

**AN ANALYSIS OF THE ROLE OF TOWN PLANNING IN
CONTRIBUTING TOWARDS THE SUSTAINABLE PRACTICE OF
URBAN AGRICULTURE. A CASE STUDY OF MSASA PARK, HARARE.**

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**This dissertation is submitted in partial fulfilment of the
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DECLARATION

I **Jeremy Godfrey Tendai Nhimura**, student number **211535163** declare that this dissertation is my own unaided work. All citations, references and borrowed ideas have been duly acknowledged. None of the present work has been submitted previously for any degree or examination in any other university.

Student signature

Date

DEDICATION

This thesis is dedicated to my family. I would like to firstly thank my parents, Godfrey and Tsitsi Nhimura for their support and love. Secondly, I would also want to dedicate this research study to my brothers, Israel, Joseph and Tapiwa Nhimura. I love you with all my heart. Thank you very much and God Bless you.

ABSTRACT

The Urban Agriculture (UA) sector plays a key role in the lives of millions of Zimbabweans. In Zimbabwe, urban farmers practice urban agriculture (UA) to reduce poverty, create employment, and for food security. It is evident that Zimbabweans benefit a lot from practising UA. Regardless of all the benefits of practising UA, the local municipalities still do not fully recognize UA as a land use and also regard it as an illegal activity. The current planning system used in Zimbabwe with regards to UA is called the Traditional Planning System (TPS), which was introduced by the British colonizers during the colonial era. The TPS system prohibits any form of UA in cities and argues that all urban land must be used for urban land uses which include residential development, infrastructure development and commercial uses. Currently, the city of Harare is temporarily allowing urban farmers to practice UA to address food shortages, high unemployment rate and other economic hardships facing the nation. However, most of the urban farmers in Harare are practising this phenomenon on wetlands, roadsides and other environmentally sensitive areas which are not sustainable. This research examines the role of town planning in addressing the unsustainable practice of the UA sector in Msasa Park and the surrounding areas. Since the main focus of the research is on sustainability, the research made use of theories which include sustainable development and urban ecology. To obtain the relevant data, the research made use of the mixed methods approach which comprises quantitative and qualitative research methods. The research findings showed that the UA sector in Msasa Park and the surrounding areas is not practised in a sustainable manner since it is faced by many problems which include lack of recognition from the town planners, shortage of land, poorly implemented policies, and unorganized institutions. The study recommended that town planners recognize the UA sector in Msasa Park, zone land for the sector and introduce institutions that look after the interests of urban farmers in Msasa Park and surrounding areas.

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LIST OF ABBREVIATIONS

AFSN – African Food Security Network

AGRITEX – Ministry of Agriculture, Mechanisation, and Irrigation

APA – American Planning Association

BBC – British Broadcasting Corporation

CLUP – Naga City Comprehensive Plan

DoA – Department of Agriculture

FAO – Food Agriculture Organisation

FDC – Finance and Development Committee

GDP – Gross Domestic Product

GIS – Geographic Information System

GMO – Genetically Modified Organisms

GRP – Green Revolution Programme

NA – North America

NRDC – National Resource Defence Council

SD - Sustainable Development

SDC – Sustainable Development Commission

SSA – Sub-Saharan Africa

TPS- Traditional Planning System

LRP- Land Reform Programme

UA – Urban Agriculture

UN – United Nations

UNDESA – United Nations Department of Economic and Social Affairs

USA – United States of America

USCB – United States Census Bureau

WB – World Bank

WCED – World Commission of Environment and Development

ZFU – Zimbabwe Farmers Union

CHAPTER 1: INTRODUCTION AND BACKGROUND

1.0 Introduction

The agricultural sector employs around 3.1 billion people throughout the world. It constitutes up to 3% of the world's Gross Domestic Product, 25% of the low-income countries, 14% of the lower-middle countries and 1% of the high-income countries (World Bank, 2010). This shows that low-income countries are heavily dependent on the agricultural sector than their counterparts in the lower-middle and high-income countries (World Bank, 2010: 3). According to Chandrasekaran Annadurai, & Somasundaram (2010), the global agricultural sector employs more people in the developing than in the developed nations. It is estimated that millions of people in developing nations rely on the agricultural sector for survival and to supplement their income (Fujita, 2010). Urban Agriculture (UA) is part of the broad agriculture sector and is practised in urban areas. In Africa, urban agriculture (UA) sector plays an important role in the economic growth of many countries. This is also true of other developing countries in the world. According to the World Bank (2010:2) and the Food and Agriculture Organization (2015a), the UA sector employs more than 800 million people worldwide, and the African continent has the largest percentage of urban farmers in the world. Macavele (2009:3) states that it is estimated that UA contributes more than 6.5% of the Gross Domestic Product (GDP) of most African countries and over 70% of African households are involved in the sector.

The history of UA in Africa can be traced back to the colonial era, where it was used as a reliable way to supplement Black African people's income and to provide food security (Mougeot, 2006). During that time, most of the Black African people practised UA on a small scale, but the colonialists were against this practice (Eberlee, 1997, Dima and Ogunmokun, 2004). As a result, the colonial settlers introduced the Traditional Planning Systems (TPS) which were a set of town planning policies with the objective to separate land uses and reduce competition between different urban land uses (Njoh, 2008). The TPS prohibited UA; it considered this practice as an illegal and non-urban activity. According to Magidimisha, Awuoh-Harangah & Chipungu (2013), the reasons why the colonial settlers introduced the TPS was; they wanted the urban land to be used for commercial, residential, industrial

purposes and UA was excluded. The colonial settlers argued that farming must only take place in rural areas or outside cities and regarded a belief that it should remain a sole responsibility of farmers who reside outside the cities to grow food for urbanites who do not practice farming so that urban land can be saved for profitable land uses (Magidimisha *et al.*, 2013). Taru and Basure (2013) have a different opinion on why the TPS was introduced by the colonial settlers arguing that the system (TPS) was introduced to remove the Black African people from the main cities and to keep them far away from the white settlers. Before the colonial era, Black African people economies were agro-based. Hence, the colonial settlers prohibited UA to drive them (Natives) out of the main cities into the rural areas where they could practice agriculture at will. The colonial settlers made sure that UA was not recognised as land use and no land was zoned for it in the African cities. Despite UA being illegal and not recognised by many colonial governments on the African continent, it was still practised by many low-income families who resided in low-income settlements (Taru & Basure, 2013). Today, several years after the independence of the African continent from the colonial rule, many African governments, professionals, institutions, and citizens still do not recognize or prioritise UA and still view this phenomenon as a waste of urban land that is already in short supply (Magidimisha *et al.* 2013).

1.1 Urban Agriculture in Zimbabwe

During the colonial era, the UA sector in Rhodesia (now Zimbabwe) faced similar problems as other African countries. Even today, most African countries still share similar problems with regards to the UA sector such as the continuation of the TPS, lack of recognition from the authorities, lack of funding and stakeholders. The same imperial power colonized most of these African countries. The objectives of the colonial settlers in colonising African countries was to enrich themselves, to disadvantage the black African population and take away the fertile land inside and outside the main cities owned by the natives. The practice of UA was prohibited in many African countries including present-day Zimbabwe. These days, urban farming / UA is only permitted to a limited extent in the country. Some conditions need to be addressed if one wishes to practice UA in Zimbabwe, especially around Harare. In the research conducted by the United Nations in 2015, 85% of African countries have an agro-based economy, and Zimbabwe is among these countries. Agriculture is the backbone of Zimbabwe's economy, and it plays an important role in the lives of its citizens (Taru and

Basure, 2013). When it comes to UA which is a small component of the agriculture sector, Toriro (2009) notes that over 500 000 urban farmers reside and practice UA in Harare. It is estimated that over 30% of the land in Harare is used for UA and that the land belongs to both the private and public sector. There are a couple of organisations which look after the interest of urban farmers in the country which includes the Zimbabwe Farmers Union (ZFU) and the Ministry of Agriculture, Mechanization, and Irrigation. However, these organisations lack funding, good leadership and political support (Ministry of Agriculture, Mechanization, and Irrigation, 2015). According to statistics from the ZFU, 15% of the organisation members are urban farmers. The ZFU supports the legalisation of UA as land use in Zimbabwe and is also engaging in discussions with the Zimbabwean government on this issue (Zimbabwe Farmers Union, 2015). Despite the high number of urban farmers and the pressure imposed on the government to recognise UA, it is still not a legal land use in Zimbabwe (Toriro, 2009).

According to research undertaken by Sloan in 2009, UA differs in function and form from one place to the other. For instance, some communities practice UA as a food security initiative, for example, in low-income communities. In other communities, UA is used as a recreational hobby while others use this phenomenon to reduce the carbon footprint, for example, the middle and high-income communities (Sloan, 2009). In the developed nations, UA is mainly practised for leisure, to reduce the carbon footprint and is usually on a small scale when compared to the developing countries. According to a research conducted by Hampwaye, Nel & Ingombe (2009) in Zambia, the main reasons why the UA sector is practised in Africa is to supplement income, reduce starvation and for food security. Over 50 million Africans depend on this sector for survival as their economies are fragmented due to vast reasons, hence the high rate of unemployment. Most of the urban farmers in Africa are rural migrants who moved to the urban areas in search of better standards of living, health, infrastructure, services and among other factors. The role played by the UA sector must not be underestimated by the people and the governments. In other African countries, for instance in Kenya, UA is used by the national government as a political tool to get the people's votes during elections. The practice of UA is not allowed in Kenya, but the Kenyan government allows people to practice this phenomenon in exchange for votes. Therefore, the question that arises is, do all developing nations on the African continent practice this phenomenon for the same reasons? The focus of this research is on answering this question and many

more. This research will also investigate why the medium-income people practice UA in Msasa Park, and identify the roles played by town planning in solving the issues faced by the UA sector.

1.2 Justification of the research

In the past few years, the number of people practising UA in Harare has increased rapidly, mainly due to the high levels of unemployment in the country. Urban farmers are using this phenomenon for food security and to create employment. As a result, the demand for land is increasing, which is causing high competition between different land uses (Toriro, 2009). According to Toriro (2009) and Magidimisha *et al.* (2013), most of the urban farmers in Harare are practising the sector in a manner that is not environmentally, socially, economically and institutionally sustainable. That is why it is important to research on the issue and to look at the role played by the town planning profession in making this sector sustainable in the Msasa Park study area and surrounding areas. It is the responsibility of the town planning officials and local councils to come up with solutions, and this research will help in achieving this goal.

1.3 Problem statement

As mentioned above and throughout this research, the UA sector plays a vital role in the lives of millions of people worldwide. As a result, many urban residents have occupied vacant pieces of land within their neighbourhoods to practice this phenomenon. According to the Food and Agriculture Organization (2015), UA is practised by more than 800 million people around the world. This phenomenon benefits urban residents socially, economically, and environmentally if practised in a sustainable manner (Food and Agriculture Organization, 2015 & Mbiba 1998).

However, the UA sector is not always practised in a sustainable manner in Africa and other parts of the world (Toriro, 2006). For example, in 1992, a substantial number of urban farmers in Chile contracted cholera and other water-borne diseases from using untreated wastewater for irrigating their crops after facing a water shortage in the country. The cholera outbreak and other water-borne diseases also spread throughout the country, affecting large portions of the country. In response to the outbreaks, the Chilean Government implemented projects which supplied urban farmers with clean water to resume safe irrigation (Smit, Nasr, Ratta,

2001 & Magidimisha *et al.*, 2013). Most Governments have adopted tough stances when it comes to UA, and some have enacted by-laws and policies that make it a crime to practice UA. The Ugandan and Zambian governments once banned the growing of maize in the urban areas because they believed that it led to the spread of malaria and other waterborne diseases (Reed, 2014). Therefore, it is evident that the UA sector in Africa and the rest of the world needs to be practised in a sustainable manner to reduce the risks mentioned above (Smit, Nasr & Ratta 2001).

Harare is situated on a watershed plateau between two major rivers which are the Zambezi (on the northern side) and Limpopo (on the Southern side) (Kisner, 2008). Harare has one of the fertile agricultural lands in the country and is home to over 2.4 million people (United Nation, 2012). The UA sector plays an important role in the lives of many low-income people in Harare, and over 25% of the total land in the city is used for this purpose. However, urban farmers in the Harare Metropolitan and surrounding areas are faced by problems like other African countries such as disease outbreaks, land competition, lack of recognition from authorities and lack of legislative frameworks. Despite all the problems, the number of people practising UA has increased due to unemployment, economic and political instability in the country (Redwood, 2008). In Harare and the surrounding areas, the UA sector is used for socio-economic benefits, and most urban farmers practice this phenomenon on public and privately-owned land. In recent years, this has also been extended to conservation areas such as parks and wetlands even though it is illegal due to shortages of arable land (Toriro, 2009 & Chimbwanda, 2013).

As mentioned earlier, many families in Harare and surrounding areas rely heavily on the UA sector for their livelihood yet the Harare municipality does not recognise UA as land use or as an urban activity. Some officials in the municipality consider UA as a waste of land that must be used for commercial purposes. Many scholars including Toriro (2009) argued that the Harare municipality does not realise the importance of the UA sector to the people and the environment, which is why they do not recognise this sector and still follows the approach of its colonial predecessors. It is a major setback to the UA sector that the present local authority still holds the same notion as that of the colonial predecessors. Countless local and international organizations, including the Food and Agriculture Organization (FAO), United Nations, Resource Centre on Urban Agriculture and Food Security (RUAL) and Zimbabwe

Farmers Union (ZFU) are in talks with the Zimbabwean government to convince them to have a re-look at UA issues. These organisations are also educating and training the Zimbabwe government on the benefits of UA on its citizens and the natural environment (Kisner, 2008; Food Agriculture Organisation 2015 and RUAFA, 2015).

1.4 Main Objective

The main objective of this study is to investigate the role of town planning in the sustainable practice of UA in Msasa Park and surrounding areas. This research aims to identify the role of town planning in the creation of a sustainable urban agricultural sector in Msasa Park medium-income suburb in Harare.

Sub-objectives

- To identify the roles of town planning in UA.
- To examine the extent to which the UA sector is practised in Zimbabwe.
- To identify the benefits and challenges faced by the UA sector.
- To analyse the legislative frameworks that govern UA in Zimbabwe.

1.5 Main research questions

To what extent do the role/s of Town and Regional Planners contribute towards sustainable practice in UA in the Harare suburb of Msasa Park?

Sub-questions

- What is the role/s of town planning in the UA sector?
- Which is the UA sector practised in Zimbabwe?
- What are the benefits and challenges faced by the UA sector in Msasa Park and surrounding areas?
- What are the legislative frameworks that govern UA in Harare and the country at large?

1.6 Structure of the dissertation

Chapter 1: Introduction

This chapter is the introductory chapter. It plays an essential role in this research since it breaks down the broad research topic which is titled *“an analysis of the role of town planning in contributing towards the sustainable practice of urban agriculture: A case study of Msasa Park in Harare, Zimbabwe”* into objectives, research questions, and sub-questions. This chapter also explains the researcher’s objectives, and it discusses the background and the status quo with regards to UA worldwide. This chapter also goes on to explain issues that lead to the unsustainable practice of UA in Zimbabwe and other African countries such as Zambia.

Chapter 2: Research Methodology

This chapter looks at the research methodology. It plays an important role in this research since it looks at how data was collected, the research tools used and how the researcher addressed the different issues that arose during the fieldwork process. The issues discussed in this chapter are as follows; the research tools used to collect data, sources of data used, the number of respondents interviewed by the researcher, the problems encountered during the process of data collection, the measures that were implemented to safeguard the rights of the researcher and the respondents and how data was analyzed and presented.

Chapter 3: The Theoretical Framework and Literature Review

This chapter looks at the theoretical framework and literature review. The research concepts, theories, and literature reviews are the three different sections that make up this chapter. The reason why the different sections were incorporated into one chapter is that they link and complement one another. The linkage between these sections plays an important role as it makes the research study understandable to the reader and the researcher. This chapter is important because it is the backbone and foundation of the whole research. The theories mentioned in this chapter are used to analyse the research findings and to make sense of the whole research.

Chapter 4: An Overview of UA in Zimbabwe

This chapter is an overview of UA in Zimbabwe. It looks at the current status quo with regards to the UA sector in the country, the stakeholders involved, the legislative frameworks currently in place, the issues that hinder the sustainable practice of the UA sector, and the evolution of the sector. The main objective of this chapter is to look at the history and growth of UA in Zimbabwe from the colonial era to the present day.

Chapter 5: Background of the study area, data presentation, and data analysis

This chapter is divided into three different sections which are the background of the study area, data presentation, and data analysis. The first section of this chapter introduces the Msasa Park medium-income study area which is in Harare, Zimbabwe. This section discusses the demographics of the study area, the status quo, and the environmental issues facing the study area. The second section of this chapter is the data presentation which illustrates and discusses the research findings obtained in the fieldwork exercise. The last section of this chapter is the data analysis which analyzes the study findings and links the theories and the research results.

Chapter 6: Recommendations and Conclusion

This last chapter of the dissertation looks at the recommendations and conclusion. The recommendations discuss what must be done to address the problems faced by the UA sector in the study area and the conclusion ties up the whole dissertation together. The conclusion also highlights the major arguments raised in the research study and examine if the research study has managed to answer the main research question which is titled an analysis of the role of town planning in contributing towards the sustainable practice of urban agriculture (UA) in Msasa Park, Harare Zimbabwe.

1.7 Chapter Summary

In summary, this introductory chapter drew a mind-map of the whole research paper. This chapter focused on the following: the different aspects of the UA sector throughout the world, the reason for conducting the research study in Msasa Park and the factors that affect the UA sector in Africa and other parts of the world. The chapter also looked at the

stakeholders involved in the UA sector in Zimbabwe, the history of UA on the African continent, the different UA legislative frameworks in Africa and the reasons why the colonial settlers prohibited UA in the urban areas. This chapter also discussed the similarities between the colonial settlers and the post-independence governments' attitudes towards the UA sector.

CHAPTER 2: RESEARCH METHODOLOGY

2.0 Research Approach/ Methods

This chapter looks at the research methodology. Research methodology is a systematic way that is used to obtain data, examine it and present it (Mikkelsen, 1997). This chapter looks at the following; how data was collected during fieldwork, the research tools used to collect data, how data was analysed and how it was presented.

Quantitative & Qualitative Research Methods

This study made use of the mixed methods which comprises quantitative and qualitative research methods. The Qualitative research method is mainly used in social science. It is designed to disclose the target audience's feelings, behaviour, perceptions and points of view. Qualitative research makes use of in-depth studies of a small group of people, and its results are descriptive. This research study made use of qualitative research through the uses of interviews, diaries or journal exercises, observations, and group discussions. The advantages of qualitative research are; it can study complex questions that cannot be answered by quantitative methods, and it is in-depth. Its disadvantages are it is labour intensive and is subjective in some cases (Qualitative Research Consultants Association, 2015). This research study made use of quantitative research by using surveys, and questionnaires. Quantitative research is mainly used by scientists and makes use of surveys, and questionnaires. It makes use of statistics and numbers. According to Leedy (1993) "*quantitative research methods are research methods dealing with numbers and anything that is measurable in a systematic way of investigation of phenomena and their relationships*". Quantitative research methods ask people questions in a formal, structured way so that they produce facts (Johnson & Christensen, 2008). The main advantages of using quantitative research are that the data collection process is quick and unbiased compared qualitative research. Whereas the common disadvantages are that the researcher can miss out on other phenomena and the knowledge can be too general (University of South Alabama, 2017).

2.1 Secondary data

The Business Dictionary, (2015) defined secondary data as second-hand information obtained from published sources which comprise books, maps, journals, magazines, newspapers, and

internet sources. The secondary data used in this research study was obtained from published sources mentioned above. The importance of secondary data should not be underestimated since most of the information in this research study is obtained from this source.

Mapping

Mikkelsen, (1997) defined mapping as the skill that allows a researcher to show his or her information in a map form. Maps show useful information that cannot be expressed in words, graphs or tables. For example, a map shows a variety of information which includes plot sizes, the size of physical or human-made features and identifies the area of interest. In this research study, the researcher made use of mapping to identify the study area, to identify the land used for UA and the distance between environmental sensitive areas and where UA is practised. Map 2.1 below shows the map of Zimbabwe and Harare, some of the features presented in this map include national boundaries, road networks, regions, and vegetation.

Map 2.1: The map of Zimbabwe and Harare



Source: Google Map (2015)

2.2 Sampling

According to Latham (2007), sampling is the process whereby the researcher/s study a small number of the target population instead of the whole population. This is done to save time and money, for example, in most cases, the researcher/s cannot study the whole population because of different reasons (Latham, 2007). This research study made use the quota, purposive and snow-ball non-probability sampling techniques. Quota sampling is the process when the researcher divides the respondents into sub-groups and select the ones who are representative to the whole study area and to the objective of the research. For instance,

These respondents are selected based on their gender, skills, age to name a few. Selective or purposive sampling is the process when the respondents are selected based on the characteristics of population. Snowball non-probability is the process when one participant of the study refer another to take part in the same research study. It is also called chain sampling or chain-referral sampling. (Johnson & Christensen 2008). According to Johnson & Christensen (2008), non-probability sampling is a technique used in sampling where the sample population is selected at random. The reasons why the non-probability sampling was used; it was able to reflect and critically analyse the situation on the ground with regards to how and where UA is practiced, and it was able to saves the reasearcher time which was limited during the fieldwork exercise.

Msasa Park is a medium-income surburb located in Harare, Zimbabwe and this area is home to about 7000 people (Zimbabwe Census 2013). The researcher faced numerous challenges such as limited time and financial constraints to name a few. To address these problems, the researcher used three types of non-probability sampling which is fast and cost-effective. This was done by selecting one section of Msasa Park which is habited by 150 residents (both urban farmers and non-urban farmers inhabited this area) and the researcher did an in-depth study of this area. This study area was selected on the following grounds; the area was close to water sources and had the highest concentration of UA activities in the whole of Msasa Park. The size of the sample was determined after some exploratory work was done, it was scientifically determined. That is why the researcher interviewed thirty people plus the key-informers. In numerical calculations, 30 participants constitute 20 per cent of the primary sample size (150) exceeding the minimum acceptable limit of 10% of the selected population.

2.3 Primary data

According to the Business Dictionary (2015), primary data is defined as first-hand knowledge, facts, or statistics that are obtained during the fieldwork exercise. Primary data is obtained through the following process; talking to the participants, asking participants questions about your research topic (interviews) and through participant observations.

Questionnaires-According to Key (1997:2) *“questionnaire is most frequently a very concise, pre-planned set of questions designed to yield specific information to meet a particular need for research information about a pertinent topic”*. The research information is obtained from

respondents from a related interest area (Key 1997). The Merriam Webster (2016) online dictionary definition gives a clearer meaning on what a questionnaire is, “*A questionnaire is a written or printed form used in gathering information on some subject or subjects consisting of a list of questions to be submitted to one or more persons*”. In this research study, the researcher distributed thirty questionnaires to the residents of Msasa Park and the key informers to collect data on UA. The questionnaires were divided into two categories; open-ended questions for key-informers and closed questions for urban farmers and non-urban farmers. The reason for using open-ended questions for key informers was to avoid limiting their responses to the questions. The closed-ended questions were used on the non-farmers and urban farmers to limit their responses to the scope of the study. The respondents were selected using the selective/purposive sampling approach. This approach was used by the researcher to ensure; he or she is able to question the right individuals with the right information and knowledge on the UA sector in Msasa Park. The urban, non-urban farmers and the key-informers contributed.

Interviews

The Business Communication (2013) defines an interview as a private meeting between two or more people; its purpose is to ask the interviewee questions on the topic of concern orally. The person who asks the questions in an interview is called the interviewer, and the person who responds to the questions is the interviewee (Business Communication, 2013). According to Business Communication (2013), there are two types of interviews which are structured interviews (which follow formal procedures), and unstructured interviews (which are informal) and both are used in this research study to obtain information from respondents. In this research study, the interviews were divided into two categories. The first category was the key informant’s interviews which interviewed key people who are involved and well informed on the UA sector in Msasa Park and Harare. These respondents included three town planners from the City of Harare municipality, one City of Harare UA researcher and the Ward councillor of Msasa Park. The second category was the individual interviews with residents of the study area. In the individual interviews, the researcher interviewed eleven (11) urban farmers and twelve (12) non-farmers who reside in the area. The questions asked in the interviews ranged from land tenure issues to types of crops grown by the urban farmers. The responders were selected through the quota sampling. The researcher used the quota

sampling in order to avoid over presentating a certain population group. This sampling type was used to ensure that the researcher interview a balanced number of urban and non-urban farmers and that all the gender groups are represented in the study. The other reason why the researcher used this sampling type is because of budget and time difficulties.

Focus group interviews

Focus group interviews can also be called group depth or focused interviews. They are like interviews; the only difference is that they include more than one interviewee. A focus groups interview can be defined as a group of people talking or discussing a specific topic or issue of concern. The interviewees in the focus group are selected based on the knowledge of the subject matter; the respondents must be aware of the issues being discussed (Marczak & Seweel, N.D). In this research study, the researcher conducted one in-depth focus group interview, and the respondents were selected through snow-ball non-probability sampling approach. The snowball non-probability approach was used to ensure that all the relevant people with knowledge on the UA sector in Msasa Park are interviewed. This focus group was conducted with the residents of Msasa Park. Both urban farmers and non-urban farmers participated in this activity, and the total number of people involved were nine.

Household survey

A household survey is a study undertaken at the household level. Household surveys are classified as research tools since they are used to collect information on demographics, the standard of living, budget, and level of education (World Bank, 2013). In this research paper, the household surveys were used to collect data at the household level and from individuals who included heads of households and other family members about the standard of living of the people, budget, level of education, and on topics related to UA. By conducting household surveys with both the heads of households and the family members, the researcher managed to obtain valuable unbiased information necessary to answer some of the questions at hand. The number of households and individuals' surveys conducted were 30 in total and were administered through questionnaires.

Observations

Participant observation is used as one of the data collection tools in this research study. Participant observation can be defined as the process of watching, looking, or study of a phenomenon (Your Dictionary, 2015). Some of the ways in which this research study made use of participant observation are by capturing pictures during fieldwork exercise, taking and writing down notes and by observing the current status quo on the ground with regards to UA. During the research field work, the researcher visually observed how UA is practised. Particular focus was on gender, size of land and the location of the land used in UA. Participant observation played an important role in this study and it complemented other research techniques such as interviews and mapping.

2.4 Data analysis

Descriptive analysis is a study which describes people who take part in a study and the status quo at the time of the study. The three ways in which a researcher can undertake a descriptive research project is by household surveys, case study and observations (Kowalczyk *et al.* 2004). The researcher made use of descriptive analysis by explaining the situation on the ground with regards to UA and by describing people involved in the process. In analytical research, the researcher makes use the existing secondary data and relates it to the research question. The researcher made use of analytical research by using existing secondary data on UA and linked it to the research objective and question. In this research study, both descriptive and analytical analysis were used in the research study.

The Problems Encountered during fieldwork

Misinformed residents on the topic of UA

It was observed that some of the residents were generally uninformed on the legality of UA activities in Msasa Park. Most people thought that UA was permitted whereas it was in fact against municipal bylaws. When Msasa Park was planned and built after the independence of Zimbabwe, this area was zoned for residential land use. The current spatial plans of the study area also show that the area is zoned for residential land use and UA is not allowed. The suburbs zoned for UA by the Harare municipality comprise Borrowdale, Warren Park, and others, but Msasa Park was not on this list. Over 55% of residents interviewed thought that

UA was allowed, but it was not. This showed that some of the residents in the case study were misinformed about issues about the sector in their local communities.

Lack of written information on the study area

There was a shortage of written information on the study area regarding the UA sector on the internet and books. However, to address this issue, most of the information used in this research study was obtained through private interviews, focus group interviews, the researcher's knowledge of the area, and through observation.

Lack of participation and compensation issues

Many of the residents in the study area refused to participate in the research study citing personal or political reasons. In this research study, political reasons were the chief reason why local people did not want to participate in the research study. Some residents in the study area were afraid to talk to the researcher on issues affecting them and how they practised UA. Some of the residents who participated in this research study wanted compensation for their role in this research study.

Lack of time, financial resources and absent interviewee

The researcher did not have enough time and financial resources to conduct the research study. To address these issue of money and time, the researcher sampled the population and studied a small group of people. The sampled population was a good representative of the whole of Msasa Park and the surrounding areas. One of the serious issues faced by the researcher during fieldwork was absent interviewees. To address this, the researcher selected household and individuals in a non-probability manner to reduce the impact of absent interviewees on the research study.

2.5 Chapter summary

In summary, this chapter informed the reader on the research tools used to gather data, the types of data gathered, the problems faced by the researcher in the field and how the problems were solved. The research tools mentioned in this chapter were used to obtained vital data that was used to come up with research findings, data analysis, conclusions and to inform the recommendations and conclusion.

CHAPTER 3: THEORETICAL FRAMEWORK & LITERATURE REVIEW

3.0 Introduction

This chapter is divided into three sections which are the conceptual framework, theoretical framework and the literature review. The first section is the conceptual framework which discusses the concepts which relate to this research which are urban, sustainability, agropolis and UA. The second section, the theoretical framework discusses the theories that support the research topic, which are urban ecology and sustainable development (SD). The last section of the chapter is the literature review which reviews the literature on UA from all over the world.

3.1 Conceptual framework

Urban

People generally understand the term "urban", but it is not easy to define. Weeks (2008) argued that to define the concept urban properly; people must look at the characteristics of the place instead of the number of people who reside in that area. This is conflicting with past definitions that defined urban based on the population size or the number of people who reside in a particular area. The United States Census Bureau, (1995) noted that urban is any territory with over 2500 people. The definition from the United States Census Bureau (1995) focused on the people and population size within an area rather than the characteristics of a place which Weeks (2008) does not agree with. Weeks (2008) defined urban based on the characteristics of the place that includes elements such as built environment, the transformation of a natural environment, social and economic organisations, and population density.

The concept 'urban' differs from country to country and from region to region. According to the United Nations Children's fund (2012), this concept can also be defined, based on the following factors: administrative criteria, municipality, or political boundaries as seen in Table 3.1 below. Table 3.1 below shows the five characteristics of the urban concept. This table shows that territory or area defined as urban must have good transport facilities, a complex economy (tertiary economy), modern infrastructure, large population size and the prevailing land uses must be commercial.

Table 3.1: The characteristics of an urban concept

1. The prevailing land uses in the urban areas must be commercial	2. Urban areas must have many people
3. Urban areas must have modern infrastructure and services	4. It must be easy to move in an urban area from one place to the another (e.g. good transportation routes)
5. Urban areas must have vast human-built features.	

Source: National Geographic Society (2015: 1)

Rural areas are the opposite of urban areas. According to the National Geographic Society (2015), rural areas have the following characteristics; their local economies are heavily dependent on agriculture, have a low population density, and the bulk of its land must be undeveloped compared to the urban areas. Any area that does not meet the characteristics of urban areas is rural and urban policies do not apply (The National Geographic Society, 2015 & British Broadcasting Corporation 2014).

The definitions from Weeks (2008) and the National Geographic Society (2015) are similar since both focus on the characteristics of the place rather than the size of the population. As mentioned above, the concept urban is not easy to define. As argued by Weeks (2008), the concept *urban* includes many factors that may be easily be overlooked or ignored by others. This research study used the most appropriate definition of urban which is from Weeks (2008) since it is broad and considers other factors that other researchers overlook and ignore.

Sustainability

Many scholars like Ben-Eli (2015), and Giovannoni and Fabietti (2014) to mention a few, have defined the concept of sustainability broadly over the years. This research looks at two definitions of sustainability which are relevant to this research study. There are from Kuhlman, Farrington (2010), Cruz Harasawa, Lal, WU, Anokhin, Punsalma, Honda, Jafari, LI, and HU NINH 2007. Kuhlman and Farrington (2010), defined sustainability as a process that ensures that people maintain an equilibrium/ balance between their personal needs and the

needs of the natural environment around them over a long period of time. According to Cruz *et al.* (2007), sustainability is achieved when people attain a balance between environmental protection and economic development. The two definitions stated above have the same objective. There both argue that to reach a level of sustainability, people and their governments must create a balance between economic needs and environmental protection. This means that the natural environment must not be destroyed at the expense of economic development. The economic development and the natural environment pillars must be at balance (Tornyie, 2011).

However, this balance is not yet achieved as many countries throughout the world are far away from reaching this score. Several reasons are disturbing the progress. Many countries are placing priority on economic growth at the expense of environmental sustainability to grow their local economies. As a result, the natural environment is destroyed to achieve economic growth. For example, China has been accused of exhibiting these traits. To solve this problem, Tornyie (2011) recommends that governments worldwide must come up with ways to grow their economies without harming the natural environment, conserve the natural environment, come up with international legislative frameworks that promote sustainability and punish the nations that do not follow the law.

The sustainability concept was first used during the Brundtland Conference in 1987. This concept was introduced at a time when people realised that they were consuming natural resources at a faster rate than the earth could reproduce. People also saw that they were making economic development a priority at the expense of environmental sustainability. Hence, the objective of sustainability was to create a balance between the needs of the natural environment and humans. According to Kuhlman and Farrington (2010), it is vital to create this balance since people are known to destroy or overlook the natural environment at the expense of economic growth. Today's cities are also to blame for the imbalance between the economic pillar and the environment pillar. For instance, cities are growing at a fast rate which is leading to the high demand for land in the urban edge. As a result, people are using the available land in the urban areas to construct buildings, housing infrastructure or offices which are classified as profitable land uses instead of conserving the land or engaging in activities that are good for the environment such as UA. Based on the evidence,

one can argue that people and organisations are overlooking environmental sustainability to achieve economic growth and profits (Tornyie, 2011).

When it comes to UA, it is also not easy to achieve the desired balance stated in the definitions of sustainability. Many factors are affecting the sustainability of UA in both developing, and developed nations such as competition between UA land use and traditional urban land uses. Shortage of land for UA, lack of political will and insecure land tenure amongst urban farmers, have also been identified as some of the factors affecting UA (Mougeot, 2006 & Hill *et al.* 2007).

To reach the sustainable practice of the UA sector, the issues mentioned above must be addressed. However, there are some countries which have a sustainable UA sector. According to Drechsel (2007), a sustainable UA sector has the following benefits; protecting the natural environment from degradation, reducing the volume of food imported from other countries, reducing the cost of transporting food, and creating employment. Sustainability is important for the advancement of UA worldwide and especially in Africa. The United Nations (2014) argues that people must implement the principles of sustainability which states that it is the responsibility of every resident of planet earth to look after the environment, use renewable energy, recycle, conserve, engage in sustainable practices (such as sustainable UA), use natural resources in a way that is effective and does not cause permanent damage or deplete it.

Sustainability in the UA sector largely depends on the institutional environment in which it operates. According to Pearson (2010), the institutional environment means the rules, social norms, protocols and formal laws regarding UA. Most developing countries have poor institutional environments on UA, and this affects the advancement of the sector. Some countries have legislative frameworks that are against the practice of the UA sector, and some societies see urban farmers as of a lower class. All this affects the advancement of UA and its sustainability. Sustainability in the UA sector is one of the main scores of this research since UA is currently faced by numerous problems and is practised in an unsustainable manner in many parts of the world, especially in Africa.

Agropolis

According to the United Nations (2009), over 50% of the world's population now resides in cities, and most of the world's urban residents are heavily dependent on imported food to meet their daily needs. The high demand for food in cities is intensifying fast, especially in developing cities and this is mainly caused by high population growth, urbanisation and scarcity of land to practice farming. UA is one of the tools that can be used by town planners to improve food security amongst the city dwellers. But the shortage of land is one of the serious problems affecting the growth of the sector. Koscica (2014) argues that to address the shortage of agricultural land in cities, town planners must implement the Agropolis since it can be implemented with little or no land.

Agropolis is a combination of two terms, which are agro which stands for agriculture and polis which stands for city. Therefore, Agropolis means agriculture city. It is important that people who reside in cities plant enough food for themselves and become agricultural cities which are food self-reliant. According to the Food and Agricultural Organisation in 2011, over 140 cities worldwide are currently faced with food shortage, and most of these people are on the African continent. To address this issue, the Food and Agricultural Organisation (2011) recommended that city residents must maximise the use of the land when practising UA to get the most yield. Agropolis is one of the solutions since it uses less land in practising UA (Sabina, 2010).

Agropolis is a concept that argues that food stores of the future will grow their own food inside them and the food will be sold to city dwellers. The food stores will act as small farms which will not use too much land or water. The customers will be able to walk in the food stores which will be covered in fresh plants. As a result, people will be able to buy fresh produces and reduce wastage of foodstuffs. Sabina (2010) argued that; *"These food stores will bring an all-new meaning to the word local, and its benefits include reducing greenhouse emissions"*. All the food sold in these food stores will be sourced locally and will benefit the people and the environment at large (Sabina, 2010).

The implementation of Agropolis in cities will play an important role in the advancement of the UA sector in future. It will resolve some of the problems faced by the UA sector today such as shortage of land since Agropolis farming will be practised inside small enclosed urban

spaces. This will reduce pollution, greenhouse emissions and save the land. The implementation of Agropolis will also lead to a decline in the use of dangerous farming chemicals such as fertilisers since it encourages urban farmers to use natural manure in the farming process as an alternative to fertilisers. The Agropolis will also lead to a reduction in the distance traveled by food from production to consumption. Currently, most of the food consumed today throughout the world comes from distant places, which is not sustainable as it increases pollution and cost more (e.g. importers pay import tax and transport). According to a Research conducted by the Natural Resource Defence Council (2007) in America, a typical American meal contains ingredients from over five countries from all over the world. In 2005, the state of California imported nuts, fruits and vegetables from all over the world by air which released over 70, 000 tonnes of carbon dioxide into the environment; this is equal to 12 000 vehicles on the road (Natural Resource Defence Council 2007). By using the Agropolis concept, the foodstuffs eaten by people will be locally sourced instead of being imported from distant places. This concept will also reduce the wastage of food, reduce the cost of transporting foodstuff, reduce the cost of food, and create a healthier environment for every global resident (Gayo, 2011).

The most urgent issue that will be addressed by the Agropolis concept is the competition between land uses (UA vs traditional). Since the Agropolis concept encourages urban farmers to practice UA in enclosed spaces such as stores, this will reduce the current conflicts between UA and traditional urban land uses. The urban farmers of the future will have adequate space to practice UA in their stores instead of competing for land with the traditional urban land uses. The United Nations (2009) stated that by 2050, 80% of the world's population would be residing in urban areas and this will create a higher demand for urban land. Therefore, the Agropolis will ensure that land is available to practice UA in the future and will also create employment for many urban dwellers (Gayo, 2011).

Urban Agriculture (UA)

Scholars such as Rogerson (1998), Freeman (1991) and Rakodi (1985 and 1988) have defined UA over the past years, and their understanding presents similar patterns in defining the concept. Mbiba (1998) defined UA as the cultivation of crops and the keeping of livestock within the boundaries of an urban area. The United Nations Development Program (1996; 11)

defined UA as “an activity that produces, processes and markets food and other products, on land and water in the urban areas, applying intensive production methods and reusing natural resources and urban wastes, to yield a diversity of crops and livestock”. According to the RUAF Foundation (2015), UA is the raising of animals and the growing of plants in the urban and peri-urban areas. The United Nations Economic and Social Commission for Asia and the Pacific (2012: 3) argued that “Urban agriculture can be defined as a growing of plants and raising of animals for food and other uses within the and around cities and towns, and related activities such as the production and delivery of inputs, processing and marketing of products”.

As seen above, scholars define UA in different ways, based on where they reside in the world. For instance, the way scholars define UA in the developed nations is different from the way scholars in developing nations define it. The perspective of the different scholars tends to differ because of numerous reasons. One of the main reasons is the fact that in the developing world, UA is used to supplement income and in the developed world it is mainly used for leisure purposes. Hence, the scholar’s perspective changes from one region to the next since UA is used for different purposes (Pearson *et al.*, 2010).

The definitions of UA cited above are almost similar. However, the most appropriate definitions for this research study is from the United Nations Development Program (UNDP) and the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) since they explain in more detail what UA is.

3.2 Theoretical framework

This section looks at the theoretical framework which analyses the two theories used in this dissertation, which are Sustainable Development (SD) and urban ecology. This section also discusses how the theories relate to this research study. SD and urban ecology are the most appropriate theories to use when discussing issues about UA in developing countries such as Zimbabwe since many of these nations are practising this phenomenon in an unsustainable manner. As a result, the two theories mentioned above will help in understanding the problems faced by UA and hopefully come up with the solutions to the problems. This section starts by defining Urban Ecology. Under urban ecology, the researcher will discuss the relationship between humans and the natural environment. Then, the research study looks at the theory SD in general and how it relates to the UA sector.

Urban Ecology

The world population is growing fast. In 1950, 2.5 billion people lived on planet earth, and in 2016 the population increased to 7 billion people. Currently, it is estimated that 50% of the world's population resides in cities. Further to this, the United Nations (2009) anticipates that by 2030 the number of people residing in cities will increase to over 60% of the world's population. As a result, more pressure will be put on the current urban infrastructure and resources such as land, infrastructure, and water. It is also estimated that the world's population will increase by 2 billion people by 2050 (Endlicher *et al.* 2007 & United Nations, 2009).

Many factors are contributing to the increase of the urban population such as high urbanisation of people from rural areas to urban centres, high birth rates mainly in developing countries and improvement in the healthcare system which results in low mortality rates amongst the population. According to Endlicher *et al.* (2007), by 2025, most cities throughout the world will have over 20 million inhabitants living in them. The cities that will be most affected by the population increase will be in the developing countries (Kraas 2003). Currently, over 5% of the world's surface is covered by urban areas, and this has direct and indirect effects on the natural ecosystem (Rees & Wachernagel, 1994). The fast growth of cities is destroying the natural environment. Cities are the most altered ecosystems in the world. The main perpetrators are people who pollute the environment, who consider the development of the human-built environment at the cost of the natural environment. Therefore, the question that arises is, can the problems faced by cities which are mentioned in this research study be solved, can human-built environment, i.e. buildings, and other man-made infrastructure co-exist with the natural environment? The Urban Ecology theory attempts to solve these issues by creating a balance between the human-built environment and the natural environment (Endlicher *et al.*, 2007 and Marzluff *et al.*, 2004).

Having discussed the above, it is necessary to define urban ecology. According to Endlicher *et al.* (2007), urban ecology studies the relationship between humans, man-made infrastructure, animals, plants and the environment within the urban setting. Alberti *et al.* (2003) defined urban ecology as the study of the ecosystem that includes urban development and the natural environment. According to Marzluff *et al.* (2004), urban ecology is an multidisciplinary

approach that aims to create cities that are sustainable and healthy, while seeking to improve the living conditions and reduce the problems faced by people. Urban ecology is related to the concept of ecology, which was introduced in the late 19th century by biologists who wanted to understand the interaction between the earth's organisms (Collins *et al.* n.d).

The urban ecology theory argues that cities are man-made ecosystems where ecological, social-economic aspects are linked and rely on each other. This theory was introduced with the intention of restoring the balance between human-made environment and the natural environment in cities, to protect the diverse range of plants and animals found in cities, encourage people to incorporate nature into the planning of cities, communities, and suburbs (Cadenasso & Pickett, 2012). The benefits of urban ecology on the urban setting are that it reduces climate change, protects the natural environment and reduces soil degradation.

The theory also has its setbacks. The setbacks of this theory are that it is technical and complicated to implement. As a result, many people, governments, and businesses block the implementation of this theory since it hinders economic development. For example, when a country implements the urban ecology, they are required to introduce legislative frameworks that reduce the volume of pollution that is emitted into the environment. As a result, these legislative frameworks have a direct impact on the local economy of the country. In a nutshell, the objective of urban ecology is to encourage people to look after the natural environment (Alberti 2005).

According to Shaw *et al.*, (2004), the urban ecology theory argues that people who reside in cities are losing touch with nature as more rural residents move to the urban areas. It also argues that urban inhabitants do not prioritise nature as before (Shaw *et al.*, 2004). In today's world, urban land is scarce and the demand for it is high. As a result, some town planners are not zoning adequate land for natural open spaces and UA in their planning of cities. One can argue, that the town planning profession throughout the world is prioritising traditional urban land uses (such as commercial and housing) at the expense of the natural environment. It is evident that the shortage of land currently facing today's cities is contributing to the reduction of natural spaces which include gardens, open spaces, and parks. This has resulted in the loss of touch or connection between people and nature (Marzluff *et al* 2004 and Pataki, 2015).

Urban ecology plays an important role in understanding why the UA sector is not sustainable in many parts of the world. If urban ecology is implemented and incorporated into the UA sector of all countries throughout the world, this sector will become sustainable than what it is today. The implementation of the urban ecology theory in UA policy will result in many benefits for the people and the natural environment. Some of the benefits are reduction in the levels of environmental degradation caused by the unsustainable growth of cities, discouraging urban farmers from using artificial farming chemicals, educating people on the importance of the conserving the natural environment, reducing socio-economic problems faced by many poor countries, improving the standard of living, restoring the lost connection between people and the environment and creating employment. Urban ecology will make the UA sector sustainable than what is it today (Marzluff et al N.D & Pataki 2015).

Urban ecology is one of the two theories used in this research study and it plays an important role in understanding the complex issues contributing to the unsustainable growth of the UA sector mainly in sub-Saharan Africa. Numerous issues that were raised by this theory which include why people are losing touch with the natural environment in cities, how to conserve the environment and how to make the UA sector sustainable. The next theory to be discussed is the Sustainable Development theory (SD) which explains the competition between the UA sector and traditional land uses.

Sustainable Development (SD)

Sustainable Development (SD) is a broad theory that was first introduced in 1950. It is closely linked to the concept of sustainability. This theory has many different definitions from different scholars, organisations and institutions. However, the most commonly used definition is from the World Commission on Environment and Development (1987) and The Sustainable Development Commission (2015) which state that *“Sustainable Development is defined as the advancement that meets the needs of the present generation without compromising the ability of the future inhabitants from meeting their own needs”*.

SD was first published in the Brundtland Commission Report in 1987 and has evolved constantly ever since. Emas (2015) cited that over the years, many scholars have contributed to the advancement of the SD theory. Amongst these are Michael Porter and Class van der Linde (1999). Porter and Van der Linde (1999) argued that pollution is a sign of inefficient

resource use which means that if people use natural resources more efficiently less smoke will be emitted into the natural environment. Porter and van der Linde (1999) also touched on the issue of creating a balance between the natural environment and economic growth. They argued that to create an equilibrium between the natural environment and the economy (economic growth), the pollution levels should be reduced in the production processes (Porter and Van der Linde 1999). The arguments from Porter and Van der Linde, (1999) are in correlation with the objectives of SD which are seen in table 3.2 below which aims to create a balance between the competing factors (environmental vs economic) and to create harmony between them (The World Commission on Environment and Development, 1987 and The Sustainable Development Commission, 2015). Table 3.2 below shows the objectives of the four pillars of Sustainable development. Each of the four pillars (economic, social, environmental and institutional) has a certain role to play in achieving sustainable development (SD). If any of the four pillars is missing Sustainable Development (SD) cannot be achieved.

Table 3.2: The objectives of the Sustainable Development (SD)

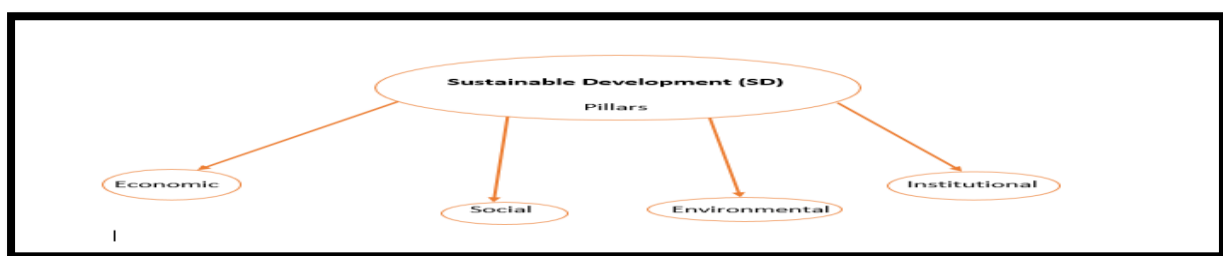
Economic	Social	Environmental	Institutional
Improve the standard of living for the current and future generations	Encourage the people to look after the natural environment	Conservation/recycling of earth's resources	Put in place organisations, legislative frameworks etc that support SD
Recycling of waste will save governments, people and companies money and resources which are scarce	Change people's views on how they see the natural environment	Encourage the uses of renewable energy	Educate the people on the benefits of looking after the natural environment

Source: The Sustainable Development Commission (SDC) (2015) and the United Nations (UN) (2008)

According to the Sustainable Development Commission (2015:2), SD can be interpreted in many ways by many different people. The Sustainable Development Commission (2015) defined SD as development that is economical, socially, institutionally and environmentally balanced for the current and future generation as seen in figure 3.1 below. The SD principles encourage city/ town planners to design cities that have open spaces and to reduce the number of impermeable places in urban areas (Sustainable Development Commission, 2015).

Figure 3.1 below shows the four pillars of SD which are economic, social, environmental, and institutional. Each pillar deals with a different segment of the SD. The social pillar deals with the human aspect e.g. interactions between people. The economic pillar deals with economic growth. The environment pillar deals with the conservation of nature/environment. The institutional pillar consists of organisations and legislative frameworks that govern the system or sectors e.g. government or policymakers. As mentioned above SD argues that to achieve or reach a level of SD the four pillars seen in Figure 3.1 and table 3.2 must be at equilibrium/balanced. For instance, people or countries must not achieve or reach economic growth at the expense of the natural environment (i.e. by destroying the environment) or achieve economic growth that harms the society (people) in the short or long term. It is vital that the balance highlighted by SD be achieved to have a sustainable future for all. The United Nations (2008), uniquely defines SD in a special way compared to other scholars. The United Nations argued that SD was introduced to save the earth's limited resources for the present and future generations. One of the aims of SD is to ensure that people do not consume the earth's resources at a higher rate than it takes the natural environment to rejuvenate itself (United Nations, 2008). Figure 3.1 shows the four pillars of Sustainable development (SD) which are economic, social, environmental and institutional. All the four pillars are dependent on each other.

Figure 3.1: The pillars of Sustainable Development (SD)



Source: The Sustainable Development Commission (SDC), (2015) and the United Nations (UN), (2008).

Agenda 21 is associated with SD theory. It was adopted in Rio de Janeiro in 1992 at the General Assembly of the United Nations. Its aim is to unpack/ breakdown the broad theory of SD and make it understandable to the ordinary person on the ground. In a nutshell, Agenda 21 is a local tool that is used to implement the broader theory of SD and to break it down into

smaller manageable pieces (United Nations Department of Economic and Social Affairs, 2015).

SD must be implemented as a UA policy; this will grow and address the many issues facing the sector today worldwide. The implementation of SD in UA has numerous benefits such as helping people involved in the UA sector to make informed decisions which will contribute to the advancement and sustainable growth of the sector. Currently, the UA sector in many countries, especially on the African continent is not sustainable since it is operating in a poor institutional environment. According to Pearson *et al* (2010), institutional environment is defined as the rules, social norms, protocols and formal laws that govern UA within a country or region. In most countries and regions of Africa, UA is prohibited because of poor institutional environments, which leads to the unsustainable practice of the sector. With the high rate of poverty on this continent, most urban farmers continue to practice UA illegally in some countries. Hence, it is important for local authorities and town planners to allow the practice and come up with solutions to the issues facing the sector (Drechsel *et al* 2007 & Reed 2014). It is of utmost importance for town planners and local authorities to create a good institutional environment which encourages the advancement of the sector and implement the SD into practice (United Nations Department of Economic and Social Affairs 2015).

The implementation of SD in the UA sector has social, economic, institutional and environmental impacts which can be good or bad to people and the natural environment. The social impacts of SD on UA are it ensures that people have food security, create co-operate between local communities, and develops people's skills. The economic impacts of SD on UA are that it creates employment opportunities for people, promotes the highest productive use of land, grows the local economies, and reduces socio-economic problems in the communities. The institutional impacts of SD on UA are it leads to good governance, sustainable legislative frameworks (good institutional environments) that promote UA. The environmental impacts of SD on UA are it protects the natural environment, reduces urban heat, improves the air quality, reduces noise levels, and reduces diseases and odour in the urban areas (Pearson *et al*, 2010 & United Nations Department of Economic and Social Affairs, 2015).

However, the implementation of SD in UA also has its setbacks; these include the fact that it is costly to implement SD worldwide, especially in poor communities where urban farmers are poor and do not have the necessary resources. In addition, SD is unable to address all socio-economic issues faced by urban farmers in developing nations. Lastly, the implementation of SD in UA also faces resistance from organisations and people who do not want it to be implemented or introduced within the UA sector (Department of Economic and Social Affairs, 2013). The importance of SD in UA cannot be underestimated. Hence, one can argue that the benefits of implementing SD in UA outweigh the negative impacts since it reduces environmental degradation, protects the environment, and improves the standard of living of the residents (Patzelt, 2010).

SD plays an important role in this research study since it is used as a catalyst to drive the sustainable practice of UA in Msasa Park, helps the researcher understand why UA is not sustainable in Msasa Park and looks at the role of town planning in addressing the issues.

3.3 Literature Review on UA

This final section of this chapter is the literature review. It looks at the following; evolution of UA reviews UA literature from many parts of the world and identifies the roles of town planners in this sector. The importance of this section cannot be underestimated since it helps the researcher and the reader to understand how other parts of the world practice UA. It also helps the researcher and reader understand the problems faced by other countries with regard to UA, what they do to solve UA problems and how town planners respond to UA in these different countries and regions.

Pearson *et al.* (2010) observed that UA had been practised in many parts of the world since the beginning of civilization. This phenomenon can be traced back to Biblical times. According to the Book of Genesis in the Holy Bible, UA was practised in the earliest settlements and was the main employment opportunity during this time. In a nutshell, UA played a vital role in the growth of past cities and today, town planners and UA stakeholders are starting to recognise the importance of this sector (Pearson *et al.*, 2010). Pearson (2010) argues that UA employs over 800 million people worldwide and produces between 15 to 20 % of the world's food. This phenomenon (UA) has been overlooked for many years by most governments and town planners who were against its practice (Bentley, 2005). UA plays the following roles in today's

cities; it promotes food security, it reduces environmental degradation and is also used for aesthetic purposes. Balmer (2005) argues that UA is an integral part of the physical, economic, social and spiritual well-being of places that town planners care about.

Pearson *et al.* (2010) note that UA serves different purposes in the developed and developing regions of the world. In the developing regions, UA is mainly practised as a survival strategy, and in the developed regions, it is mainly used for recreation or social purposes. The location or place where UA is practiced in the two regions also differ. For instance, most of the UA in the developed regions takes place on the walls of houses and roof-tops since land is in short supply. In the developing regions, this is the opposite. Land is more abundant in the developing regions of the world compared to the developed regions. That is why urban farmers in the developing regions practice UA on land. UA is also practiced in three different scales which are micro, meso, and macro. Micro is mainly practiced on walls, green roofs, courtyards, backyards, and street verges. Meso is mainly practiced in urban parks, individual collective gardens and community gardens. Macro is mainly practiced on nurseries, commercial-scale farms, and greenhouses (Pearson *et al.*, 2010).

The role of Town Planners in UA

Town planning plays an important role in the growth of the UA sector. In the past, town planners were not involved in the UA sector since this phenomenon was seen as a rural activity and out of their hands. However, the rise of urbanisation and poverty in today's cities forced many governments and town planners worldwide to change their mindsets on the issue of UA and encouraged them to put in place initiatives that promote the growth of this sector. Despite the effort put by the UA stakeholders into promoting and developing UA, this sector is still faced by numerous problems such as resources, land and skills shortages. To address these problems and make this sector sustainable, town planners must use the powers and tools (zoning, bylaws, and policy reforms to name a few) at their disposal to alleviate these issues (Quon, 1999).

Zoning

Zoning is one of the tools used by town planners to solve the problems faced by the UA sector. Zoning is defined as the process of dividing land within municipalities, countries or provinces

into different land uses zones such as residential, commercial and UA. This is done to regulate land uses and to create a balance between different competing land uses. The most neglected land use amongst all urban land uses is UA. To reverse this, town planners must demarcate zones for use by UA and introduce bylaws that promote the growth of UA (Quon, 1999 & Sustainable Cities Institute, 2013).

Policy reforms

Quon (1999) noted that in most cases, the spatial planning policies implemented by national, local governments and town planners are the greatest threat to the survival of the UA sector. One good example is the by-laws introduced in Dar es Salaam which limit the number of animals and the size of the plots urban farmers can practice UA on. With this information in hand, one can argue that some of the legislative frameworks in place in Tanzania and other parts of the world are destroying the UA sector instead of building it. Another good example is from Uganda and Zambia. The governments in these two countries once introduced policies that banned the growing of maize in the urban areas because they believed that it led to the spread of malaria and other diseases (Quon, 1999 & American Planning Association 2015).

Town planners have the power to encourage or discourage the UA sector since they have the power to introduce and implement development policies, by-laws, and other development controls. This means that town planners in the local municipality are part of the policy-making bodies that determine the shape of the city at the local level. Currently, most of the African countries have anti-UA by-laws. To make the UA sector sustainable in Africa, town planners must introduce local policies that promote the sustainable growth of the sector, recognize UA as an important land use, put in place guidelines which must to be followed by urban farmers and accommodate UA in the allocation of urban land uses (Mubvami & Mushamba, 2006). One can argue that the role played by town planners in local policy reform is very important since they hold so much power that can transform the UA sector positively or negatively.

The opportunities available to Town Planners in the UA sector

As mentioned earlier, town planners have many different powers and tools at their disposal to solve the problems faced by the UA sector. There are various strategies used by town planners to ensure the sustainable growth of the UA sector. These include to put in place UA

infrastructure, to ensure that urban farmers have access to finance, and to educate the urban farmers on how to practice UA in a sustainable manner. More so, demarcate spaces for community or individual gardens in new public housing projects, rent out vacant municipal land to urban farmers and to encourage private developers and companies to rent out land with high agricultural potential to urban farmers (World Urban Forum, 2008).

The Limitations faced by Town Planners in the UA sector

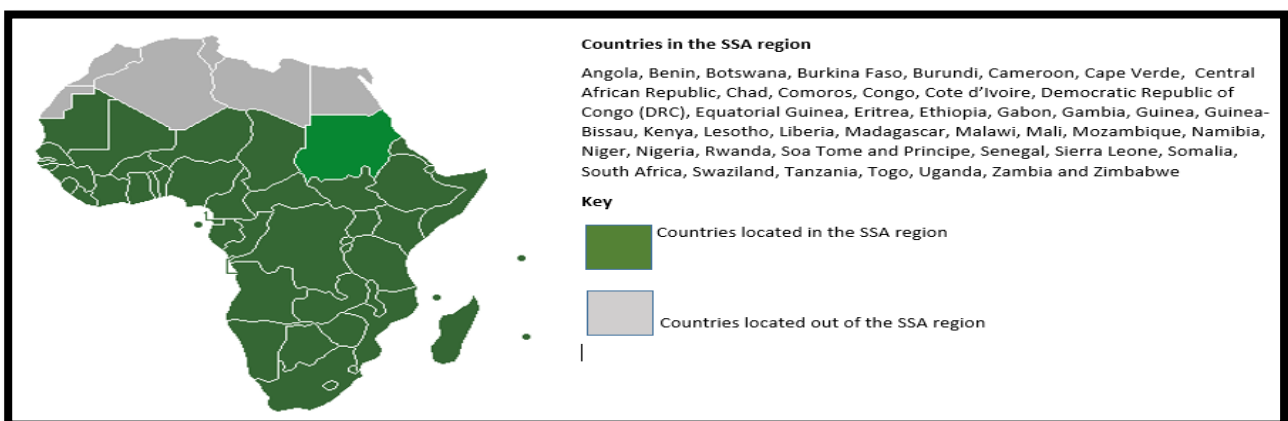
Town planners are also human beings who are faced by many limitations such as lack of support from local communities and politicians. In addition, they also lack fundamentals such as resources and training. Town planners also face numerous problems such as succumbing to pressure from external parties such as private developers or bureaucracy. In some cases, town planners do not monitor or enforce the laws and regulations which render the spatial planning policies ineffective. The other problem faced by urban/ town planners is the fact that they can easily be overridden by the politicians and the local community members. Urban/Town planners have little influence on land use in built areas in the sense that they are limited to the regulation of activities as opposed to the encouragement and support of activities (Quon, 1999).

Urban Agriculture (UA) in Sub-Saharan Africa (SSA)

Sub-Saharan Africa (SSA) is a region in Africa that is located south of the Sahara Desert as shown in figure 3.2 on the next page. According to the World Bank (2015) & African Development Bank Group (2012), the urban population of the SSA region is growing at a fast pace, it is expected to rise from 37.5% in 2015 to 74% in 2034. The main factor that is fuelling this rapid urban population growth is urbanisation, and the most affected cities are in the SSA region. Currently, SSA cities have an urban population growth of 3.5% per year and one of the highest rates of urbanisation in the world. With the high rate of urbanisation facing the region, there is no link between economic growth and urbanisation, unlike in the industrialised countries where structural transformation and economic growth accompany urbanisation (Rakodi & Lloyd-Jones, 2002). Magidimisha (2009) argues that the main causes of urbanisation in the SSA region are; drought, effects of climate change, conflicts (tribal, religions or resource-related wars), socio-economic issues (unemployment or crime) and lack of development in the rural areas. The causes of urbanisation mentioned earlier on drive

people who reside in the rural areas to migrate to the urban areas. People who reside in the rural areas also see urban areas as places of greener pastures where all their problems can be solved. However, this is not always the truth as many of the rural migrants to the urban areas are unskilled and they end up residing or working in worse conditions than in the rural areas (Masvaure, 2013 & Magidimisha, 2009). Smit *et al.* (2001), cited that in most SSA countries, urbanisation is a process of transferring rural poverty to urban areas since job opportunities are limited in the urban areas. Figure 3.2 shows the 46 sub-Saharan countries. The countries shaded green are in the Sub-Saharan region and the ones in grey are not. The countries that are in the Sub-Saharan Region (SSA) are Angola, Benin, Botswana, Burkina, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Congo, Cote d'Ivoire, Democratic Republic of Congo, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Gambia, Guinea, Kenya, Lesotho, Madagascar, Rwanda, Senegal, South Africa, Swaziland, Zambia and Zimbabwe.

Figure 3.2: The map of countries located in the SSA region



Source: New World Encyclopedia, (2015)

The current rapid urban population growth in SSA cities is putting a lot of pressure on its existing infrastructure and land. For instance, when the number of people migrating from rural to urban areas increases, the demand for infrastructures such as housing, roads, and land also rise. Land plays an important role in the advancement of the UA sector. However, with the high rate of urbanisation taking place in the SSA cities, urban land is currently in high demand and scarce. As a result, the UA sector in these cities is affected, and the price of food goes up since a few people will be involved in food production (Reed, 2014). According to a study conducted by the African Food Security Network in 2008, 70% of households in SSA

cities suffer from food insecurity because most urban dwellers do not have access to land to practice UA (African Food Security Network, 2008).

In most SSA cities, the UA sector is mainly practised on the outskirts of the city which is called peri-UA since land is in short supply in the urban areas. The main setbacks faced by the UA sector in the SSA region are the anti-UA policies introduced by the colonial settlers during the colonial era which some current SSA governments are still using today (Taru & Basure, 2013).

After gaining independence, the number of urban farmers in the SSA region increased and they started to practice this phenomenon for different reasons, depending on their income and the country they resided in. In Tanzania and Ghana, urban farmers mainly practice UA to reduce urban poverty and ensure food security within the cities. In Kenya, it (UA) was used as a political tool by the government and the citizens. For instance, the Kenyan government voted in by people after independence allowed urban farmers to practice UA within the cities as a way of gaining people's support and to stay in power. Before independence, the practice of UA in Kenyan cities was not allowed. This shows that the UA sector in the SSA region is being used for different reasons by national governments and citizens of the region. Mougeot (2005) agree that countries in SSA practice UA for different reasons. For example, in some countries, people practice UA to obtain food, and in some, this may not be the case. Mougeot (2005), also shows that every SSA country has a different perspective and approach to UA. The reasons why people practice UA in Zimbabwe is different from those in Kenya, South Africa, Togo, and Cameroon (Masvaure, 2013).

Most of the people who practice UA in the SSA region are low-income families who recently migrated from the rural areas. Drakakis-Smith (1995) and Mougeot (2006) argue that low-income families in this region spend 30% to 80% of their income on food. Over 75% of these families practice UA to create employment, improve food security and reduce malnutrition. However, it is not only low-income families who practice UA. The medium and high-income groups in SSA countries such as South Africa and Zimbabwe also practice UA, however for different reasons to the low-income people. The medium and high-income people mainly practice this phenomenon for leisure and not necessarily for food security. Mudimu (1996) argued that the low-income urban farmers mainly practice off-plot cultivation and the medium and high- income group mainly practice on-plot cultivation. The reasons for this is

that most of the low-income urban farmers do not own adequate land to practice UA on their residential plot, but most middle and high-income urban farmers do (Orsini *et al.*, 2013).

Urban Agriculture (UA) in North America (NA)

UA plays a small part in improving food security in North America (NA) when compared to Sub-Saharan Africa (SSA). A few people practice this phenomenon in North America (NA) because of reasons such as lack of economic incentives and a shortage of land. The Land is scarce and on high demand in North American (NA) cities than in SSA cities. As a result, most of UA in NA is practised on rooftops, basements, roadsides and walls to save the land. The UA sector practised in NA is also at a small scale compared to SSA, it (NA UA sector) only accounts for 5% of the urban food consumption. According to Corbould (2013), the reasons why urban farmers practice UA in NA cities tend to differ from the SSA cities. It is argued that most of the urban farmers in NA practice this phenomenon for aesthetic purposes and to protect the environment, which is not always the case in many SSA cities. Nebenzahl Donna a reporter from Montreal Gazette in Canada reported that *“urban agriculture projects are often not-for-profit in the developed nations, but the entrepreneurial spirit is also thriving in this sector”*. This statement is in contradiction with the reasons why most people in SSA cities practice UA. According to Corbould (2013), over 70% of urban farmers in SSA cities enter into the UA sector to make profits, supplement income and reduce poverty within the household, which is not the case in the NA region (Corbould, 2013 & Levenston, 2009).

Map 3.1 shows the countries in the North American continent. The North American continent consists of three countries Canada, United States of America and Mexico and the UA sector is practised in all of them

Map 3.1: The Map of North America (NA)



Source: Google Maps, (2017)

Since a few people practice agriculture (both urban and rural agriculture) in the NA region seen in Map 3.1 above, most countries in this region heavily dependent on Genetically Modified Organisms (GMO) to feed their population. The organic foods are more expensive than the GMOs in NA. In most parts of the United States of America, it is cheaper to buy unhealthy foods such as burgers and carbonated soft drinks than to buy healthier foods such as carrots, vegetables, bananas, apples or cabbages. The healthier foods are expensive since they take more time to grow, compared to GMOs and in most cases, only the medium and high-income people can afford to buy organic food. The people who mainly consume the unhealthy GMO's foods in NA are low-income Black Americans who cannot afford organic food. As a result, millions of Black Americans are overweight (obese) and many suffer from life-threatening diseases such as heart diseases, diabetes or high blood pressure since they eat unhealthy food (Non-GMO Project, 2017).

To combat these problems, most cities across the United States of America (USA) have introduced policies and by-laws that encourage people to practice UA, grow organic plants and reduce the number of people who consume unhealthy food every day, especially amongst the Black African communities. The urban/town planners, the public sector and private sector in the USA are also working together to ensure that land for UA is accessible to everyone. The urban/town planners within the different American States are in support of

the idea that all empty spaces around major cities or residential open spaces with no other obvious use must be used for UA. The United States Federal Government also passed zoning amendments that encourage the growth of the UA sector and is investing in combating sprawl and negative environmental impacts of Greenfield developments (Popovitch 2014). The ten American cities leading the way in UA growth are; Detroit, Portland, Austin, Boston, Cleveland, Chicago, Seattle, Baltimore, Milwaukee and Minneapolis. The United States of America federal government, state governments/authorities, public departments and private organisations are investing millions of United States dollars in the UA sector every year. But its UA sector is still undeveloped compared to Cuba, which is a developing communist country. However, the American people are optimistic that its UA sector will develop in the future to become one of the best in the world. The growth of the United States of America UA sector will have the following benefits on its population; it will reduce the distance traveled by food from producer to the consumers, will reduce cost of food, reduce the number of people who are dependent on unhealthy foods and it will also reduce the number of people dependent on chronic medication caused by eating unhealthy foods (World Bank, 2012).

The urban farmers who reside in Canadian cities such as Toronto, Vancouver and Montreal mainly practice UA to recycle waste, recreation, conservation, safe food provision, open space management, green architecture, therapy and community development (Mougeot 2006a & Mok 2013). UA plays a key role in Canadian cities and the different cities implement policies that support this phenomenon. Montreal is leading when it comes to UA in Canada. This city has incorporated UA as a permanent urban land use. This was done to promote UA and reduce land competition (Haberman 2014). UA is continually competing with traditional urban land uses for the fertile land. Since Montréal incorporated UA as a land use, the city has protected large pieces of land for UA and reduced the competition between UA and other land uses. Montreal also has the largest community garden program in the whole of Canada (Mougeot 2006a; Mok 2013). In second place is the Vancouver Region which is home to 21 cities and a population of over 2.1 million people. This region has 282 million ha of land and 41 000 ha is used for UA only. In the city of Vancouver (capital city), UA is also practiced at a large scale (Mullinix, 2009).

The Canadian Federal Government also introduced different policies that enable the sustainable growth of the UA sector in all Canadian cities. Some of the policies implemented by the Canadian Government discouraged people from building or using land zoned for UA and encouraged the local municipalities to rent out vacant urban land suitable for agriculture to urban farmers who want to practice UA (Mullinix, 2009).

Agriculture in the Philippines

Agriculture is the backbone of the Philippines economy. It is estimated that 47% of the country's population is actively involved in this sector. Just like other developing countries, the Philippines agricultural sector is mainly practiced in rural areas with the urban areas serving as the markets. 85% of rural farmers in this country depend on agriculture as a source of their livelihood (Nitural, N.D). The country's agriculture sector consists of fisheries, livestock, forestry and farming. The country exports some of its agricultural products which include coconut products, fish and fruits. However, the Filipino farmers and the agricultural sector also face many problems, just like their counterparts in developing countries. Shortage of resources, trade competition with other countries on the global market, the effects of climate change and droughts are the main challenges facing the Philippines (Nations Encyclopedia, 2015 & Nitural, N.D).

Urban and Rural Agriculture in the Philippines

The urban residents in the Philippines have been practising UA for many centuries at home on- plot and off-plot cultivation, on public spaces, and rooftops. In 1998, UA was recognised by the national government and became a National Program which is under the Department of Agriculture (DOA). The national government with the help of UA stakeholders (e.g. universities, private and public organisations) introduced policies that ensure the sustainable growth of UA. The government introduced and implemented these policies and programs because they want to solve two pressing problems faced by the local people which are; poverty and food insecurity (Duldulao, 2001). As mentioned elsewhere in this research, most of the Philippines agriculture sector is concentrated in rural areas, and most of the clientele reside in urban areas. The rural farmers transport food to urban areas to be sold and consumed. In some cases, shortages of products and transport problems in rural areas affect

the supply of food in urban areas. Therefore, UA in the Philippines is important because it is used to reduce the dependency of its cities on rural agriculture (Nitoral, N.D).

Urban Agriculture (UA) in Naga City, Philippines

Naga city was discovered in the 15th century by the Spanish and is located along two rivers (Philippines Guide, 2014). Today, it is a small city with 150 000 residents situated in the Bicol Region of central Philippines as seen in Map 3.2 below. This city is well renowned globally for its good local governance, it has also maximised the opportunities for governance reform, improved the delivery of basic services, and local capacity building and political decentralisation under the local government code (Hill *et al*, 2007).

Naga city is surrounded by agricultural land, has a reliable water supply and is one of the best places to practice UA in the world. The urban farmers in this area mainly grow rice, sugarcane, coconut, and corn. The benefits of practicing UA in this city are numerous. The land to practice UA is easily available which attracts urban farmers into the area. According to the Naga City Comprehensive Plan (CLUP) of (2000), two-thirds of the land in Naga city is zoned and set aside for UA by the government which means that the land is primarily marked for agricultural purposes. This is not the case in most parts of the world. Naga city is also blessed with good soil conditions conducive for farming, local people with knowledge in UA, access to technology in farming (e.g. the use of Geographic Information Systems to map vacant land for UA development) and skills on how to practice UA in a sustainable way (which include crop rotation, use of mature). In addition to this, the city also boasts of political leaders who support the growth of UA, good financial institutions (banks) that loan out money to urban farmers to increase yield, government investment, flat terrain, steady supply of water, presence of agricultural infrastructure (dams, lakes), good climate and rainfall (Naga City Comprehensive Land Use Plan, 2000).

Map 3.2: The Map of Naga City, Philippines



Source; Weather 24, (2017)

However, the UA sector in Naga City is also faced with many problems such as competition between UA and traditional land uses regardless of the government zoning two-thirds of the land for UA and social stigmatisation of the UA sector. The main catalyst that leads to high competition between UA and traditional urban land uses in Naga city is the high demand for urban land resulting in the cost of land continuing to increase. To make the situation worse, most of the urban farmers are poor small-scale farmers who constantly compete with private rich developers for urban land. The developers often use this land to build more profitable structures such as housing, commercial buildings, and roads. Hill *et al.*, (2007) argue that the UA sector is not as profitable compared to traditional urban land uses. Unfortunately, the urban land market system always favors the one who can afford at the expense of the poor. The land is often sold on the open market and in most cases, the poor urban farmers cannot outbid the rich private developers on land located in the city centre (Naga City Comprehensive Land Use Plan, 2000). The reasons why urban land is expensive is explained in the bid rent theory. This theory argues that the land within the urban edge tend to be expensive because its demand is higher compared to the land located in the outskirts of cities. The other issue is location, strategically located land tends to be expensive (Trussell, 2010). Therefore, urban farmers are forced by the markets forces to locate their farms and plots out of the heart of the city, which increases the distance travelled by food. As a result, the price of food increases with the distance travelled (Hill *et al.*, 2007). The other issue faced by the Naga city UA sector

is stigma. The urban farmers in Naga city are seen by the public to be poor and of a lower status. Hence, urban farmers have low self-confidence and most of them want their children to be doctors or to be involved in other professional fields rather than being urban farmers. According to the Naga City Comprehensive Plan (2000), the city of Naga also faces the following issues; natural disasters, poor infrastructure, lack of multi-stakeholders collaboration, primitive methods of farming in some parts of the city, pollution, shortage of funds, and high production cost (Hill *et al.*, 2007; The Naga City Comprehensive Land Use Plan 2000).

Urban Agriculture (UA) Legislation in Naga City, Philippines

To address the issues faced by the UA sector in Naga city, the two levels of governments (national and local governments) collaborated and implemented policies, strategies and by-laws that promote and safeguard UA. The Naga City local government implemented an innovative approach which aims to create a *“people-centered, holistic and sustainable policy, which is not dependent on external supports and is resilient in the face of external shocks and stresses”* (Hill *et al.*, 2007:7). Naga City local government adopted several strategies to promote UA. These strategies were the formulation of plans, by-laws and investing in the sector. The local by-laws proposed that urban land with a high agricultural potential must be set aside for UA and the local government also came up with the Naga City Comprehensive Land Use Plan (CLUP), which is a tool used by the government to achieve an equitable and balanced development in a particular location, area or region. It ensures that available resources such as land are used in an optimum and sustainable way for the benefit of the people. The Naga City Comprehensive Land Use Plan of (2000) proposed that half of the land in Naga City must be used for UA (Naga City Comprehensive Land Use Plan, 2000).

The most important piece of legislation introduced by the Philippines government concerning the UA sector was implemented in July 2013 and is known as the Urban Agriculture Act of 2013. What makes the Urban Agriculture Act of 2013 different from others introduced previously was the fact that the objective of this act was to institutionalize UA and promote it. The Urban Agriculture Act of 2013 gives the public departments such as the Department of Agriculture, Department of Education, and the Commission on Higher Education (CHED) in the Philippines the responsibility to promote UA in all cities. The Urban Agriculture Act of

2013 also aims is to improve food security, promote UA nationwide, protect the natural environment and to train urban farmers on how to practice UA in a sustainable way (Department of Agriculture, 2014).

According to Quon (1999: 16), the institutional gaps found within the Philippines government and others across the world create problems for the UA sector. According to Quon (1999: 2);

“In most places, Urban Agriculture falls under the jurisdiction of several different levels and types of authorities. For instance, officials at municipal, provincial and national levels may deal with different issues, including agriculture, public works, forestry, urban planning, transportation, environment, justice, and the interior. Without an agency or organization with specific responsibilities to regulate, aid, support, monitor and facilitate research on Urban Agriculture, it often “falls between the cracks” of typical municipal sectorally-organized government, or is subject to confused and conflicting jurisdiction”

Hence, it is important to institutionalise the UA sector in the Philippines and others across the world since it will help to create a sustainable UA sector that is well-established and address the current issues facing the sector.

The Philippines National government invested a lot of money in the growth of the UA in Naga city and the country at large. The Philippines National government also works with other stakeholders which include universities researching how to make the UA sector sustainable. The National government also formed institutions and programs such as the Department of Agriculture (DOA) and the National Research Development and Extension Program for Urban Agriculture to drive UA forward. The role of the Department of Agriculture is to regulate the agriculture sector of the Philippines. The National Research Development and Extension Program for Urban Agriculture’s objective is to increase agricultural production, utilise vacant land for UA, promote UA nationwide, policy studies and to research on UA (Niturul N.D & Hill *et al* 2007). As a result, the work being done by the government and the various UA stakeholders is improving the UA sector in the Philippines and making the sector sustainable. That is why the poverty levels, environmental degradation and land competition is decreasing in Naga City (Hill *et al*, 2007).

The UA sector in most Philippines cities and Naga city are growing at a fast pace because of the investment, support and innovative ideas that come from government and UA stakeholders. Based on the information discussed, one can argue that the UA sector in Naga City is becoming sustainable. However, it is important to state that UA in the Philippines is still underdeveloped, there is still room for research, and training activities to ensure that the UA sector is practised in a sustainable way (Nitural, N.D).

Urban Agriculture (UA) in Dar es Salaam, Tanzania

Dar es Salaam is the capital city of the Republic of Tanzania and is seven times larger than the second largest city in the country as shown in Map 3.3 on the next page. The population of Dar es Salaam in 2010 stood at 3.3 million people (Schmidt, 2011). This City is home to 35% of the country's population, and 39% of its urban population are low-income people (Oyieke & Nnkya, 1997; Dongus 1999).

The Republic of Tanzania gained its political independence from Britain and Germany in 1961. After independence, a large percentage of its black population who resided in rural areas during the colonial era migrated to the urban areas in search of employment, a better standard of living and better service delivery and infrastructure. The Tanzanian city that received the highest number of rural migrants was Dar es Salaam since it was the economic hub and the biggest city in the country. As a result, the urban population of Dar es Salaam grew fast yet the city did not have adequate infrastructure such as housing, roads and water services to accommodate and share with the newcomers. This high influx of migrants into the city led to several challenges. The city faced the collapse of the existing infrastructure since it could not handle the pressure that came from the growing population. The demand for housing and land increased. The number of informal settlements increased too (Masvaure, 2013; International Labour Organization, 2008; Ferreira, 1994 & Magidimisha, 2009). The UA sector within the city was also affected by the high demand for land caused by the rapid pace of rural to urban migration. For example, housing was seriously inadequate that the national government took away land allocated for UA and used it to build houses, schools and clinics for the newcomers. The government prioritized the construction of houses, roads, and shops at the expense of UA. The land competition between UA and traditional urban areas also increased and the UA sector lost in some cases (Jacobi *et al.*, 1997). Map 3.3 shows the map

of Dar es Salaam in Tanzania. Tanzania is located in the Sub-Saharan Region. Dar es Salaam is the capital and the biggest city in the Republic of Tanzania.

Map 3.3: The Map of Dar es Salaam



Source; Google map, (2017a)

The coastal plain and climate of Dar es Salaam do not offer favorable conditions to practice UA. The rain season starts from March to May and from October to December. The Dar es Salaam UA sector also faces numerous challenges like most developing cities in Africa such as unfertile soil, lack of farming equipment, water, and land scarcity, legal issues and high competition between land uses. Despite all the issues faced by the UA sector in Dar es Salaam, its urban farmers still practice UA at a large scale (Schmidt, 2011 & Sawlo, 1998).

Most of the urban farmers in Dar es Salaam practice this phenomenon on public open spaces. The two common types of UA practised are livestock and crop farming. A few years after gaining independence, Tanzania was faced by a decline in the economy which led to widespread poverty in the country. To address this issue, the Tanzanian government encouraged urban farmers to cultivate every piece of land in urban areas whether public or

private, to reduce poverty. The urban farmers needed permits to practice UA on private land, but not on publicly-owned land. With support from the national government, the UA sector grew compared to prior independence. By 1997, 6.5% of the city's population was employed in the UA sector (Jacobi *et al.*, 1997; Schmidt, 2011). According to Hoogland (2003), over 34 700 people practice UA in the three municipal districts of Dar es Salaam which are Ilala, Kinondoni and Temeke. The Ilala district has over 12 000 urban farmers, Kinondoni has over 15 000 farmers and Temeke has over 7 700 urban farmers. According to Hoogland (2003), a large percentage of these urban farmers practice UA full time and are able to support their families. In the Ilala district, over 13% of the population is involved in the UA sector and over 10 000 hectares of the land is devoted to this sector. In Kinondoni district, 60% of the arable land is used for UA and it provides 7% of the total food requirement. In Temeke district, 60% of the arable land is used for UA and over 30% of the milk consumed in the area is produced locally. A large percentage of urban farmers who practice UA in Temeke, Kinondoni and Ilala districts are from low-income families and some are recent rural migrants (Hoogland, 2003).

Vegetables are the most grown crop in the inner city of Dar es Salaam since it is part of the traditional diet in Tanzania. Other crops grown are eggplant, hot and sweet pepper, tomatoes, and okra. The low, middle and high-income people are all involved in the UA sector in Dar es Salaam. However, the group with the highest percentage is the low-income people who mainly practice UA for food security and as a poverty reduction strategy (Jacobi *et al.*, 1997). The UA sector is practised by urban farmers for different reasons. In most cases, the middle-income urban farmers practice UA for leisure and to supplement their income, and the high-income urban farmers practice UA to protect the natural environment (Jacobi *et al.*, 1997).

Urban farmers in the Tanzanian capital are heavily dependent on organic manure from poultry or cattle to nourish their soil, and some use normal methods of pest management such as crop rotation. Some even use indigenous knowledge passed from one generation to the other to maintain the fertility of the soil and increase yield. The benefits of using manure in UA are many and include the fact that it increases the yield, saves money (urban farmers do not have to buy expensive chemical fertilizers) and it protects the natural environment from pollution. The growth of the UA sector in Dar es Salaam has numerous benefits to man and the natural environment; it reduces food insecurity, improves the standard of living, and reduce environmental degradation. However, currently the UA sector in Dar es Salaam is also

facing numerous challenges such as theft of crops, corruption in the sector, poorly implemented legislation frameworks, shortage of funds to invest in UA, poor land tenure, lack of infrastructure, old farming methods and shortage of resources (Schmidt, 2011; Stevenson, 1994; Jacobi *et al.*, 1997).

Urban Agriculture (UA) Legislation in Dar es Salaam, Tanzania

Tanzania does not have a national policy that regulates UA. To address this issue, every local municipality in Tanzania has the right to introduce and implement by-laws pertaining to any sector of concern. Hence, the city of Dar es Salaam introduced and implemented numerous by-laws to regulate its own UA sector (Schmidt, 2011). According to Schmidt (2011: 3),

“Currently, Tanzania has no national policy for urban agriculture. As a result, the various ministries that deal in some way with agriculture do not have a common reference point from which to craft policies and regulations related to or affecting urban agriculture. The legal environment at the local level for urban agriculture is ambiguous, partly because of inadequate knowledge and understanding among residents and decision makers of the role of urban agriculture”

The Animal By-laws of 1982, Local Government Act No. 8, Section 80 of CAP 378 are some of the numerous by-laws used by the Dar es Salaam city council to regulate and control the UA sector. These UA by-laws' main focus is on the keeping of animals and to regulate how crops are grown. However, in most cases, these UA by-laws affect the growth of the UA sector and discourage people from practicing this phenomenon. The Animal, local government and the section 80 by-laws state that anyone who practices UA should not use more than three acres of land, no one is allowed to have more than four livestock in the urban areas, growing crops is not allowed within 15 meters from the rivers and roads, and any farming activity that causes noise or air pollution is prohibited by law. These restrictions have had negative effects on the growth of this sector. For example, the urban farmers with about 10 acres of land are only allowed to use 3 acres for UA and the rest is left empty, and that is not sustainable (Schmidt, 2011).

The UA by-laws used in Dar es Salaam were never updated to fit the current issues or conditions. Many critics, including Stephan Schmidt, argue that these by-laws are ambiguous,

outdated, poorly implemented and unclear. The UA by-law on animals is unclear in the sense that it says that animals are permitted. However, it does not state whether it refers to the inner urban areas or the peri-urban areas. In addition, these by-laws are ambiguous because they state that people are not permitted to own more than four livestock. The problem is that it does not specify which type of livestock which is allowed; whether its cattle, sheep, goats, or buffalos amongst others. These by-laws are considered to be outdated because all of them were introduced and implemented in the 19th century just after independence. These by-laws are also considered to be poorly implemented and enforced because the local government does not have institutions that ensure that the urban farmers obey the law which are in place (Schmidt, 2011).

The UA sector in Dar es Salaam is facing many issues that will take a long time to address. The local government must invest money into the research of UA and join forces with other UA stakeholders such as public departments to implement national policies that support the growth of the sector as is the case with Naga City.

The Lessons learnt

The UA sector plays a key role in the lives of many people throughout the globe from Sub-Saharan Africa (SSA), North America (NA), the Philippines to Tanzania, the reasons why these different countries and regions practice this phenomenon is different. In the Sub-Saharan Africa region, Tanzania and the Philippines, people mainly practice UA to feed their families or supplement their income while in North America this is not the case. It is also clear that urban farmers in the developing cities have additional land to practice UA on than their counterparts in the developed cities. The land is in very high demand and very expensive in the developed cities than in the developing ones. As a result, urban farmers in developed cities are forced to practice UA on roof-tops or sidewalls to conserve land. In addition to this, the UA sector in the developed cities is practised at a smaller scale compared to the developing cities. On the issue of sustainability, Corbould (2013) argues that the UA sector in the developed cities is more sustainable than that of the developing cities. The reason this is the case is that the developed cities are quick to react to UA problems. For example, in most cases, UA policies are quickly implemented by policymakers, and some of the urban farmers are trained by their governments to ensure that they practice UA in a sustainable way.

However, this is not the case in the developing cities and as a result, the developing cities cannot compete with the developed cities. Therefore, one can argue that the UA sector in North America is more sustainable than UA in Sub-Saharan Africa, Philippines, and Tanzania. On that basis, the developing cities have a lot to learn from the developed cities with regards to UA.

3.4 Chapter Summary

This chapter started by defining the concepts and theories, moved on to discuss the role of town planners in the UA sector and looked at the literature review. The literature review section reviewed literature from various parts of the world including Sub-Saharan Africa (SSA), North America (NA), Philippines and Tanzania. Based on the information shown in this chapter, UA is practised worldwide from the Highveld of Zimbabwe to the Australian out-backs, for different reasons. This chapter also elaborated that all countries involved in the UA sector face both positive and negative issues as a result of practising in this sector. However, many countries are coming up with different strategies to solve these UA problems.

CHAPTER 4: AN OVERVIEW OF URBAN AGRICULTURE IN ZIMBABWE

4.0 Introduction

This chapter provides an overview of UA in Zimbabwe and the capital city, Harare. It also analyses the institutional environment that governs UA, the roles and responsibilities of various UA stakeholders within the republic.

Map 4.1: The Map of the Republic of Zimbabwe



Source: Google maps, (2017b)

Zimbabwe is a landlocked country that covers an area of over 390 000km² and is bordered by Zambia, South Africa, Namibia, Botswana, and Mozambique as shown in Map 4.1 above. The climatic conditions are largely sub-tropical with the rainy season starting in November and ending in March. Its agricultural sector is the backbone of the country's economy and it is a form of livelihood to 80% of the country's population (Magidimisha *et al.*, 2013). This sector contributes 14% to 18% of Zimbabwe's Gross Domestic Product (GDP) (Ministry of Agriculture, Mechanisation, and Irrigation, 2015). The Agricultural sector in Zimbabwe is

divided into the following sectors; agribusiness sector, large-scale commercial, small-scale commercial farming and communal farming sector. The main crops grown in the country are tobacco, maize, sugar cane, and barley (Cross, 2015).

In recent years, the agricultural sector in Zimbabwe faced numerous issues which include mismanagement of resources and poorly planned policies introduced by the authorities. One of the biggest problems the country is facing today started in the year 2000 when the national government forcefully removed white farmers from their farms and redistributed the land to landless black Zimbabweans through an exercise called Land Redistribution Programme (LRP). Prior to the land being taken away by the Zimbabwean government, the white farmers consisted of less than 3% of the country's population. But they (white farmers) were in control of over 50% of the country's fertile land (Ministry of Lands and Rural Resettlement, n.d). The Land Redistribution Programme (LRP) displaced over 4 000 white commercial farmers in the country and they moved to neighboring countries that include Zambia, Mozambique, South Africa, and other countries as far afield as Nigeria. As a result of this, the Zimbabwe agricultural sector plummeted and collapsed, and this led to high unemployment, shortage of foreign investment, the collapse of the national currency, mismanagement of the country's agriculture system, poor farming methods, lack of service delivery and lack of farming resources to mention but a few. The poorly implemented LRP affected all sectors of the Zimbabwean economy including the UA sector throughout the whole country (Mabaye, 2005).

Deininger *et al.* (2015) and the British Broadcasting Corporation (2015) observed that the LRP exercise in Zimbabwe was a failure since it resulted in many problems for the country and its neighbors. The results of the LRP are still felt today. Some of the problems the country faced are an unstable economy, political instability and brain drain (Mail & Guardian, 2013). The Zimbabwean government needs to rebuild the country's agricultural sector since it plays an important role in the economy. Some of the ways the government can revive this sector is through investment in agriculture, teach the Black Africans farming and attract foreign investment into the sector (Deininger *et al.*, 2015).

The failure of the LRP exercise and the Zimbabwean economy had a major impact on the UA sector throughout the republic. In a research conducted by Toriro in 2006, the number of

urban farmers increased, and the UA sector grew fast after 2000. This was the result of the economic hardships the country faced and the poorly implemented LRP exercise. The fast-track land reform exercise led to the collapse of the economy and massive retrenchment of workers. Most of the retrenched workers opted to practice UA as a survival strategy. As a result, over 70% of urban farmers in Harare today are unemployed and 30% of the city's land is used to practice this phenomenon (Toriro, 2006). The failure of the LRP exercise also led to an increase in the rate of rural to urban migration (urbanization); as people moved to the urban areas in search of jobs and a better standard of living. When the white commercial farmers were removed from their land during the LRP exercise, many black farm workers were also affected. As a result, most (black farm workers) lost their jobs and homes which drove unemployment higher. Therefore, one can argue that there is a relationship between the growth of the UA sector and the LRP exercise in Zimbabwe's cities post-2000 as the number of urban farmers increased during the economic collapse and hardships.

4.1 An Historical Overview of UA in Zimbabwe

According to Taru & Basure (2013 :16), *"the study of urban agriculture is deeply rooted in the political economy of the country"*. The colonial political economy of Rhodesia (now Zimbabwe) influenced how the economy was run, it introduced policies which regulated town /urban planning activities and urban economics. The planning model used by the British colonizers in Zimbabwe during the colonial era focused on industries and economic growth in the cities; other activities such as agriculture, hunting and livestock rearing were considered to be non-urban land use activities. Today, several years after the independence of Zimbabwe, the National government still uses similar UA strategies and approaches introduced by the British colonizers prior to independence (Taru & Basure, 2013).

When Salisbury (now Harare) was established by the British in 1890, it was used for administrative purposes and as a hub for industry and commerce. Before the arrival of the British colonial settlers, this area was mainly used for agriculture by the native Shona people. As soon as the British moved into the area, the landscape of the area was altered from agriculture to commercial use. The British colonial settlers were against the practice of UA within cities and they considered it to be a rural land use which is unplanned. In the early to mid-19th century, the British colonial government implemented several policies which

discouraged the practice of UA in urban areas, restricted the movement of workers from rural to urban and came up with policies meant to drive the local people out of the main cities. In addition, they wanted to stop the practice of UA in cities and mobilize the labour from blacks who previously practised UA to commercial and industrial development. The aim was to grow the economy by building industries and establishing commercial activities at the cost of the UA sector. Some of the anti-UA legislative frameworks implemented by the colonialists include the Regional Town and Country Planning Act (Chapter 29:12) which stated that UA led to environmental degradation and other biodiversity challenges. The Regional Town and Country Planning Act (Chapter 29:12) was a planning act which aimed at conserving and improving the physical environment. Prior to independence, the Black African population was only allowed by the colonialists to practice small-scale UA in the backyard. This form of farming was mainly practised by local black workers who worked in local industries and resided in townships. Off-plot farming was prohibited (Mushayavanhu, 2003; Taru & Basure 2013).

In 1980, many local people migrated from the rural areas to the urban areas in search of jobs and a better standard of living. Once in the urban areas, most of the recent urban migrants failed to get employment and started to practice UA as a way of survival. Toriro (2006) states that after Zimbabwe's independence in 1980, the number of people practicing UA in the country increased. In 1985, the Minister of Local Government and Town Planning gave a directive to local authorities to allow for the establishment of urban agricultural co-operatives which had the role of promoting the UA sector, increasing land tenure amongst urban farmers, reducing land competition between UA and traditional land uses and ensure that the UA sector in the country is sustainable (Adam, 1994). However, a few years after being formed, the urban agricultural co-operative failed to yield the desired results and collapsed. Since then, no formal institution has been formed to regulate the UA sector in Zimbabwe. Despite this, the UA sector within Zimbabwean cities has grown fast over the years but in a way that is not sustainable since there is no regulating authority. In 1990, UA covered 8% of the land in Harare; it grew to 16% in 1994 and to over 25% in 2000 (Magidimisha *et al.*, 2013). From 2000 to the present, the Zimbabwean Government has relaxed its grip on the enforcement of some of the UA policies and laws. The main reason why the Government of Zimbabwe (GOZ) stopped the enforcement of some of its harshest UA policies which included

slashing down of crops planted on prohibited areas, was because of drought, politics, mismanagement, corruption and socio-economic issues the country was facing (Mushayavanhu, 2003; Taru & Basure 2013).

UA in Zimbabwe

There is no national legislation that regulates UA in Zimbabwe. So, it is up to the local municipalities within Zimbabwe to introduce UA by-laws. The UA sector in Zimbabwe can be traced back to the formation of the first colonial cities. Currently, this phenomenon is practised by people for various reasons which include subsistence, economic development and as a hobby. Since 2000, UA has increased and gained the attention of many people and organisations. This is due to the growing rate of urban food insecurity, droughts, and environmental degradation. Therefore, most people in the country view UA as a solution to the problem of food insecurity in the cities (Masiya and Mazuruse, 2007).

There are many different reasons why people engage in UA in Zimbabwe. For instance, some people practice this phenomenon to supplement income, and others for environmental protection. The rise of this phenomenon in Zimbabwe was caused by the economic decline which commenced in 2000. Today, UA is viewed as a food coping strategy by most people. In Harare, this trend has been worsened by the high rate of rural to urban migration and droughts. To make the situation worse, Zimbabwe has an unemployment rate of over 80% and most people cannot afford food, even those with formal jobs (Herald, 2014). As a result, individuals practice this phenomenon to supplement their income and as a survival strategy. Masiya & Mazuruse (2007), noted that there was a clear indication that the economic hardships faced by Zimbabweans from 2000 led to the growth of the UA sector in the whole country and the increased competition between land uses. UA covered 25% of the land in 2000. In 2007, it increased to over 33% of the land used for UA in the capital Harare (Masiya and Mazuruse, 2007).

With the rise of UA and land use competition in Zimbabwean cities, the citizens are debating on the future of the UA sector in Zimbabwe. The citizens are divided into two groups on this issue. The first group supports the growth of the sector and the other group is against it. The group which supports UA argue that this sector has numerous advantages than disadvantages when practised in a sustainable manner such as food security and as a waste management

strategy. The other group which is against this phenomenon argues that the UA sector is associated with numerous health risks, environmental degradation and must be banned since it is not an urban land use and does not complement traditional urban land uses. This shows that the citizens of Zimbabwe have different views and opinions on the UA sector. Hence, it is up to the authorities to decide the way forward (Masiya and Mazuruse, 2007).

In the past few years, the UA sector faced a lot of opposition from citizens. According to Mbiba (1995), the UA legislation which was in place in the 1990s was not always repressive but wanted to regulate the sector and ensure its sustainable growth. Fast forward to today, most of the people believe that the UA legislation used in the country is anti-UA. So, one can argue that the UA legislation in Zimbabwe is repressive and discourages the growth of the sector in many ways (Masiya and Mazuruse, 2007).

4.2 The UA sector in Harare

It was estimated in 2012 that over 35% of the land in Harare was used for UA and most of the land used by urban farmers belonged to the local governments (Brazier, 2012). In Harare, UA is practised by all three income groups, that is, low, medium and high-income people. According to IRIN (2007), UA is also practised in affluent medium and high-income areas such as Avondale, Borrowdale, and Mabelreign. One can, therefore, argue that the phenomenon plays an important role in the lives of people from all walks of life in all Zimbabwean cities. Despite the importance of UA to the residents of Harare, the local Municipalities and town planners do not consider it as legitimate land use, and this sector has not received much attention in recent years. UA is allowed in the capital city Harare, but the urban farmers must conform to the rules and regulations put in place by the different spheres of Government and AU stakeholders. If anyone does not conform to these rules and regulations of UA, they are likely to have their crops removed/ cut (Toriro, 2006). According to a research conducted by Redwood in 2008, 40% of urban farmers in Harare are unfamiliar with the UA legislative frameworks and one in five urban farmers considered the existing legislation on UA to be hostile towards the practice. 60% of urban farmers who are familiar with the UA policies and by-laws argued that the UA legislative framework was sometimes confusing to them. They also argue that the current UA policies and laws are vague and the Government must come up with new legislative measures that are clear and which promote the growth of the sector.

The current UA legislation is also blamed for negatively affecting the growth of the sector. Redwood (2008) argued that one in every five urban farmers blamed the current UA policies and laws for discouraging the growth of UA. All the issues the UA sector is facing leads to the unsustainable growth of the sector (Redwood, 2008). Map 4.2 below shows the map of Harare and the surrounding areas. Harare is the capital and largest city in Zimbabwe. It is located northern-eastern Zimbabwe.

Map 4.2: The Map of Harare, Zimbabwe



Source; Google map (2017c)

In Harare, there are certain types of UA that are allowed and some that are prohibited. Urban farmers are allowed to cultivate on vacant land which is suitable for UA. The suitable land for UA must be located about 30 meters away from water sources, 15 meters from the roadsides or road junctions, between 20 to 30 meters from ecologically sensitive areas and on land that does not pose a threat to the safety of people. Small animals (such as rabbits and chickens) are allowed by local authorities (Magidimisha, 2009). The types of UA that are not allowed by the authorities include the practicing of agriculture on contested areas, the keeping of large

animals, and the practice of UA on public land without permission from the authorities (RUAF Foundation, 2005).

Over 70% of the urban farmers in Harare are low-income people. The areas where the low-income urban farmers mainly practice UA include Mbare, Kuwadzana, Glen Norah, and Highfields. (Kamete, 2007). The research from Redwood (2008) states that over 50% of the urban farmers in low-income areas of Harare practice UA close to water sources and on off-plot sites. Practising UA less than 30 meters from water sources is not environmentally sustainable as it leads to soil erosion and other negative biodiversity issues (Redwood, 2008). The Natural Resources Act of 1996 and the Water Act of 1998, were implemented by the National Government to protect the natural environment and UA. These acts prohibit urban farmers from practicing UA within 30 meters from water sources. The aim is to protect the environment, create a sustainable UA sector and cities throughout Zimbabwe. The Harare municipality by-laws also prohibit urban farmers from practicing off-plot farming without its permission. Many urban farmers in high-density areas practice off-plot farming since they do not have adequate land in their yards to plant crops or keep animals. However, urban farmers must apply for permission from the local municipality to practice off-plot farming (Masiye and Mazuruse, 2007).

Since most of the urban farmers in Harare are low-income people, they face a plethora of problems such as insufficient funds to buy farming inputs, shortage of water and land. Land and water are in serious shortage in Harare. As a result, urban farmers are forced to practice UA near watercourses or on other unsuitable lands. Some urban farmers make use of vacant or so-called in-between spaces. Most of the in-between spaces are left-out by town planners, Local Municipalities or developers for road expansion and provision of basic infrastructural services. Other urban farmers use vacant residential sites for UA (RUAF, 2015). The Harare Combination Master Plan (HCMP) of 1993 allows urban farmers to practice UA within their yards and not on off-plot sites. But in recent years, the number of people cultivating on off-plot sites has increased, and this has created conflict between local authorities and the local urban farmers (Toriro, 2006). To qualify for off-plot cultivation, urban farmers must register for the land at the local municipality and pay rent to use the land. Of all the urban farmers in Harare, less than 15% are registered for off-plot cultivation (Toriro, 2006).

Urban Agriculture Legislative framework in Harare

The Acts that regulate UA in Harare are; the Public Health Act 19 of 1924, Natural Resource Act Chapter 20: 13, Water Act Chapter 20:24, Environment Management Act Chapter 20:27 and the Urban Council Act 29:15. The Urban Council Act (Chapter 29:15) gives the local municipality the power to introduce municipal by-laws that regulate land cultivation or prohibits the practice of UA and the keeping of animals. The municipal by-law which mainly deals with UA in Harare is the protection of land by-law. It deals with the use of municipal land and it states that urban farmers must ask for permission from local councils before practicing UA. The Public Health Act 19 of 1924 encourages urban farmers to practice UA in a sustainable manner, to reduce health risks (prevent the spread of diseases) and it also aims to reduce the environmental risks associated with this phenomenon. The Water Act (Chapter 20:24) and Environment Management Act Chapter 20:27 aims to protect the natural environment, protect the water sources in the country and ensure that urban farmers do not practice UA close to environmentally sensitive areas. All these Acts set out the procedures that need to be followed by urban farmers who practice UA (Mavhumashava 2006).

According to the RUAF (2005: 8), *“a master plan is usually the principal land use planning policy document of any town or city.”* A master plan broadly sets out the direction of growth of a city and the development guidelines. The Harare Combination Master Plan (HCMP) is the master plan currently in use in Harare. It was introduced in 1992 and shows the future spatial vision of the city. On the issue of UA, the Harare Combination Master Plan allows urban farmers to practice UA in the city. But, it prohibits them from practicing it on public land without the permission of the local authorities. The Harare Combination Master Plan zoned land for UA in Harare. However, most of this land is located far away from the city centres. The master plan currently in use is obsolete and out of touch with the realities on the ground (RUAF, 2005). Therefore, to address some of the issues facing the UA sector in Harare, it is important that the Harare Combination Master Plan is updated.

In 2002, the Nyanga Declaration on Urban and Peri-Urban Agriculture in Zimbabwe was signed. It acknowledged the importance of UA in the lives of urban residents. Numerous stakeholders involved in the Nyanga Declaration included the Minister of Local government and Public Works. The objectives of the Nyanga Declaration were to promote UA in Zimbabwe's cities, educate people on the importance of UA, reduce socio-economic issues the people are facing, implement policies which support UA, improve food security and reduce poverty (City Farmer, 2002). In 2003, the Harare Declaration was signed by the ministries responsible for local government from the following countries; Zimbabwe, Kenya, Malawi, Swaziland, Tanzania, and Malawi. The goals of the Harare Declaration were to promote the growth of UA, help urban farmers to practice the phenomenon in a sustainable manner and to educate the urban farmers on UA (Redwood, 2008).

Many stakeholders play important roles in the growth of the UA sector in Harare, Zimbabwe. Bowyer and Tengbeth (1995) argue that stakeholders who control UA in Harare are as follows; the Natural Resources Board which protect the environment by implementing policies such as the Natural Resource Act of 1996 and the Water Act of 1998. The Municipal Police manages the UA sector and follows the directive of the local council. The Ministry of Agriculture, Mechanisation and Irrigation is responsible for coming up with the guidelines on land management and conservation. The Ministry of Education and Culture creates awareness and educate people on UA. The Finance and Development Committee (FDC) collects rent from urban farmers who use council land for UA. The Town Planning and Work Committee is responsible for land-use management (Bowyer and Tengbeth, 1995; Ministry of Agriculture, Mechanisation and Irrigation, 2015).

In concluding this chapter, UA is one of the main food survival strategies used by urban farmers in Harare and surrounding areas. Over 75% of urban farmers in this city heavily rely on this sector. With the high rates of unemployment in the country, most people are pushed by the harsh economic climate to practice UA and the land used for the cultivation in Harare has increased rapidly in the past few years (Toriro, 2006).

4.3 Chapter Summary

In recent years, the Harare municipality has seen the importance of the UA sector and the fact that this sector has more advantages than disadvantages to its citizens. However, the

challenge is that the sector is not sustainable. To make this sector sustainable and address some of its issues, the relevant authorities must implement the principles of sustainable development (SD) discussed earlier in this research. Without this, the UA sector in Harare will never be sustainable. It is also important that the Harare municipality learns from other international and regional studies in the UA sector. This chapter discussed various issues, but the most pressing issue was on UA legislation in Zimbabwe. The legislation frameworks currently in place in Harare are good on paper but not sustainable on the ground and in some cases, the policymakers who draft the UA policies, laws or regulations are unaware of the issues currently affecting the UA sector on the ground. Therefore, how can someone uninformed on the issue make an informed decision?

CHAPTER 5: BACKGROUND OF STUDY AREA, DATA PRESENTATION & ANALYSIS

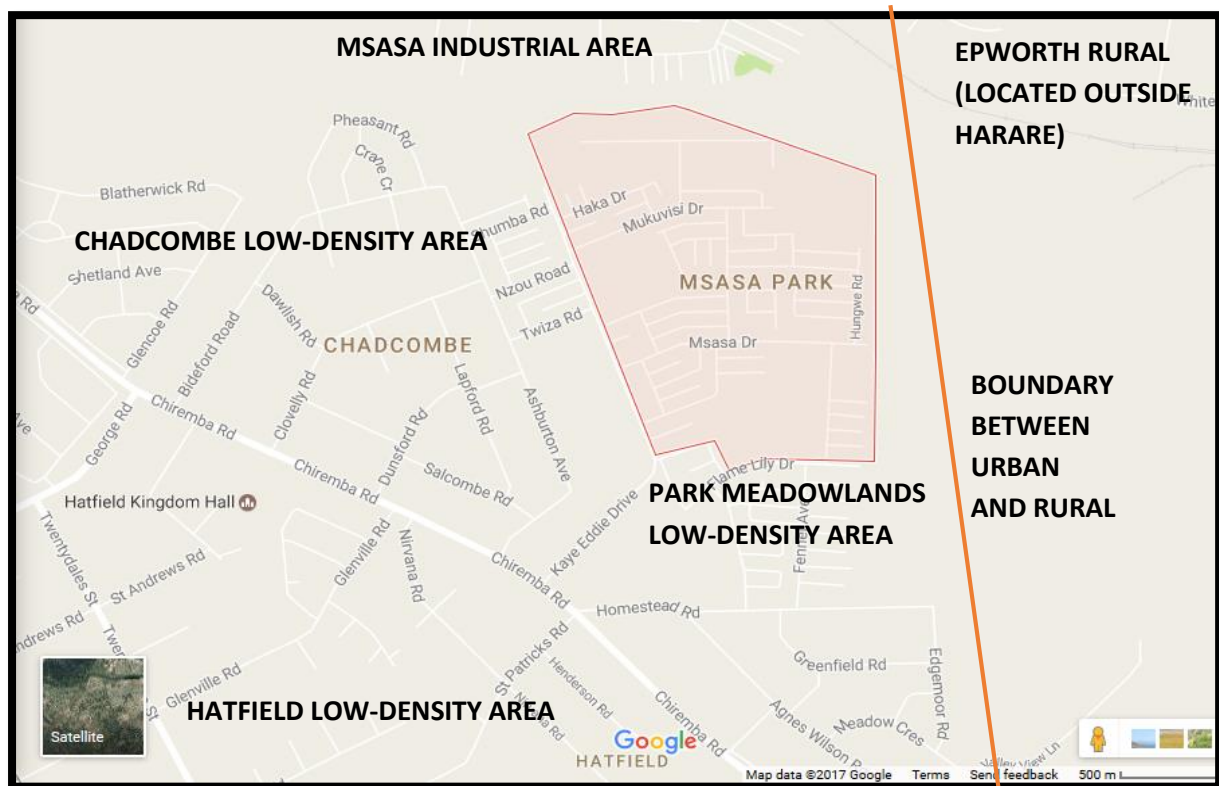
5.0 Introduction

This chapter is divided into three sections; the background of the study area, data presentation, and data analysis. The first section of this chapter introduces the Msasa Park study area, discusses the demographics of the study area, and the environmental issues facing the study area. The second section of this chapter is the data presentation which illustrates and discusses the research findings obtained in the fieldwork exercise. The last section of this chapter is the data analysis which analyzes the study findings and links the theories and the research results.

5.1 The Background of Msasa Park, Harare

Msasa Park is a medium density suburb that is located on the eastern side of Harare. Msasa Park is located between 10 kilometers from Harare Central Business District. This area is zoned residential area and was built by private developers in the 1990s to 2000s to accommodate the rising number of the black medium class in Harare. According to Census Zimbabwe (2012), this area has a population of about 7000 people, it is surrounded by Chadcombe high-income suburb on the western side, Park Meadowlands high-income suburb on the southern side, Msasa Industrial Park on the northern side, Hatfield high-income suburb on the southern side and Epworth high density suburb on the eastern side as shown in Map 5.1 on the next page (Census Zimbabwe, 2012, Nyatsanza & Chaminuka, 2013).

Map 5.1: The map of Msasa Park study area



Source: Google Maps (2017d)

The housing typology in the suburb is single-detached houses that consist of 3 to 4 bedrooms. The yard sizes range from 300 square meters to 500 square meters. Most of the people who reside in this area are middle and high-income families who own businesses (self-employed) while some of them work in formal jobs in Harare. The main routes that connect Msasa Park with the surrounding areas include Chiremba Road, St. Patrick's Road, Homestead Road on the southern side and Kaye Eddie Drive on the western side of the suburb. The main routes inside Msasa Park are Mukuvisi Road, Haka Drive, Flame Lily Drive, Msasa Drive, and Nyamudzaura Avenue as shown in Map 5.1 (Gambe, 2013 & Google Map, 2017d).

The City of Harare municipality (2015), noted that Harare is made up of 46 wards and each ward is led by a councilor. The councilors are elected for five years and they represent two main political parties in the country which are the Movement for Democratic Change (MDC) and the Zimbabwe African National Union-Patriotic Front (ZANU PF) party. The responsibility of the councilor is to represent the interests of the ward or constituency. Msasa Park is under

Ward 22 and the councilor is Ms. Theresa Manase. Ward 22 consists of the following suburbs; Msasa Park, Hatfield, Logan Park, Homestead, and Park Meadowlands (City of Harare, 2015). According to Census Zimbabwe (2012: 8), Ward 22 is home to about 44612 people and Msasa Park has an estimated population of 7000 people. Msasa Park is one of the smallest section of Ward 22 and has 15.6% of the ward's population. The suburb with the biggest population size in this ward is Hatfield low-density area which has over 60%. The remaining 40% is divided among the remaining suburbs which are Logan Park, Homestead and Park Meadowlands (Census Zimbabwe 2012, Nyatsanza & Chaminuka, 2013).

Most of the plots in the study area have access to municipal services such as water and electricity. However, these basic services are not always available because of the harsh economic climate the country is facing. As a result, most of the residents of the study area use boreholes and water wells for water provision (Nyatsanza & Chaminuka, 2013).

As shown in Map 5.2 on the following page, there is a new settlement next to the study area called Msasa Park Extension which was built between 2007 and 2015. This area is not part of this research study, but its proximity affects the study area (Msasa Park). This area is located between Msasa Park and Msasa Industrial area as seen in Map 5.2. The recently developed settlement (Msasa Park extension) does not have access to infrastructures such as paved roads, electricity, and water. As a result, the residents use solar energy for electricity provision, boreholes or water wells for water provision. The local municipality does not recognise this area because it illegally built and is planning to demolish the houses in the future. This illegal settlement does not show on the municipal maps or on the municipal land use planning. The houses in Msasa Park Extension were built on the environmentally sensitive land. According to the Harare municipality records, the houses are illegally built on land illegally taken from private companies that built Msasa Park (Fieldwork, 2016). However, the residents of this new area contend that they purchased the land from private companies that built the old legal suburb of Msasa Park.

As shown in Map 5.2 on the next page, Msasa Park Extension was built along a wetland which is an environmentally sensitive area. The use of environmentally sensitive land for housing development results in many negative impacts on the natural environment and people. It also affects the water table, causes water pollution, flooding, diseases, and soil erosion.

Map 5.2: The map of Msasa Park, Msasa Park Extension, and the surrounding areas of Chadcombe, Msasa, Park, Meadowlands, and Homesteads.



Source: Google Map (2017e)

Table 5.1 on the next page shows the population of Msasa Park by sex. Msasa Park is home to 7000 people. 3253 people in the study area are females and 3738 people are males. The evidence from Table 5.1 shows that there are more females in Msasa Park than males (Fieldwork, 2016 & Census Zimbabwe, 2012).

Table 5.1: The population of Msasa Park by sex

Sex	Number of Population	Percentage (%)
Male	3252 people	46.6%
Female	3738 people	53.4%
Total	6990 people	100%

Source: Census Zimbabwe, (2012)

Table 5.2 on the next page shows the composition of the population by age group and sex. The vulnerable or the dependent population group in Msasa Park range from 0 to 19 years and from 65 years and above. These age groups cannot be employed as a result of age (some are too young, and some are too old). The vulnerable and dependent group also includes people with disabilities and some who are mentally challenged. The dependent population of Msasa Park makes up 44.7% of the local population while the other 55.3% is the working class/independent class (Census Zimbabwe, 2012).

Table 5.2 also shows that most residents of Msasa Park die before reaching the age of 39. This is shown by the decrease in the population from the age of 39. As shown in table 5.2, in the age group of 35 to 39 years, the population percentage is 7.2% and in the next age group, the population percentage decreased by almost half to 4.9%. Therefore, it is evident that most residents of Msasa Park are dying before the age of 39 (Census Zimbabwe, 2012). The main cause of death is the high rates of HIV and AIDS which are killing millions of Africans every year (Fieldwork, 2016).

Table 5.2: The composition of the population of Msasa Park by age group and sex

Age group	Males		Females		Total	
	NO. of people %		NO. of people	%	NO. of people	%
15 – 19	294	4.2%	441	6.3%	735	10.6%
20 – 24	350	5.0%	490	7.0%	840	12.0%
25 – 29	385	5.5%	497	7.1%	882	12.6%
30 – 34	322	4.6%	364	5.2%	686	9.8%
35 – 39	259	3.7%	245	3.5%	504	7.2%
40 – 44	182	2.6%	161	2.3%	343	4.9%
45 – 49	105	1.5%	112	1.6%	217	3.1%
50 - 54	91	1.3%	84	1.2%	175	2.5%
55 – 59	63	0.9%	63	0.9%	126	1.9%
60 – 64	35	0.5%	49	0.7%	89	1.2%

Source: Census Zimbabwe, (2012)

Table 5.3 on the next page shows the employment status of residents of Msasa Park. The unemployed people are estimated to be around 1346 which translates to 19% of the population of the area. The population group with the highest unemployment rate are the youths between the ages of 20 and 35 years old. The employed people in Msasa Park are estimated to be 2522, and most of them are employed in the informal sector since jobs are in short supply (Fieldwork, 2016).

Table 5.3: The employment status of residents in Msasa Park

Employment status	Number of people	Percentage (%)
Not economically active	3129 people	45%
Unemployed	1346 people	19%
Employment (formal & informal)	2522 people	36%
Total	6997 people	100%

Source: Census Zimbabwe: (2012)

Table 5.4 below shows the highest level of education obtained by residents of Msasa Park. 49% of the population have secondary education, 21% have tertiary education, 20% have primary education, 6% have pre-school education and 4% is unknown (Census Zimbabwe, 2012).

Table 5.4: The highest level of education of residents in Msasa Park

Category	Percentage (%)
Not known	4%
Pre-school	6%
Primary	20%
Secondary	49%
Tertiary	21%
Total	100%

Source: Census Zimbabwe, (2012)

Table 5.5 on the next page shows the tenure status of the residents in Msasa Park. As shown in table 5.5, there are more lodgers in Msasa Park than any other tenure status. House owners only comprise 25% of the population. Most of the owners of the houses in Msasa Park are wealthy and do not reside in this area (Fieldwork, 2016; Census Zimbabwe 2012).

Table 5. 5: The tenure status of residents of Msasa Park

Type of tenure	Lodger	Owner	Tied accommodation	Tenant	Other	Total %
Percentage (%)	41%	25%	13%	12%	8%	100%

Source: Census Zimbabwe, (2012)

Table 5.6 below shows the ethnicity of the residents of Msasa Park. Most of the residents of Msasa Park are Black Africans. Black Africans constitute 98% of the area’s population, followed by the mixed race at 0.80% and Europeans at 0.50%.

Table 5.6: The ethnicity of residents of Msasa Park

Ethnicity	Number of people	Percentage (%)
Black (Africans)	6870	98%
Mixed Race	58	0.80%
Europeans	37	0.50%
Not known	25	0.35%
Asiatic	9	0.11%
Other	5	0.05%
Total %	7004	100%

Source: Census Zimbabwe, (2012)

Table 5.7 on the next page shows the number of public facilities available in Msasa Park. As seen in table 5.7, there is a shortage of public facilities in Msasa Park. Msasa Park is home to over 7000 people but does not have a hospital, clinics, or schools. This area relies on neighboring areas such as Hatfield, Epworth, Chadcombe, and Cranborne for vital public facilities such as clinics and schools. The nearest schools from Msasa Park are Epworth Primary School, Epworth Secondary School, Hatfield Primary School, Hatfield Girls High

School, Widcombe Primary School, and Cranborne Boys High School. The schools mentioned above are located within a 5-kilometer radius from Msasa Park. Most pupils from Msasa Park walk 15 to 35 minutes to reach their schools. When it comes to clinics, the nearest clinic from Msasa Park is the Hatfield Clinic which is located about 25 minutes' walk away. Msasa Park also depends on Hatfield low-density area for the municipal offices. The residents of Msasa Park walk an estimated time of 35 minutes to reach the municipal offices in Hatfield and there is no public transport between the two places. Therefore, it is evident that the Msasa Park medium-density area is heavily dependent on the surrounding areas for important public facilities.

Table 5.7: The major public facilities in Msasa Park

Facility	Number of facilities
Police station	1
Community halls	2
Churches	4
Pre-school	1
Shopping Centre	1
Clinic or hospital	0

Source: Fieldwork, (2016)

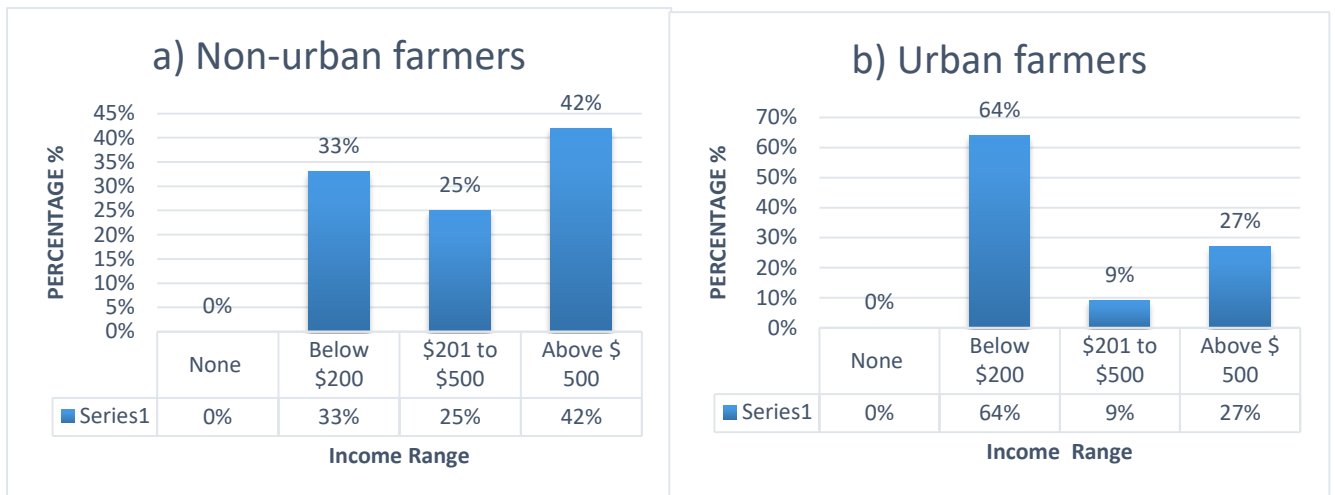
5.2 Data presentation

Socio-Economic Status in Msasa Park

Zimstats (2012) and The Herald of 04 August 2014 indicated that over 80% of Zimbabweans are currently unemployed. As a result, the local people are involved in the informal trade, urban agriculture, prostitution, criminal activities in order to survive and earn money to buy food and other basic commodities (Herald, 2014). The high unemployment rates the country is facing today is amongst the highest in the world, and its impact is evident in the study area and the research study. During fieldwork in Msasa Park, the researcher came across large numbers of economically active people between the ages of 16 to 55 years who were unemployed and doing nothing to improve their lives. Over 80% of these people said they were uncertain about the future since the country is faced with many socio-economic challenges. Even the urban and non-urban farmers respondents interviewed in this research study were all unemployed, and all of them were self-employed. This show how serious the problem of unemployment is in the country.

Figure 5.1 on the next page shows the income obtained by non-urban and urban farmers per month in Msasa Park. This income is obtained from informal or formal personal businesses (self-employment) since all the respondents are unemployed. As shown in Figure 5.1a, 42% of the non-urban farmers in the study area earn above US\$ 500, 33% earn below US\$200, 25% earn between US\$ 201 to US\$ 500, and none of the non-urban farmers earn below US\$200 per month from personal businesses. Most of the participants in the interviews argued that the income they earned every month varied. One of the interviewees said, *“When business is good we earn more money and in tough times it is the opposite”*. As shown in figure 5.1b, 64% of the urban farmers earn below US\$200, 27% earn above US\$500, 9% earn between US\$201 to US\$500 and none earn below US\$200.00. Figure 5.1 a and b show that non-urban farmers earn more money per month from their personal businesses than the urban farmers. Since the non-urban farmers earn more than the urban farmers, this may be one of the reasons why they do not practice UA. Therefore, one can argue that UA is been used by urban farmers in Msasa Park to supplement their incomes and reduce poverty at home.

Figure 5.1: The income ranges in Msasa Park

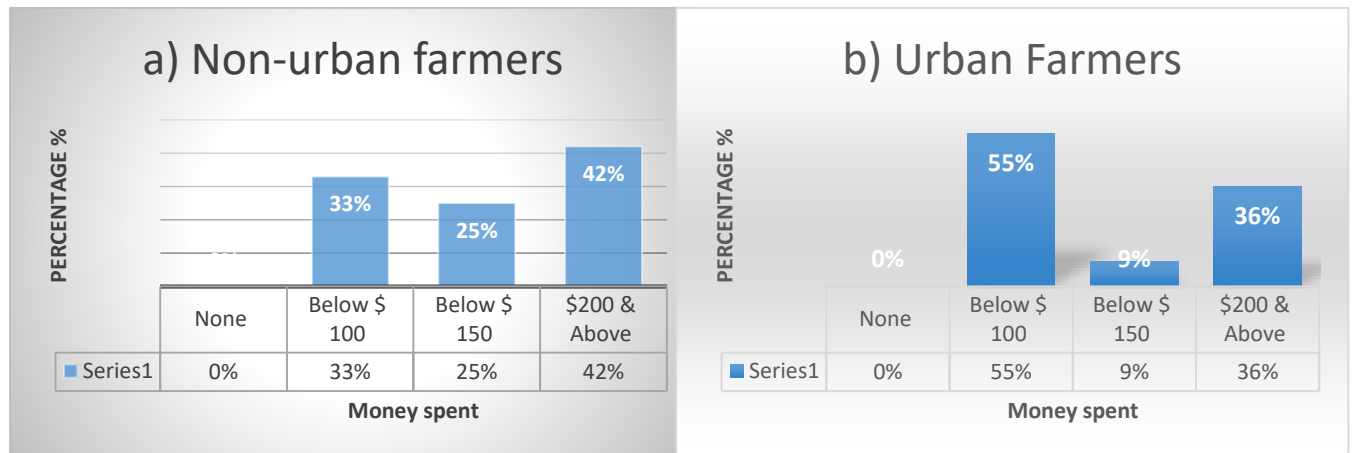


Source: Fieldwork (2016)

Figure 5.2 on the next page shows the money spent by non-urban and urban farmers in the study area per month on food. As shown in Figure 5.2a, 42% of the non-urban farmers spend US\$200 and above on food, 33% of non-urban farmers spend below US\$ 100, 25% spend below \$150 and none spend below US\$100 on food. As shown in Figure 5.2b, 55% of urban farmers spend below US\$ 100 on food, 36% spend US\$ 200 and above on food, 9% spend below US\$ 150 and none spend below US\$100.00. Figure 5.2 a and b show that non-urban farmers spend more money on food than urban farmers. Most of the food consumed by urban farmers are self-grown. However, when it comes to non-urban farmers, this is not the case. The non-urban farmers obtain most of their foodstuff from local supermarkets and from their rural areas. As a result, they spend a lot of money on foodstuff compared to urban farmers (Fieldwork, 2016).

Currently, the food shortage crisis in the country has been worsened by the drought caused by the El Nino phenomenon. This drought is currently affecting everyone, both the non-urban & urban farmers throughout Harare. As a result, the Government of Zimbabwe has started importing maize and wheat from different parts of the Southern African region to address the food shortages the country is facing. The numerous issues within the country’s food sector such as shortages, droughts, and the long distances traveled by food from production to consumption increase the cost of food for both urban farmers and non-urban farmers. However, the most affected are the non-urban farmers as shown in Figure 5.2a who spend more money on food.

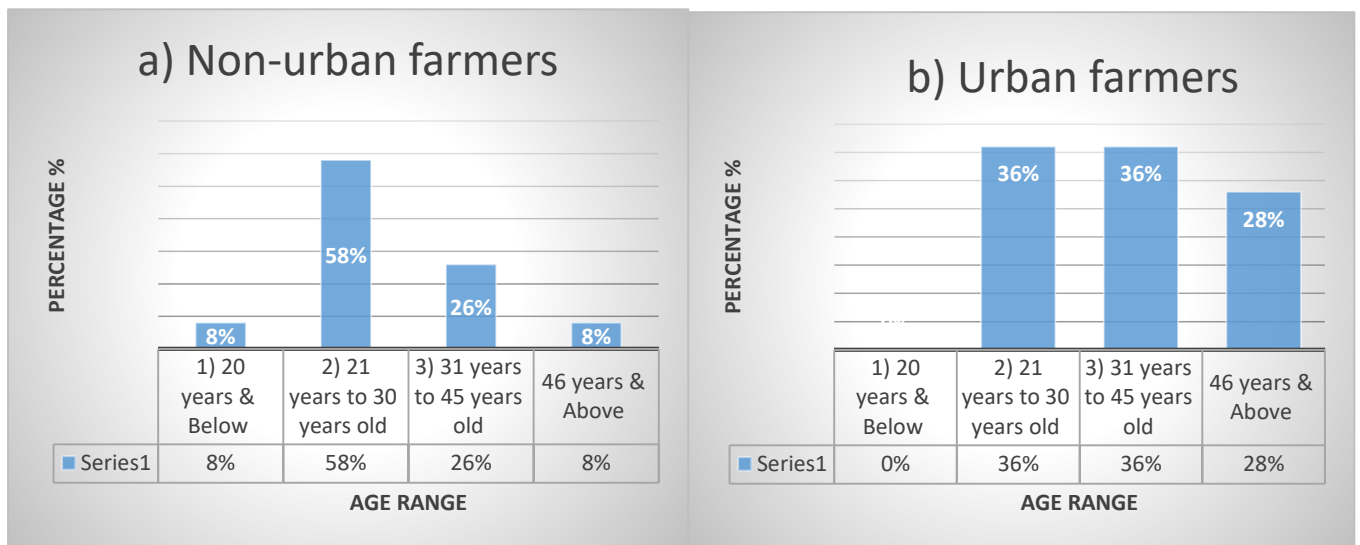
Figure 5.2: The money spent on food per month



Source: Fieldwork (2016)

Figure 5.3 on the next page shows the age of non-urban and urban farmers in Msasa Park. As shown in Figure 5.3a, 58% of the group’s population were between the ages of 21 to 30 years, 26% were between the ages of 31 to 45 years, 8% were 20 years and below and the other 8% were 46 years and above. Figure 5.3a shows that there were more youths in the study area than any other population group. Most of the youths in Msasa Park were not involved in the UA sector for various reasons. The main reasons were the shortage of land, stigma associated with UA and failure to see the benefits associated with UA. In most instances, urban farmers in Msasa Park are perceived as poor or of a low class in society. Therefore, some of the youths do not want to be associated with this sector for these reasons (Fieldwork, 2016). Figure 5.3b shows the age groups of urban farmers in Msasa Park. As shown in Figure 5.3b, 36% of the group’s population were between the ages of 21 to 30 years, 36% were between the ages of 31 to 45 years and 28% were 46 years and above. The reason the 20 years and below age group were not actively involved in UA is that most of them were of school going age and spend most of their time at school. Figure 5.3b also shows that it is not all youths that were not involved in UA. Some youths play an important role in the growth of the UA sector in Msasa Park as shown in Figure 5.3b where over 36% of the group population is involved in the sector. It is important that the youths are involved in the UA sector to reduce the high unemployment rate the country is facing.

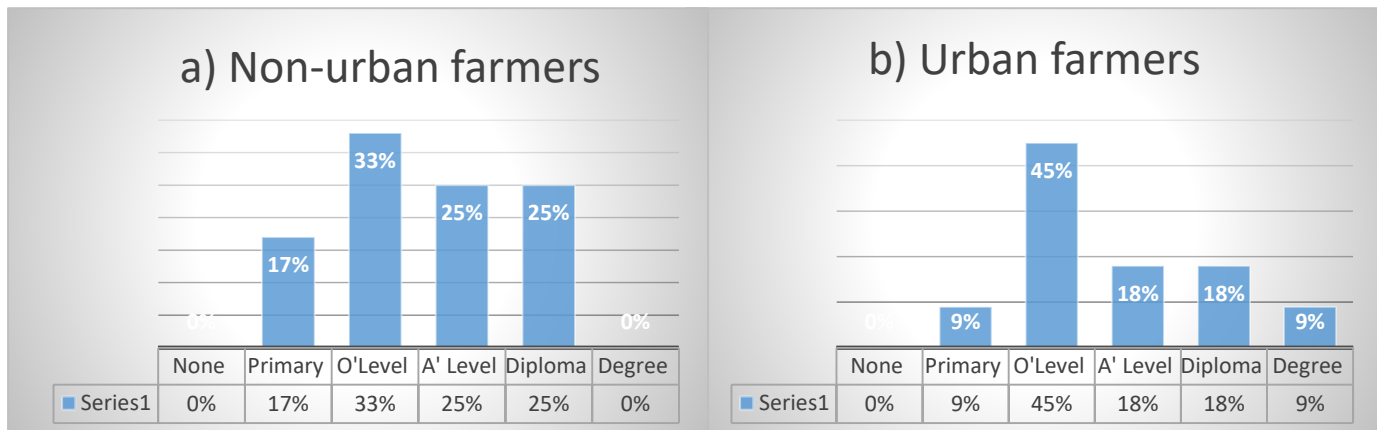
Figure 5.3: The age of non-urban & urban farmers



Source: Fieldwork (2016)

Figure 5.4 on the next page shows the education level for both non-urban and urban farmers in the study area. As shown in Figure 5.4a, 33% of non-urban farmers have O' (ordinary) Levels qualifications, 25% have A' (Advanced) Levels, the other 25% have diplomas, 17% have primary education and none have no education. As shown in Figure 5.4b, 45% of urban farmers have O' Levels, 18% have A 'levels, the other 18% have diplomas, 9% have degrees, another 9% have primary education and none have no education. Figure 5.4 a and b show that urban farmers in Msasa Park were more educated than non-urban farmers since most of them have an Ordinary level qualification and better. According to Toriro (2009), before the year 2007, this was not the case since most of the non-urban farmers in Harare were more educated than the urban farmers. The type of people practicing UA has altered in the past few years. This has been caused by the current economic hardship the country is facing, which is forcing large numbers of educated people into the UA sector. It is evident that urban farmers in Msasa Park are using UA to feed their families and supplement their income obtained through formal and informal businesses.

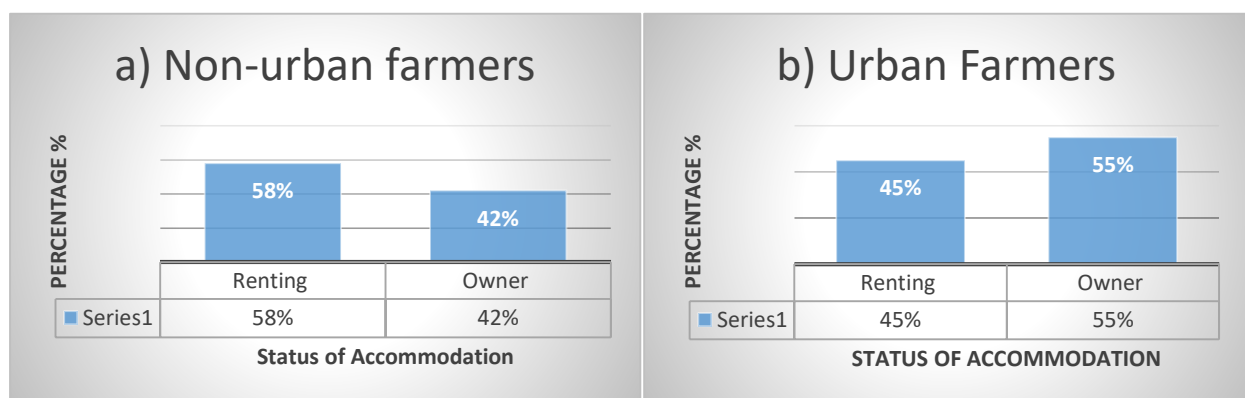
Figure 5.4: The highest education level obtained by non-urban & urban farmers



Source: Fieldwork (2016)

Figure 5.5 below shows the status of accommodation for both non-urban and urban farmers in Msasa Park. As shown in figure 5.5a, 58% of non-urban farmers were renting and 42% were owners. As shown in figure 5.5b, 55% of urban farmers were owners and 45% were renting. The results from figure 5.5 a and b show that there were more non-urban farmers who were renting compared to urban farmers. Most of the urban farmers own the houses they reside in. Therefore, it is evident that most of the non-urban farmers in Msasa Park do not practice UA because of their status of accommodation. The status of accommodation and tenure security can affect a person's decision to or not to practice UA. For instance, most of the tenants in the study area do not know how long they will be renting a participial house. Therefore, most of them do not practice or invest money in UA for this reason.

Figure 5.5: The accommodation status for non-urban & urban farmers

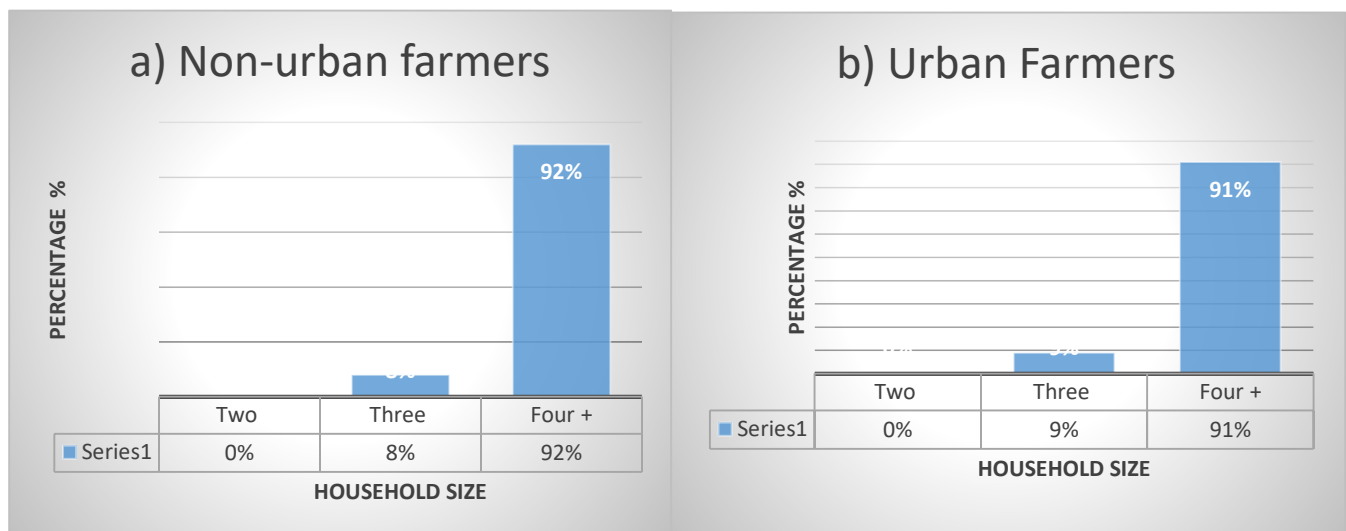


Source: Fieldwork (2016)

Figure 5.6 below shows the household size for non-urban and urban farmers in Msasa Park. As shown in figure 5.6a, 92% of non-urban farmers in Msasa Park have more than four family members and 8% have three family members. As shown in figure 5.6b, 91% of urban farmers have more than four family members and 9% have three family members. Figure 5.6 a and b show that the household size for both urban and non-urban farmers in Msasa Park was similar in terms of size.

According to the World Bank (2017), most people who live on the African continent tend to have more children compared to people who reside in developed countries such as the United Kingdom. The average family size in Africa stands at 4.5 children per family and in the United Kingdom, it stands at 2 children per family (World Bank 2017 & Zimstats, 2012). There are many factors why African people have larger families including culture, polygamy, among other. Larger African families tend to be more vulnerable to socio-economic challenges. Since there will be more people to feed. As a result, most of them are involved in UA to ensure food security and to supplement their income.

Figure 5.6: The household size for non-urban & urban farmers in Msasa Park

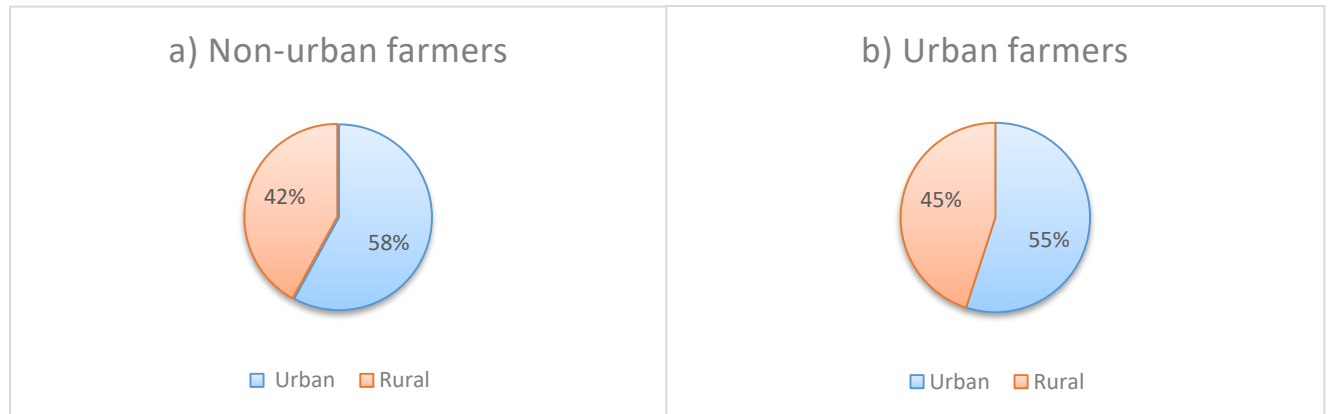


Source: Fieldwork (2016)

Figure 5.7 on the next page shows the birthplace of non-urban farmers and urban farmers. As shown in figure 5.7a, 58% of non-urban farmers in the study area were born in urban areas and 42% were born in rural areas. Figure 5.7b shows that 55% of the urban farmers were born in urban areas while 45% were born in rural areas. The results from Figure 5.7b show that people born in urban areas practice UA on a larger scale than their rural counterparts. Figure

5.7b also show that urban born people are largely dependent on the sector compared to their counterparts born in the rural areas.

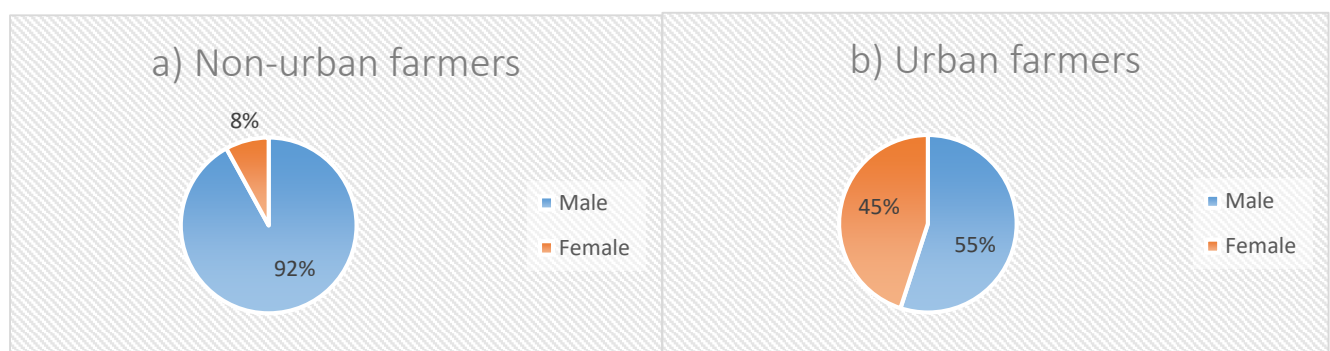
Figure 5.7: The birthplace of non-urban & urban farmers



Source: Fieldwork (2016)

Figure 5.8 on the following page shows the gender of non-urban and urban farmers in Msasa Park. As shown in figure 5.8a, 92% of non-urban farmers in Msasa Park are males and 8% are females. As shown in figure 5.8b, 55% of the urban farmers are males and 45% are females. The results from figure 5.8b show that the UA sector in Msasa Park is dominated by males. This is a result of the current economic hardships the country is facing, which is driving most men into the sector. Before the year 2000, the UA sector in Harare was dominated by females since they were the ones who stayed at home looking after the children and practicing UA while the males would go work in formal jobs in the industries and in town (Toriro, 2009). Today, this is not the case. Nowadays, most men are unemployed, so they practice UA to feed their families.

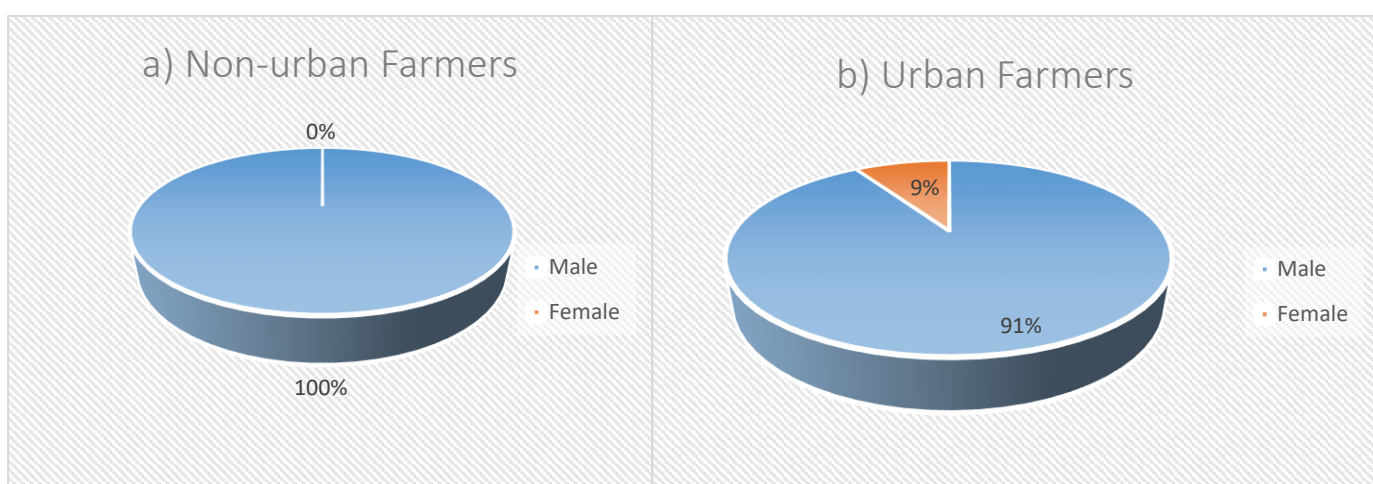
Figure 5.8: The gender of non-urban & urban farmers



Source: Fieldwork (2016)

Figure 5.9 below shows the gender of head of household amongst the non-urban and urban farmers. As shown in figure 5.9 a and b, most of the heads of households in Msasa Park were males. Therefore, one can argue that the residents of the study area use the traditional African family system where the father is the head of the house, followed by other family members. In some African cultures, if a family does not have a father, it is the responsibility of the oldest male child to lead the household. Many families in Msasa Park that had no fathers were headed by the oldest male children with the help of the mother. A few females were leaders in their households as shown in figure 5.9b.

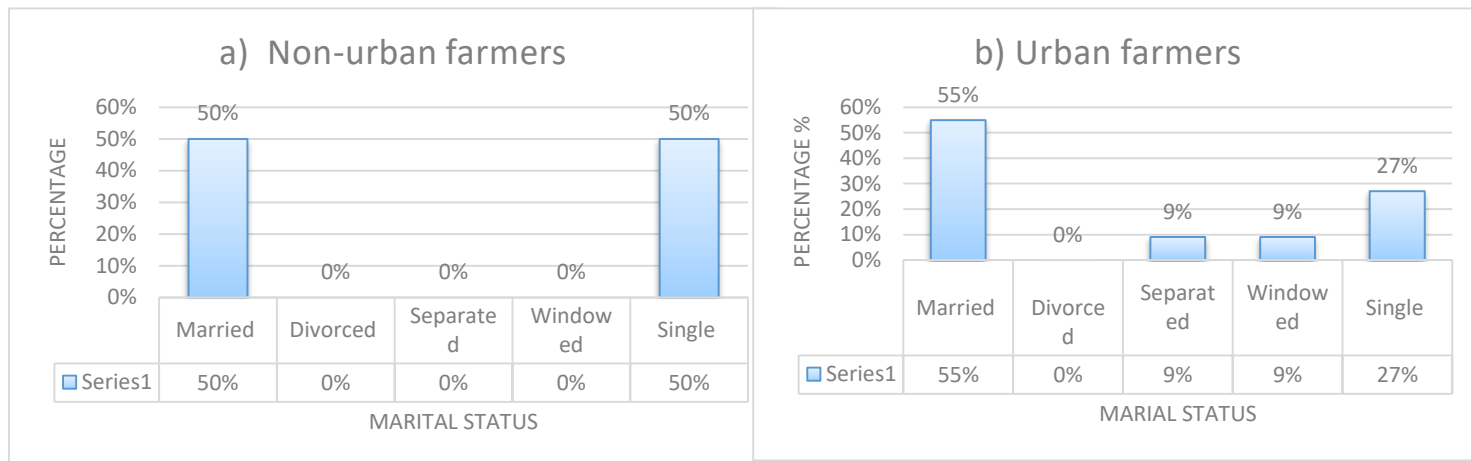
Figure 5.9: The gender of the heads of household



Source: Fieldwork (2016)

Figure 5.10 on the next page shows the marital status for non-urban and urban farmers in the study area. Figure 5.10a indicates that 50% of the non-urban farmers were married and the other 50% were single. Most of the people who were single in this group were youths. Figure 5.10b shows that 55% of the urban farmers were married, 27% were single, 9% were widowed, and the other 9% were separated. The results from figure 5.10b reflect that most of the urban farmers in Msasa Park were married and they mainly practice UA to supplement their income and for food security.

Figure 5.10: The marital status of non-urban & urban farmers



Source: Fieldwork (2016)

5.3 Land for UA

The land is one of the vital natural resources that urban farmers need in the practice of UA. The importance of this natural resource in the UA sector cannot be underestimated. According to the data collected, obtaining land to practice UA in Msasa Park is one of the main problem urban farmers face. In Msasa Park, 45% of the urban farmers practice UA on-plot (which is backyard), the other 45% practice both on-plot and off-plot (the land is publicly and privately owned) and 10% practice off-plot (on public land such as open spaces). The average residential yards in Msasa Park are 500m² in size. These residential stands are small and cannot accommodate large UA gardens. An average on-plot UA garden in Msasa Park is 80m² as shown in photo 5.1 on the next page. As a result, urban farmers are forced to practice UA off-plot on public land which is mainly owned by the Harare municipality.

The size of land used for UA in the study area range from 80 to 250 m² depending on where it is located. The backyard (on-plot) UA gardens are generally small compared to the off-plots as shown in photo 5.1 and 5.2 on the following pages. There is more land space for UA outside the residential stands than inside the yards. As a result, people prefer off-plot to on-plot farming. However, there are many risks associated with off-plot than on-plot farming. One of the serious risks is theft of crops which is associated with off-plot farming. The urban farmers who practice off-plot farming do not have control over the safety of their crops since most of the gardens are located 2 to 5 kilometers away from their places of residence as shown in Photo 5.2 on the next page. For example, photo 5.2 shows a large off-plot garden that is

located far away from residential units, one cannot even see any residential unit in sight. Photo 5.2 also shows that the type of soil found in the study area is light loam and is the dominant soil type in the whole of ward 22. Most of the urban farmers interviewed in this research study said that light loam soil was good for farming since it contained many nutrients and water easily drained away after the rain. To irrigate the soil, the urban farmers use water from boreholes and streams. To nourish the soil, they use fertilizers and animal manure. However, most of the urban farmers prefer animal manure to fertilizers.

Photo 5.1: The residential yard of an urban farmer who practices on-plot UA



Source; Fieldwork (2016)

Photo 5.2: The size of a typical off-plot garden in the study area



Source; Fieldwork, (2016)

Since land is scarce, it is vital for the publicly owned land to be shared amongst the urban farmers. This raises the question of whether this is possible in the study area. According to the collected data, 45% of urban farmers use one plot of land to practice UA, 45% use two and 10% have three and more plots of land for UA. About 70% of the urban farmers in the study area do not share the public-owned land with others since land for UA is in short supply. They work on the principle of first come first served basis. These selfish motives are depriving other people in the study area from accessing land for UA and making the UA sector unsustainable.

As mentioned above, obtaining land to practice UA is one of the serious issues urban farmers face in the study area. As a result, 55% of urban farmers are practicing UA on land illegally without authority from the Harare municipality or the private owners of the land, 36% of urban farmers bought the land they use for UA and 18% are renting the land from private owners (Fieldwork, 2016).

According to Mubvami & Mushamba (2006), it is important for town planners to designate land for UA in order to make the sector sustainable. In the study area, no land outside the residential yard is designated for the UA sector. Local people are only allowed to practice UA in their residential yards and not outside (off-plot). If an urban farmer wants to practice UA outside their residential yards, he or she must ask for permission from the Harare municipality. However, over 80% of the urban farmers practice UA on off-plot sites without the permission of the Harare municipality. The urban farmers do not seek permission from the Harare municipality because the authorities do not properly enforce the UA laws. This shows how unsustainable and unorganized the UA sector is in the study area.

The security of tenure plays a key role in the UA sector. The status of accommodation can affect a person's decision to or not to practice UA. Within the study area, 45% of the urban farmers have the security of tenure and 55% do not have the security of tenure on the land they use for UA. This shows that over half of the urban farmers in Msasa Park invest time and money on land that can be taken away from them at any time without notice since they do not have the security of tenure. Therefore, the importance of security of tenure cannot be underestimated since it gives urban farmers peace of mind which is necessary for this sector; without the security of tenure urban farmers can easily be removed from the land they use for farming.

Table 5.8 on the next page shows the reasons why the non-urban farmers do not practice UA in Msasa Park. The non-urban farmers were asked by the researcher during the fieldwork exercise why they do not practice UA. 80% of them said it was because they did not have access to the land to practice UA, 15% considered it (UA) as a waste of time and 5% said they did not have interest in UA as shown in table 5.8. Therefore, it is clear from the research findings that the main reason the non-urban farmers do not practice UA is because of land shortages in Msasa Park.

Table 5.8: The reasons why non-urban farmers do not practice UA in the study area

Waste of time	15%
No land to practice UA	80%
No interest in UA	5%
Total	100%

Source: Fieldwork (2016)

As shown in table 5.8, one can argue that most of the non-urban farmers in the study area were willing to practice UA but could not do so because they did not have the land to practice farming on as seen above. Hence, it is important for land to be shared amongst the population of the study area for everyone to have access to it (Fieldwork, 2016).

As mentioned above, the main issue driving the high demand for land amongst urban farmers is the current socio-economic environment the country is facing. Before the collapse of the Zimbabwean economy in the 2000s, the residents of the study area were not heavily dependent on the UA sector as they are now since most of them were formally employed in high paying jobs. Today, the country is faced with high unemployment and other socio-economic issues which are forcing large volumes of people to practice UA at a large scale and on any available piece of land including prohibited or environmentally sensitive land as shown in Photos 5.3 and 5.4 on the next page. Photo 5.3 shows crops planted within a wetland in Msasa Park, this pollutes the natural environment and destroys the whole ecosystem. Photo 5.4 shows maize crops that are planted next to a road within Msasa Park. Planting crops along roadsides or junction, especially maize, is not allowed by the Harare municipality by-laws since it obstructs drivers' from seeing the road ahead.

Photo 5.3: The crops planted on environmentally-sensitive land in Msasa Park



Source Fieldwork (2016)

Photo 5.4: Maize crops planted at a roadside in Msasa Park



Source: Fieldwork (2016)

It is vital for the urban farmers to look after the natural environment because if they do not diseases can easily spread in the local communities. Some African countries once banned the UA sector in their countries since it fuelled the spread of diseases and destroyed the natural environment. Hence, it is important for the UA sector in Msasa Park to be well managed in order to reduce the spread of dangerous diseases such as cholera.

As seen in Photo 5.3, some of the urban farmers in Msasa Park practice UA within wetlands which pollutes the water table and increase the risk of the spread of diseases. However, there are some urban farmers in Msasa Park who look after the natural environment. This is evident in the fieldwork results obtained by the researcher in 2016, over 60% of the urban farmers said they protected their land from soil erosion after harvesting and did not cultivate crops less than 50 meters from water sources. They use two natural methods to prevent soil erosion which included covering the land with dry crops and not removing the harvested crops roots to prevent soil from being washed away by rain or wind. Some of the urban farmers said in the interviews that they also practiced crop rotation which prevented soil depletion and maintained soil fertility. It is evident, that there are urban farmers who practice UA in an environmentally sustainable manner while some did not.

5.4 The UA sector and Regulations in the study area

The urban farmers in the study area produce the following crops; maize, vegetables, tomatoes, cabbages, and beans. However, the commonly grown crops are maize and vegetables which are the staple foods in the country. After the harvest process, 55% of the urban farmers consume all their food as a family, and 45% sell and/or consume their products.

As shown in table 5.9 on the next page, 90% of the urban farmers in the study area practice UA for food security and to supplement their income and 10% practice the phenomenon for leisure and environmental protection. The results of table 5.9 show that most of the urban farmers in Msasa Park practice UA to feed their families since the country is facing economic hardships. This is also supported by previous scholars who have written on the UA sector in Zimbabwe such as Toriro (2009) & Redwood (2009). These two scholars argued that this phenomenon is mainly practiced in the country to address socio-economic issues. With reference to table 5.9, it is only a small percentage of the population in Msasa Park that is involved in the UA sector for leisure and to protect the environment. Since UA plays a key role

in the lives of residents of Msasa Park, over 80% of the urban farmers said that they would never stop farming in this current economic environment. Therefore, one can argue that UA plays an important role in the lives of urban farmers since most of them are not willing to stop practicing in the midst of numerous problems (Fieldwork, 2016).

Table 5.9: The reasons why urban farmers practice UA in the study area

Food security & supplementing income	90%
Leisure & Environmental Protection	10%
Total	100%

Source: Fieldwork, (2016)

To address the many issues facing the UA sector in Msasa Park, the UA regulations must be effective and up to date with what is happening on the ground. Therefore, the importance of the UA regulations should not be understated since its impact can be negative or positive on the practice and growth of the sector. All the areas located in Harare use the same UA regulations which include the Public Health Act 19 of 1924, Natural Resource Act Chapter 20:13, Water Act Chapter 20:24, Environment Management Act Chapter 20:27 and the Urban Council Act 29:15. The Harare Municipality also have by-laws which state the guidelines that need to be followed by urban farmers such as the municipal by-laws. In brief, the UA regulations used in Harare aim to protect the UA sector and prevent the destruction of the natural environment (Mavhumashava 2006). There are many regulations that govern UA in Harare, including the ones mentioned above. But, most of the urban farmers practicing UA in Msasa Park are not aware of them. According to the results of the fieldwork exercise, 82% of the urban farmers did not know any UA regulation in Harare and 18% of them knew at least one. These results show that most urban farmers are practicing UA unaware of the UA regulations in Harare, which is one of the causes driving the unsustainable growth of the sector.

5.5 Nature of UA in Msasa Park

The UA sector in Msasa Park is practiced on a small scale compared to Borrowdale and other parts of Harare where there is more land that can be used for UA. As mentioned earlier, land for UA is in short supply in the study area. Therefore, it must be conserved. To obtain the highest yield from the land, urban farmers in Msasa Park leave tiny gaps between the crops to conserve land. By leaving out tiny spaces between the crops, urban farmers obtain increased yields from the small pieces of land. To nourish the soil for UA, the urban farmers use manure and fertilizers. The fieldwork results show that 72% of the urban farmers in Msasa Park make use of both manure and fertilizers to nourish the soil for farming and 18% use fertilizers only. A few urban farmers use fertilizers because it is expensive. This shows that the urban farmers put a lot of effort to increase the yield of crops on the limited piece of land.

According to the data collected, 73% of the urban farmers in Msasa Park practiced UA as a family and 27% practiced as individuals. The benefits of practicing UA as a family are many compared to practicing alone. When it comes to skills and knowledge on UA, most of the urban farmers obtained their skills in UA from the courses offered at O' (ordinary) level while others obtained the knowledge from their parents and grandparents (Fieldwork, 2016).

There are no UA organisations or co-operatives that operate in Msasa Park, this means that the urban farmers are not regulated by any institution. As a result, urban farmers can easily practice this phenomenon in an unsustainable manner without being punished or fined. The only resistance faced by urban farmers comes from the Harare municipality who in rare cases remove crops found on prohibited land such as roadsides and environmentally sensitive areas.

The most common type of UA practiced in the study area is crop farming. The data collected showed that 73% of urban farmers practice crop farming and 27% practice livestock production. The results above show that urban farmers prefer crop farming over livestock production since they do not have enough land to look after the livestock and they also do not have the required security. To practice livestock farming, it is essential that one has 24 hours security and knowledge on how to keep or look after the livestock. These are some of the reasons that discourage urban farmers from practicing livestock production. The other common reason urban farmers prefer crop production over livestock farming is the issue of

smell: livestock farming produces a bad odour that is not pleasant on the urban farmers and the neighbours.

5.6 Challenges

The UA sector plays a key role in the lives of many urban farmers in Msasa Park and surrounding areas. But, this sector is also facing many problems. Seventy percent of the urban farmers in Msasa Park do not have adequate resources and tools to practice UA. However, most of them (urban farmers) argue that there are more benefits in practicing UA than the challenges.

The main challenges this sector is facing include water shortages, competition for land between UA and traditional land uses, thefts of crops, lack of support (financial and participation) from the government or the municipality, poor designed and implemented UA legislative frameworks, spread of diseases because of unsustainable practice of UA, and environmental destruction.

The residents of Msasa Park only get access to municipal tap-water three times a week. As a result, most of them have resorted to alternative plans which include sinking boreholes and wells. The people who are most affected by the water cuts in Msasa Park are the urban farmers since they must water their gardens many times per week. Over 75% of the urban farmers told the researcher during the fieldwork exercise that they obtained their water from various sources but most of the sources were unhygienic, which led to the spread of diseases such as cholera and typhoid.

Land shortage is a common and severe problem faced by urban farmers in Msasa Park. Without land, it is impossible to practice UA. Msasa Park is generally a small area compared to the neighbouring areas. Yet, the main cause of the shortage of land for UA in the study area is a result of competition between residential land uses and UA. The main land use in Msasa Park is residential. As a result, UA constantly competes with residential land use and mostly it is the residential land use that wins. The town planners responsible for Msasa Park continue to ignore the issues faced by the UA sector and encourage the growth of the residential land use at the cost of UA. During the fieldwork exercise, the town planners from the Harare Municipality told the researcher that they did not support the practice of the UA sector in Msasa Park since the area had been zoned for residential land use. The UA sector is

also not in the local development plan of the area. The town planner also told the researcher that practicing UA on off-plots was not allowed in Msasa Park according to the local municipal by-laws. If one wants to practice UA, he or she must practice it in areas where the Harare municipality allows it. Since town planners do not recognize the UA sector in Msasa Park, this affects the sustainability of the sector in the study area. For instance, it is impossible to regulate this sector if the authorities do not recognize it. Therefore, the local urban farmers continue to practice this phenomenon in an unsustainable manner without resistance from authorities.

One of the issues driving the unsustainable practice of the UA sector in Msasa Park is poorly crafted and implemented legislative framework. There is a lot of confusion when it comes to the UA legislation framework in Harare. This confusion is around the fact that most people do not know if UA is allowed or not by the authorities in Harare or the surrounding areas. The fieldwork results showed that most urban farmers do not know if UA is allowed in Msasa Park, and also do not know the UA legislative framework that governs the UA sector in Harare. Some of the urban farmers consider the current UA legislative frameworks to be useless since they do not bring any results or change on the ground. Some of the UA legislative frameworks in Harare are considered useless because there are out-of-date, and they do not relate to what is on the ground.

The urban farmers in Msasa Park also face problems which include theft of crops on off-plot gardens. Theft of crops is one of the serious setbacks urban farmers who practice off-plot farming in Msasa Park face. Over 50% of the urban farmers who practice off-plot farming said part of their crops has been stolen by thieves at night. Some urban farmers have started guarding their crops during harvest season to reduce the loss of crops. Urban farmers in Msasa Park also lack support (financial and participation) from the government and the municipality. Without the necessary support from the authorities, it is impossible for urban farmers to practice sustainable UA.

The last question the researcher asked the respondents during the fieldwork exercise was if they thought the UA sector in Msasa Park was sustainable or not. The fieldwork results showed that 75% of non-urban farmers said this sector was not sustainable, 25% said it was sustainable. Amongst the urban farmers, 64% said it was not sustainable and 36% said it was sustainable. Most of the respondents said the sector was not sustainable because of the

numerous problems the sector faces. Based on the results obtained in the field, one can safely say that the UA sector in Msasa Park and surrounding areas is not practiced in a sustainable manner. Therefore, it is important that town planners use spatial tools at their disposal to address these issues.

5.7 Data Analysis

UA and Sustainability

The research finding shows that urban farmers in Msasa Park and the surrounding areas practice UA in an unsustainable way. There are many issues that fuel the unsustainable practice of UA in Msasa Park and the surrounding such as lack of governance, corruption, and lack of recognition to name a few. The issues faced by the UA sector in the study area are classified into four interdependent pillars which are institutional, economic, social, and environmental. To achieve sustainability or sustainable UA in Msasa Park, the four issues mentioned above must be addressed.

The institutional issues faced by the UA sector in Msasa Park include the poorly designed/implemented legislative frameworks, lack of recognition of the UA sector, lack of support from the government and other UA stakeholders. According to Pearson (2010), the sustainable practice of the UA sector is dependent on the institutional environment in which it operates. So, what is the institutional environment that governs the UA sector? The institutional environment that governs the UA sector includes the rules, social norms, and formal laws within the sector (Pearson 2010). Therefore, Pearson (2010) argued that if a society does not support its UA sector or does not implement well-researched policies, laws or rules, its UA sector will never be sustainable. Based on the fieldwork results and the definition from Pearson (2010), it is evident that the current UA sector in Msasa Park operates in a poor institutional environment since it does not receive support from the local communities or local authorities, the current UA legislative framework is unsustainable and lacks stakeholder's participation. All this affects the advancement of the UA sector in many ways.

The economic impact of the UA sector must not be underestimated by the government and the local people since it has the potential to address many economic issues faced by the residents of Msasa Park and the surrounding areas. According to the Food and Agriculture

Organization (2015a), World Bank (2010), Macavele (2009) & Reed (2014), the UA sector plays a key role in the economic growth of many countries worldwide as it employs more than 800 million people. In Africa, it is estimated that this sector contributes more than 6.5% of the Gross Domestic Product (GDP) of most countries and over 70% of households are involved in the sector. However, the research findings show that the economic potential of the UA sector in Msasa Park and surrounding areas are not yet fully realised as in other countries because of the shortage of land, lack of farming equipment and corruption.

As shown in the research findings, some urban farmers in Msasa Park are practicing UA in environmentally sensitive areas (e.g wetlands) which is not sustainable for nature and humankind. The fieldwork results show that most of the environmental issues (e.g using sensitive areas for UA) in Msasa Park are a result of a shortage of land. Without well-located land for UA, the local urban farmers end-up practicing UA on environmentally sensitive areas as shown in Photo 5.3. According to Tornyie (2011), land for UA is always in short supply in urban areas because of the high demand. Therefore, urban farmers must come up with ways to practice UA on small pieces of land.

The spread of diseases in local communities is mainly caused by the unsustainable practice of UA and this leads to the death of many people. According to Smit, Nasr & Ratta (2001), the South American country of Chile was once faced with water shortage in 1992. As a result, the urban farmers started irrigating their crops with untreated wastewater. This led to an outbreak of cholera and other diseases. Some African countries which include Uganda and Zambia once banned the UA sector in their countries since it led to the spread of malaria and other diseases (Reed, 2014). Msasa Park and the surrounding areas are currently facing the same problem of water shortage like Chile in 1992, which can lead to the spread of dangerous diseases. A few years ago, Harare faced an outbreak of cholera which led to the death of many people. The outbreak of diseases is high in Msasa Park as 75% of the urban farmers in this area obtain water for UA from various sources including unhygienic sources since water is not readily available. Hence it is important for water to be readily available for urban farmers to reduce the risk of the spread of diseases.

UA and Town planning

Town planners play an important role in the sustainable practice of the UA sector worldwide. The role of town planners in this sector should never be underestimated. Without town planners, the UA sector in Msasa Park will never be sustainable as other countries in the developed world. The main reasons why town planners are important in the UA sector is because they work as keepers of the city. Town planners have the power to zoning and to make reforms to current UA legislative frameworks to name a few. Therefore, it is of almost important that town planners in Msasa Park plan for the UA sector in Msasa Park and use the spatial tools at their disposal such as zoning to address the unsustainable practice of the sector.

5.8 Chapter Summary

The importance of the UA sector in Msasa Park must not be understated since it is used to supplement income and for food security by many residents. With the high rate of unemployment facing the country, the number of urban farmers has increased in recent years. However, the local town planners still do not recognize this phenomenon and they argue that the land within the study area must only be used for residential developments since the area is zoned residential. As mentioned above, the issues faced by the UA sector in Msasa Park are divided into four interdependent groups which are institutional, social, economic and environmental. The driving force behind these issues includes the shortage of land, lack of support from the local municipality, poorly implemented legislative frameworks and lack of recognition from the authorities to name a few. In concluding, it is evident that the UA sector in Msasa Park is being practiced in an unsustainable manner. Even though, the town planners have the necessary spatial tools to address the problems

CHAPTER 6: RECOMMENDATIONS AND CONCLUSION

6.0 Introduction

This chapter provides a summary of major research findings, recommendations and makes the necessary conclusions based on the discussions contained in previous chapters.

6.1 Summary of major findings

This research study basically looked at the role played by town planning in contributing to the sustainable practice of the UA sector in Msasa Park. Since the research question was broad, it was broken down into sub-objectives which looked at different aspects of the question. These were identifying the role of town planners in the UA sector, identifying challenges faced by the sector, identifying the extent to which the UA sector is practiced in the study area, to determine whether the UA sector in Msasa Park is sustainable or not and the scale at which it was operating.

The UA sector in Msasa Park is practiced by both genders. However, there are more males involved in this sector than females. Most of the men involved in this sector are unemployed but married and some of them were born in urban areas. The UA sector in the study area is practiced at a small scale since land is in short supply. There is a constant conflict between the UA sector and the residential land uses and this is affecting the practice and growth of the UA sector. The residential land uses are competing for land with the UA sector. Since the land is in short supply, some urban farmers have resorted to practicing UA on environmentally sensitive areas or prohibited areas. The product obtained from the practice of UA is used by urban farmers to supplement their income and for food security, since they are amongst the poorest residents in the area. As shown in the previous chapter, urban farmers earn less money than their non-urban counterparts but are the most educated. The urban farmers also use UA to reduce the impact of the current socio-economic meltdown the nation is facing. This is evidenced by an increase in the number of urban farmers in the study area and throughout Harare.

Most of the non-urban farmers in Msasa Park are tenants who are renting the houses they are currently residing in. As a result, some of them do not practice UA since they do not know

how long they will reside in one particular house. Therefore, it is evident that the status of accommodation and lack of tenure can affect a person's decision to or not to practice UA. The other issue that discourages non-urban farmers from participating in the UA sector is the shortage of land. Therefore, one can argue that some non-urban farmers in Msasa Park want to practice UA but, are prevented from participating by the shortage of land and lack of security of tenure. Based on the research findings, town planners have an important role to play in addressing the issues faced by the UA sector in Msasa Park and surrounding areas through zoning reforms, legislative framework reforms and creating an enabling environment for the growth and development of this sector.

6.2 Recommendations

The role played by town planners in the UA sector should not be underestimated. This is because they have the power to encourage or discourage this phenomenon by introducing and implementing development policies, by-laws, and other development controls. Town planners also have great influence in guiding and shaping the land uses on developed or undeveloped urban land. Therefore, it is evident that town planners play a variety of roles in the UA sector, which includes regulating the sector, advocating for the recognition of the UA sector, implementing the UA policies or enforcing the policies. Town planners can also use the same spatial tools and powers mentioned above to discourage or prevent the practice of the UA sector.

The previous chapter looked at the different negative issues that are affecting the UA sector in Msasa Park. It is quite evident that the UA sector in Msasa Park and surrounding areas is practiced in an unsustainable manner by urban farmers. The main reasons for this are lack of oversight from the local authorities, poor institutions, shortage of land and lack of recognition of the UA sector. Therefore, if the UA sector in Msasa Park is to be practiced in a sustainable manner in the future, town planners must play a greater role in the UA sector. It is also important for town planners to be the main decision-makers (not politicians) and to make changes that will overhaul the sector.

a) The land issue and Zoning

One of the serious constraints faced by the UA sector in Msasa Park is limited access to land for farming. The UA sector in Msasa Park is constantly competing with other urban land uses which include residential, commercial and infrastructural land uses. In most cases, it is the UA sector that loses to these other urban land uses since land is in short. As a result, most urban farmers in Msasa Park are forced to practice UA on environmentally sensitive or prohibited land. It is important that land for UA is available to the urban farmers in the study area and surrounding areas. To make this possible, town planners must zone some of the well-located undeveloped lands in Msasa Park for the UA sector and prohibit any land use that is not UA on this land. Town planners must also encourage urban farmers to practice vertical gardening or implement agropolis which makes use of small pieces of land or rent out public-owned land to the urban farmers.

b) Legislative frameworks reforms that promote the UA sector

The municipal by-laws and other UA legislative framework currently in place are vague. As discussed earlier in this research, urban farmers, and ordinary people and in some cases, town planners are not sure if the UA sector is allowed in Harare or not. As a result, this is affecting the UA sector in many ways. To address this problem, Town planners, with the help of the relevant authorities, must reform the current UA legislative frameworks. The new legislative frameworks must be able to regulate and promote the sustainable practice of the sector and recognize it as a land use.

c) Educate the town planners on the UA sector

Currently, most Town planners are not aware or informed of the environmental, economic and social benefits of the UA sector to the residents of Msasa Park and surrounding areas. In the past, the UA sector was seen a rural land use that makes the urban area look ugly. However, this is slowly changing as some town planners are quickly integrating the UA sector in their urban land management system. But, in Msasa Park and surrounding areas, the pace is very slow. Hence, town planners must be educated on the numerous benefits of the UA sector on the residents of the area. It is also important that the town planners take the UA sector seriously and be proactive in the sector.

d) Restore connection between the UA sector and town planners

It is important to restore the connection between the UA sector and town planners. Currently, it is evident that there is a disconnection between how urban farmers practice UA in Msasa Park and how the town planners say it must be practiced. This connection must be restored to ensure the sustainable practice of the UA sector. For example, there are many UA legislative frameworks currently in place, but they are not being followed by the urban farmer practicing in the sector.

e) Funding for urban farmers

Most of the urban farmers in Msasa Park and the surrounding areas are poor and cannot afford farming tools or equipment to practice UA. It is evident that the urban farmers in Msasa Park are amongst the poorest residents of the study area and they use the UA sector to supplement their income and for food security. Therefore, it is important that the different UA stakeholders (such as the government) provide urban farmers with funds to ensure the sustainable practice of this sector. Without money, urban farmers will continue practicing this sector in an unsustainable manner which is bad for humankind and the environment.

f) Town planners must encourage the youths to participate in the UA sector

It is evident that most of the youths who reside in Msasa Park do not participate in the UA sector. Since the country is currently facing a high unemployment rate, it is important for the youths to participate in the UA sector to reduce the socio-economic issues facing the community. To address the low rates of participation by the youths in the sector, town planners must encourage the youths to be involved in the sector, incentivize the youths with money and inform them (youths) on the numerous benefits of the UA sector to both humankind and the natural environment.

g) The Creation of a UA Organisation and co-operative in Msasa Park

There is no UA organisation or co-operative that operates in Msasa Park. As a result, urban farmers are not regulated by any institution and most of them are practicing UA in an unsustainable manner without being punished or fined. To ensure that the UA sector in Msasa Park is practiced in a sustainable manner, town planners must create an UA Organisation and

co-operative that looks after the interests of urban farmers, address land disputes in the area, address issues of land tenure and security, allocate resources to urban farmers, and monitor the sector on behalf of the planning department.

6.3 Conclusion

In conclusion, it is evident that the UA sector continues to play an important role in the lives of many low-income urban families in Msasa Park and in other parts of the country. Most of these urban farmers are involved in this sector to supplement their income and for food security. With all the numerous benefits of the UA sector discussed in this research study, some town planners still do not recognize this phenomenon and do not zone any land for it. Because of this, urban farmers are forced to practice this sector in unsustainable ways on prohibited and environmentally sensitive areas since they cannot find land to practice on. Therefore, one can argue that the unsustainable practice of the UA sector in Msasa Park and the surrounding areas is caused by the lack of recognition from the local authorities and the shortage of land. If town planners zoned land for the UA sector in Msasa Park and recognized it, the demand for land for this phenomenon was not going to be high. Therefore, to make this sector sustainable, town planners must recognize the importance of UA and use their power and spatial tools to develop it.

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Appendix 1: Questionnaire

University of KwaZulu-Natal (UKZN)

School of Built Environment & Development Studies (SOBEDS)

Researcher/Interviewer: Jeremy G.T Nhimura (211535363)

Research Topic: An analysis of the role of Town Planning in contributing towards the sustainable practice of Urban Agriculture. The Case study of Msasa Park

Date of Interview:

Name of interviewee.....

Signature.....

Interview Questions (*Please indicate using a tick, circle or x*)

Section A: Demographic Information (*For both none & urban farmers*)

- 1) Where do you currently stay?
- 2) What is your birthplace? [1] Urban [2] Rural
- 3) What is your gender? [1] Male [2] Female
- 4) What is your Age range? [1] 20 years & below [2] 21 years to 30 years [3] 31years to 45 years [4] 46 years & above
- 5) What is the Gender of Household head? [1] Male [2] Female

- 6) What is your marital status? [1]Married [2]Divorced [3]Separated [4]Windowed
[5]Single
- 7) What is the size of your household? [1]Two [2]Three [3] Four+
- 8) What is your salary range per month? [1] None [2]Below \$200 [3]\$201 to \$500
[4] Above \$500
- 9) How much do you spend on food per month? [1] None [2]Below \$100 [3]Below
\$ 150 [4] \$200+
- 10) What is your Status of Accommodation? [1]Renting [2] Owner [3]Other
- 11) What is your Economic Status? [1]Unemployed [2]Employed [3]Student [4]
Other
- 12) If unemployed how do you survive? [1]Relatives [2]Donations [3] Self-Employed
[4]Other
- 13) How many members of your family are formally employed? [1]None [2]One [3]Two +
- 14) What is your level of education? [1] None [2]Primary [3]O Level [4]A level
[5]Diploma [6]Degree
- 15) Do you practice UA? [1]Yes [2]No

Section B: (For Urban Farmers only)

Land for farming

- 16) How do you practice UA? [1] Groups [2] Individual [3] Family [4] Other

17) What type of UA do you practice? [1] Crop Farming [2] Livestock production
[3]Both [4] Other

18) Where do you practice Urban Agriculture? [1] On-Plot [2] Off-Plot [3]Both

19) Where do you practice UA? [1] Private land [2] Public land [3] Both

20) Where do you practice UA? [1] Backyard [2] Roadside [3] Open Spaces [4] River Valley
[5]Others

21) How many plot/s of land do you use for Urban Agriculture? [1] One [2] Two
[3]Three+

22) How far are your plot/s from rivers and streams? [1] less than 30metres
[2]31metres to 45 meters away [3]46mentres+

23) Is your plot/s located close to steep slopes? [1] Yes [2]No

23a) Do you practice UA close to or under electricity cables?
[1] Yes [2] No

24) Do you protect your land from erosion off-season? [1] Yes [2] No

If YES, how do you protect your land from erosion?

.....

25) What is the size of the land plot/s you use for Urban Agriculture?

.....

26) How did you obtain the land you currently use for farming? [1] Bought it [2] Inherit
[3]Rent it [4] Illegally Occupied [5] Other

If rent (specify) from who.....

27) What is the type of soil you practice Urban Agriculture on and is it suitable for farming?

.....

28) Do you practice Urban Agriculture on prohibited land? [1] Yes [2]No

If Yes (explain)

29) Would you practice UA on prohibited land? [1] Yes [2]No

If YES (Explain).....

30) The land you use for UA, it is designated for that use? [1] Yes [2] No [3]Do not know

30a) Are you faced with land competition with other land uses? [1] Yes [2] No

If yes (explain).....

31) Do you ask for permission from the local council, if you want to use practice UA on public owned land? [1] Yes [2]No

If yes (how).....

32) Do you have UA co-operatives? [1] Yes [2] No

If YES (mention; name, size etc.).....

33) Is public owned land distributed amongst people for UA? [1] Yes [2] No

.....
34) Do you share the available land for UA with your fellow urban farmers?

[1] Yes [2] No

Why UA & challenges faced by urban farmers

35) Why do you practice UA? [1] Food Security & supplement income [2] leisure & Environmental protection [3] Other

36) Do you plan to quit UA? [1] Yes [2] No

If **YES** (explain)

37) When did you start practicing UA? [1] less than 5years ago [2] 6 to 10years [3]11years +

38) Do you have any skill in UA? [1] Yes [2]No

If YES
(Explain).....

39) Are you affected by the current drought caused by the El-Nino phenomenon [1] Yes [2] No

40) What types of crops do you produce?
.....

41) Do you keep livestock? [1] Yes [2] No

42) How do you use the products from UA? [1] Sell [2]Consume

[3] Exchange (barter trade) [4] other

If you (sell) how much do you get

43) What are the challenges you are faced with as urban farmers?

.....

In your own opinion, how can the problems above be solved or addressed?

.....

44) Do you have security of tenure & title deeds? [1] Yes [2] No

Do you have title deeds [1] Yes [2] No

If Yes (explain).....

45) Do the benefits of practicing UA outweigh the cost? [1] Yes [2] No

If Yes (explain).....

Technology & support

46) How do you water your crops? [1] Tap water [2] Borehole water [3] Rivers/Streams

[4] Waste water [5] all of the ABOVE

47) Do you have water shortages in this area of Harare? [1] Yes [2] No

If yes (explain).....

48) Do you make use of farming equipments e.g. trucks? [1] Yes [2] No

If Yes (explain).....

49) How do you nourish the soil to increase harvest/yield? [1] Fertilizers
[2]Manure [3]Both

50) Do you have adequate resources or tools to practice UA? [1] Yes [2] No

51) Do you practice crop rotation? [1]Yes [2]No

52) Do you receive support from the local council, politicians or other UA stakeholders?

[1]Yes [2]No

If yes (explain).....

53) Are you a member of any farming organisation/s, co-operative or council?

[1]Yes [2]No

If yes (explain).....

54) Do you get any resistance from the local authorities, if one/ you practices UA on prohibited land?

[1] Yes [2] No

If yes (explain)

55) How does the local municipality ensure that urban farmers follow & obey the regulations and rules concerning UA?

.....

56) Are you aware of the legislation concerning UA in Harare and Msasa Park?

[1] Yes [2] No

If yes (explain).....

Do you follow or obey the UA legislation.....

In your own view, do think the UA legislation work?

57) Do you need a permit/s to practice off-plot UA in Msasa Park? [1] Yes [2] No

If yes (explain).....

58) Do you have workers? [1] Yes [2] No

If yes (how many).....

59) Do you work with family members? [1] Yes [2] No

Section C: (For Non-farmers only)

**60) Where do you obtain food from? [1] Supermarkets [2] Kiosk Shops
[3] Others**

**61) How far do you travel to obtain food? [1]less than 3 kilometers [2]4 to 9kilomentres
[3]10kilometres +**

**62) Which mode/s of transport do you use when travelling to obtain food?
[1]Walking [2]Cycling [3]Driving [4]Public transport [5]Other**

**63) What is the reason/s for not practicing UA? [1]Waste of time [2]No resources of
farming (e.g. land & equipment's)**

[3] Other (explain)

63a) In your own opinion, why do urban farmers practice UA?

[1] Food Security & supplement

[2] Leisure & Environmental Protection

[3] Other

Section D: Conclusion (Both Non & urban farmers)

64) Do you consider the UA sector in Msasa Park to be **SUSTAINABLE**?

[1] Yes [2] No

65) If NO, what must be done by the local council and town planners to address this?

.....

Research topic: An analysis of the role of Town Planning in contributing towards the sustainable practice of urban agriculture. A case study of Msasa Park, Harare

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