participant Information and Consent form

PARTICIPANT INFORMATION SHEET

Ethics clearance reference number: REC-170616-051

Research permission reference number: 2020/CAES_HREC/020

Title: Women and food production in urban areas. A case study of urban food gardening in Johannesburg

Dear Prospective Participant

My name is Pretty Ndlovu and I am doing research with Dr. Teresa Dirsuweit, a senior lecturer in the Department of Geography towards a Master's degree at the University of South Africa. We are inviting you to participate in a study entitled Women and food production in urban areas, A case study of urban food gardening in Johannesburg.

WHAT IS THE PURPOSE OF THE STUDY?

This study is expected to collect important information that could highlight an under-researched set of urban food producers and will contribute to an understanding of the tactics and strategies of poorer women urban inhabitants.

WHY AM I BEING INVITED TO PARTICIPATE?

You are chosen to participate in this study because you are a woman working in these gardens. You will then be able to give better feedback on your experience working in gardens, and the challenges, and benefits of food gardening to your household and your community. This research study will interview 40 participants working in food gardens.

WHAT IS THE NATURE OF MY PARTICIPATION IN THIS STUDY?

The study involves Participant observation, audio recording, taking pictures, and semi-structured interviews. The type of questions that will be asked is related to your day-to-day working in the garden, the challenges you face as well as the benefits of working

in this garden. The expected duration of the participant observation will be 2hrs per day while the interviews will take a minimum of 1hr per person.

CAN I WITHDRAW FROM THIS STUDY EVEN AFTER HAVING AGREED TO PARTICIPATE?

Participating in this study is voluntary and you are under no obligation to consent to participation. If you do decide to take part, you will be given this information sheet to keep and be asked to sign a written consent form. You are free to withdraw at any time and without giving a reason if you are not comfortable with the questions asked.

WHAT ARE THE POTENTIAL BENEFITS OF TAKING PART IN THIS STUDY?

This study aims to assess the success and the challenges associated with women in the food gardens, therefore your participation in this study will help us document all your experiences this research will however not provide you with solutions to the problems you face.

ARE THERE ANY NEGATIVE CONSEQUENCES FOR ME IF I PARTICIPATE IN THE RESEARCH PROJECT?

This study does not pose any risk to you as a participant. The relevant authorities has been notified and the University ethics committee has approved this research project.

WILL THE INFORMATION THAT I CONVEY TO THE RESEARCHER AND MY IDENTITY BE KEPT CONFIDENTIAL?

To maintain confidentiality and anonymity your name will not be recorded anywhere and no one will be able to connect you to the answers you give. Your answers will be given a code number or a pseudonym and you will be referred to in this way in the data, any publications, or other research reporting methods such as conference proceedings

This research report may be submitted for publication, but no individual participants will be identifiable in the report due to the use of pseudo names.

HOW WILL THE RESEARCHER(S) PROTECT THE SECURITY OF DATA?

Hard copies of your answers will be stored by the researcher for five years in a locked cupboard/filing cabinet in the Department of Geography at Florida Campus for future research or academic purposes; electronic information will be stored on a password-protected computer. Future use of the stored data will be subject to further Research Ethics Review and approval if applicable. After five years data will be destroyed by shredding all the copies with data and electronic copies will be permanently deleted from the hard drive through a computer software programme.

WILL I RECEIVE PAYMENT OR ANY INCENTIVES FOR PARTICIPATING IN THIS STUDY?

No payment is given for participating

HAS THE STUDY RECEIVED ETHICS APPROVAL

This study has received written approval from the Research Ethics Review Committee of the College of Agriculture and Environmental Sciences, Unisa. A copy of the approval letter can be obtained from the researcher if you so wish.

HOW WILL I BE INFORMED OF THE FINDINGS/RESULTS OF THE RESEARCH?

If you would like to be informed of the final research findings, please contact Pretty Ndlovu email ndlovup387@mail.com. The findings are accessible from the school library after the completion of the thesis contact the University of South Africa, Department of Geography.

Should you have concerns about how the research has been conducted, you may contact Dr Teresa Dirsuweit at 011 472 2752 or email dirsutc@unisa.ac.za or contact the research ethics chairperson of the CAES General Ethics Review Committee, Prof EL Kempen on 011-471-2241 or kempeel@unisa.ac.za if you have any ethical concerns.

Thank you for taking the time to read this information sheet and for participating in this study.

Thank you.
P Ndlovu

CONSENT TO PARTICIPATE IN THIS STUDY

I, _____ (participant name), confirm that the person asking my consent to take part in this research has told me about the nature, procedure, potential benefits, and anticipated inconvenience of participation.

I have read (or had explained to me) and understood the study as explained in the information sheet.

I have had sufficient opportunity to ask questions and am prepared to participate in the study.

I understand that my participation is voluntary and that I am free to withdraw at any time without penalty (if applicable).

I am aware that the findings of this study will be processed into a research report, journal publications, and/or conference proceedings, but that my participation will be kept confidential unless otherwise specified.

I agree to the recording of the <insert specific data collection method>.

I have received a signed copy of the informed consent agreement.

Participant Name & Surname…… (please print)

Participant Signature……..Date……

Researcher's Name & Surname……(please print)

Researcher's signature……..Date……

(v). Questionnaire

Questions to the directors of the garden

1. To conduct a comparative analysis of different study sites of urban food gardening in Johannesburg

- How big is the garden?
- When was this food garden formed and who owns the land?
- How many gardeners do you have?
- How much produce do you get from this garden, and what do you do with it?
- What benefits does the community get from this garden?
- What challenges do you face?
- What do you wish to improve?

Women gardeners

- Who are you and where do you come from originally?
- Are you staying around this area, if not how do you get to the garden?
- How long have you been working in this garden?
- How many people live in your household?
- How many are working? i.e. formal or informal work
- Why do you choose to work in this garden?

2. To identify the achievements of women in urban food gardens.

- How has working in this garden helped you and your family? In terms of food, knowledge production, and preservation, socializing
- Are you getting enough food from the garden?
- What benefits besides food that you get from the garden?

3. To identify the challenges that are faced by women in urban food gardening.

- What problems do you face working in the garden?
  i.e socially and economically
- How do you overcome these problems?

4. To assess the resource utilisation and needs of urban land.

- where do you get the resources you use in the garden?
- What resources do you need to work in the garden?
- Do you prefer working in the community garden or on your own?

5. Identify the mitigation measures to improve food gardens.

- What do you think can be done to improve this food garden?
- What can you share/tell others who are not working in gardens?

(iv). Turnitin receipt

turnitin

Digital Receipt

This receipt acknowledges that Turnitin received your paper. Below you will find the receipt information regarding your submission.

The first page of your submissions is displayed below.

Submission author:	P NDLOVU
Assignment title:	Complete dissertation/thesis for examination
Submission title:	Ndlovu_Full_Final_Thesis_2023
File name:	Ndlovu_Edited_Final-Full_Thesis_2023.docx
File size:	8.73M
Page count:	168
Word count:	50,249
Character count:	267,288
Submission date:	29-Jan-2023 03:51PM (UTC+0200)
Submission ID:	2001520147

Women and Food Production in Urban Areas

A case study of urban food gardening in Johannesburg

For the degree of

MASTER IN GEOGRAPHY

at the

UNIVERSITY OF SOUTH AFRICA

January 2023