



FACULTY OF ARTS

DEPARTMENT OF DEVELOPMENT STUDIES

**The viability of urban agriculture in reducing food insecurity in Gweru, Mkoba 19
suburb.**

PREPARED BY

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APPROVAL FORM

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DEDICATION

In memory of my late mother Barbara Shingirayi Mathabire (1964-2006)

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ABSTRACT

The paper examined the viability of urban agriculture in reducing food insecurity in Gweru, Mkoba 19 suburb. The study aimed to ascertain the prevalence of urban agriculture, its effects on food security and the challenges to its practice. A questionnaire was administered to 107 household heads engaged in urban agriculture. The study revealed that urban agriculture had been widely adopted by the households in the suburb. It provided a variety of foods to households such as meat, vegetables and the staple mealie-meal thereby making food available and accessible to the households, it also provided employment and income to the households. The challenges to the practice were the shortage of water, land, and lack of technical and institutional support, poor laws on urban agriculture, poor market linkages, the consumption of crops by livestock and the scarcity of funds which resulted in poor production. The study recommended that the government should come up with an explicit broad policy on urban agriculture and should also empower local governments to make by-laws that support urban agriculture as a legitimate economic activity. Measures were also suggested to address the challenges to urban agriculture in Mkoba 19.

LIST OF ACRONYMS AND ABBREVIATIONS

AFSUN	Food Security Urban Network
AIDS	Acquired Immuno Deficiency Virus
CBD	Central Business District
CSO	Central Statistical Office
DCFRN	Developing Country Farm Radio Network
FAO	Food and Agriculture Organisation
GDP	Gross Domestic Product
HIV	Human Immuno Virus
IDRC	International Development Research Centre
IEEA	Indigenisation and Economic Empowerment Act
IFPRI	International Food Policy Research Institute
NGO	Non-Governmental Organisation
SAPs	Structural Adjustment Programmes
SIDA	Swedish International Development Agency
STERP	Short Term Economic Recovery Plan
UNDP	United Nations Development Programme
ZIDERA	Zimbabwe Democracy and Economic Recovery Act
ZIMVAC	Zimbabwe Vulnerable Assessment Committee

Table of Contents

APPROVAL FORM	i
DEDICATION	ii
ACKNOWLEDGEMENTS	iii
ABSTRACT.....	iv
LIST OF ACRONYMS AND ABBREVIATIONS.....	v
List of figures.....	viii
List of tables.....	ix
List of Plates	x
CHAPTER ONE: THE PROBLEM AND ITS SETTING	1
1.0 Introduction.....	1
1.1 Background to the study	1
1.2 Description of study area	7
1.3 Statement of the problem	9
1.4 Justification of study	9
1.5 Delimitation of study	10
1.6 Aims and objectives.....	10
1.7 Aim	10
1.8 The specific objectives of the study.....	10
1.9 Key research questions	11
1.10 Limitations of the study	11
1.11 Ethical considerations	11
1.12 Definition of terms.....	11
1.13 Organization of the study/ Dissertation lay out.....	12
1.14 Chapter summary	13
CHAPTER TWO: LITERATURE REVIEW	14
2.0 Introduction.....	14
2.1 Theoretical framework.....	14
2.2 Prevalence of urban agriculture	14
2.3 Regional practice of urban agriculture.....	16
2.4 How urban agriculture affects food security.....	23
2.5 Challenges to urban agriculture	25
2.6 Chapter summary	32

CHAPTER THREE: METHODOLOGY.....	33
3.0 Introduction.....	33
3.1 Research design	33
3.2 Target population	33
3.3 Sample size and its determination.....	34
3.4 Research instruments	34
3.5 Questionnaires.....	35
3.6 Interviews.....	35
3.7 Observation.....	36
3.8 Secondary data.....	36
3.9 Data Analysis	36
3.10 Chapter summary	37
CHAPTER FOUR: DATA ANALYSIS, PRESENTATION AND DISCUSSION	38
4.0 Introduction.....	38
4.1 Distribution of questionnaires.....	38
4.2 Socio-demographic information of respondents	39
4.3 Employment status.....	40
4.4 Prevalence of urban agriculture	41
4.5 Livestock Production	41
4.6 Crop production	43
4.7 How urban agriculture affects food security.....	46
4.8 Challenges to urban agriculture	47
4.9 Proposed solutions to the challenges	51
4.10 Chapter summary	52
CHAPTER FIVE: CONCLUSIONS AND RECOMENDATIONS	53
5.0 Introduction.....	53
5.1 Conclusions.....	53
5.2 Recommendations.....	54
REFERENCES	56
APPENDIX 1.....	63
APPENDIX 2.....	68
APPENDIX 3.....	70

List of figures

Figure 1: Map of the study area.....	9
Figure 2: responses on livestock production.....	42

List of tables

Table 1: Demography of respondents.....	39
Table 2: Employment status.....	40
Table 3: Reasons for engaging in urban agriculture.....	41

List of Plates

Plate 1: broiler production	43
Plate 2: Leafy vegetable production	45
Plate 4: Dry gardens.....	50

CHAPTER ONE

THE PROBLEM AND ITS SETTING

1.0 Introduction

This chapter gave the background to the problem and described the area of study. It looked at the economic decline in Zimbabwe and how urban agriculture was adopted by the majority of urban dwellers to supplement their meagre incomes so that households would be more food secure. It gave the statement of the problem, justification and delimitation of the study and highlighted the aim and specific objectives of the study, the key research questions, limitations, ethical considerations, as well as the dissertation organisation. The terms were also defined in this chapter.

1.1 Background to the study

World over urban agriculture has been adopted by an increasingly significant number of households and individuals alike. As more and more people are moving to urban areas coupled with the shocks that have been striking the majority of the world's population food security concerns are unescapable. Some regions have been affected more than others like sub Saharan Africa which has been experiencing climate change, disease, political distress, economic decline and high rural to urban migration. These factors have led people living in urban areas to engage in urban agriculture to ensure their food security.

Agriculture and food insecurity have for a long time been viewed as rural phenomena, this view is biased as there was an increase in the number of people living in poverty in the cities of southern Africa over the past decades. This biased view has together with the perceptions of policy makers also affected policy formulation in line with urban agriculture. In some countries urban agriculture is yet to receive recognition for its contribution to food security thus it is still

shrouded in a mist of uncertainty in terms of land, legal status, technical and institutional support.

According to (FAO, 2006) food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life. This definition lacks the element of sustainability which is mentioned in the International Food Policy Research Institute's (IFPRI) definition which reads a, world where every person has access to sufficient food to sustain a healthy and productive life, where malnutrition is absent, and where food originates from efficient, effective, and low-cost food systems that are compatible with sustainable use of natural resources. The dimensions of food security include food availability, utilisation, physical and economic access and stability of the three dimensions over time.

According to (Smit et al, 2001) Urban agriculture is an industry that produces, processes, and markets food, fuel, and other outputs, largely in response to the daily demand of consumers within a town, city, or metropolis, on many types of privately and publicly held land and water bodies found throughout intra-urban and peri-urban areas. Typically urban agriculture applies intensive production methods, frequently using and reusing natural resources and urban wastes, to yield a diverse array of land-, water-, and air-based fauna and flora, contributing to the food security, health, livelihood, and environment of the individual, household, and community.

According to (FAO, 2006) urban agriculture is practiced by an estimated 800 million people globally. It is practised at different scales in different countries and regions depending on the laws of the land. In North America it is practised in cities such as Montreal and New York, in Asia in Hong Kong, Manila, Shanghai, Singapore and Taiwan, in Europe in Amsterdam, Berlin, London, Sofia, Stockholm, and St Petersburg, in Latin America in Mexico City, Curitiba and Sao

Paulo, and in Africa it is practised in countries such as Ghana, Kenya, Mozambique Tanzania, South Africa, Uganda and Zimbabwe.

Urban agriculture is practised world over but the dichotomy between the developed and the developing world is that in the developing world it is practised out of necessity and in the first world it is out of interest (Reese, 1997). This is perhaps the reason why there is no international convention on urban agriculture. In Africa urban agriculture has been a response mechanism to the various shocks that have been affecting the continent. Without urban agriculture some of the poor urban dwellers would not be able to feed themselves. In the developing world the story is different as urban agriculture is mostly practised out of interest.

According to (STERP, 2009) the yearly real GDP in the country of Zimbabwe deteriorated at an average of -5.9% from the year 2000 and according to (CSO, 2008) economic meltdown resulted in the unemployment rate rising from 80% in 1995 to 94% in 2008. Food shortages in 2007 and 2008 culminated in 231 million percent inflation. Unemployment rose as a result of industrial decline in the country. This perpetuated the increase of poverty in urban areas, it is estimated that a fourth of Zimbabwe's population lives in urban centres and 70% live below the poverty line. According to (Matsa and Matsa, 2014) Zimbabwe's national poverty datum line presently stands at US\$504 per household per month.

The long term causes of the crisis stem from colonialism, the land question, Structural Adjustment Programmes (SAPs), payment of gratuities to the war veterans, Zimbabwe's participation in the Congo War, corruption and the land reform programme which emanated from the land question was more of a trigger to the beginning of the crisis. The land reform resulted in the passing of sanctions against Zimbabwe leading to greater economic crisis which

became more notable in 2008 as investment was withdrawn from Zimbabwe. The international community shunned Zimbabwe as it continued to create policies which were not investor friendly coupled with accusations of corruption by the Zimbabwean leadership, these factors led to high unemployment rates, poor service delivery, and poverty and food insecurity on the part of the Zimbabwean population.

The beginning of the crisis can be traced back to the 90s when Zimbabwe adopted the Bretton Woods', the International Monetary Fund and the World Bank endorsed Structural Adjustment Programmes (SAPs). These SAPs led to rapid de-industrialisation, high unemployment and plummeting of the living standards of the majority. The situation was expedited by the government's decision to authorise gratuities and payments that were not budgeted for to the war veterans in the face of mounting pressure from the group. The group claimed that it had long awaited recognition for its efforts in the liberation struggle that saw the independence of Zimbabwe. To further worsen the situation the government decided to send troops in 1998 to the Democratic Republic of Congo (DRC) in support of the Laurent Kabila government which was under attack from opposition groups. These payments to the war veterans and war were very costly and had heavy implications on the economy of Zimbabwe as these expenditures had not been budgeted for, (Bond and Manyaya, 2002).

Colonialism was marked by inequalities in terms of land distribution and this was so even after the independence of Zimbabwe. The land issue remained unresolved after Zimbabwe attained its independence and it later instigated the passing of sanctions, the Zimbabwe Democracy and Economic Recovery Act (ZIDERA). After the formation of opposition against the incumbent ruling party and the defeat of the 2000 constitutional referendum following the general disgruntlement of the Zimbabwean population the move was seen as one to further the interests

of the white farmers in Zimbabwe. The government retaliated by implementing the Land Reform Programme to oust the white farmers whom it perceived as threats. This move was not received well by the international community and consequently led to the passing of sanctions against Zimbabwe. Agriculture had long been the backbone of the Zimbabwean economy, its disruption together with the sanctions led to economic decline and food insecurity. The result was the closure of companies and massive unemployment.

In an effort to counter the sanctions that were imposed by the west the country was aligned to the east in the form of the Look East Policy and it did not do much to better the situation. Zimbabwe's look east policy did not help much as the economy was intensely engaged to the west. The sanctions did not have their intended effect of targeting the select few and they ended up having a blanket effect thus affecting the whole nation. The policy that was adopted to deliver the country from this myriad of turmoil was not as effective and the results were disastrous. To top it all off the country also experienced droughts during this period which resulted in famine.

In 2008 the country was in distress, there was high inflation, there was also high unemployment, and disease outbreaks. According to (Musemwa, 2010) the citizens felt this directly through load shedding, a slump in social services and infrastructure, factory closures, a valueless national currency, life threatening, irregular domestic water supplies, the failure of the urban water systems and the infrastructure that supplied clean water to urban households resulting in the horrific cholera outbreak in 2008. HIV/AIDS infections hit the peak in this era as healthcare facilities deteriorated, the situation was tragic. Operation Restore Order (Murambatsvina) was implemented in 2008, in the advent of this catastrophe, many people lost their homes and livelihoods. This situation tarnished the image of Zimbabwe as most of these disasters were attributed to corruption and poor governance among other causes.

With a background of tragic disasters and catastrophe the people of Zimbabwe turned to urban agriculture as a means of survival and the scale has been on the increase as more and more people in urban areas are engaging into urban agriculture. Macro-economic policies since the late 1990s have had a damaging effect on wage-dependent workers, creating vulnerable urban people. (Hovorka et al, 2009) stressed that economic and political crisis drives urban agriculture, which provides for the poor and for households seeking to augment dwindling incomes.

Gweru was not spared from the shocks that affected the nation of Zimbabwe at large. Like every other city Gweru had its fair share of power cuts and company closures. The third largest city of Zimbabwe, a city with a wide economic base based on the availability of minerals, farms around the city and a vibrant industry, saw its industries scale down and collapse. Some companies are still operating at low capacities. Most companies were affected by international prices and therefore international recession led to the decline. This saw thousands lose their jobs in Gweru as some of the most notable companies let their staff go. In response to these shocks people resorted to various strategies to overcome the challenges they were faced with. Many people migrated to the diaspora and neighbouring countries, some resorted to cross border trade, black market activities especially foreign currency exchange, small to medium businesses and some resorted to growing their own food to feed their families.

Urban agriculture in Zimbabwe has no policies and laws that support it hence it is still viewed as an informal activity despite the fact that Zimbabwe participated in the 2003 Ministers' Conference on Urban and Peri urban Agriculture (UPA) which was held in Harare, Zimbabwe. The conference however changed the attitudes of officials towards urban agriculture in Zimbabwe from a stance that was intolerant to tolerance. (Mougeot, 2006) events in Zimbabwe have shown that support for the Declaration went beyond talk. Following some discussions with

authorities, urban farmers were safeguarded from the expulsions that saw most of the informal traders and families living in irregular settlements leave the city of Harare. Urban agriculture in Zimbabwe is however still lagging behind in terms of legal and policy support compared to agricultural practices in some cities of the world and some in Africa like in Ghana, Tanzania and Uganda.

In Zimbabwe urban Agriculture is practiced in cities such as Harare, Bulawayo, Mutare, Masvingo and Gweru. It is estimated that agriculture is practised on 25% of the land in urban areas in Zimbabwe. (Sedze, 2006) with a suffering food insecure population, Zimbabwe's government became tolerant to the uncontrolled growth of urban agriculture in urban areas. In 1990, urban gardens covered 8% of land in the cities, in 1994, 16% of land, and by 2001 urban agriculture had covered about 25% of the land in urban areas.

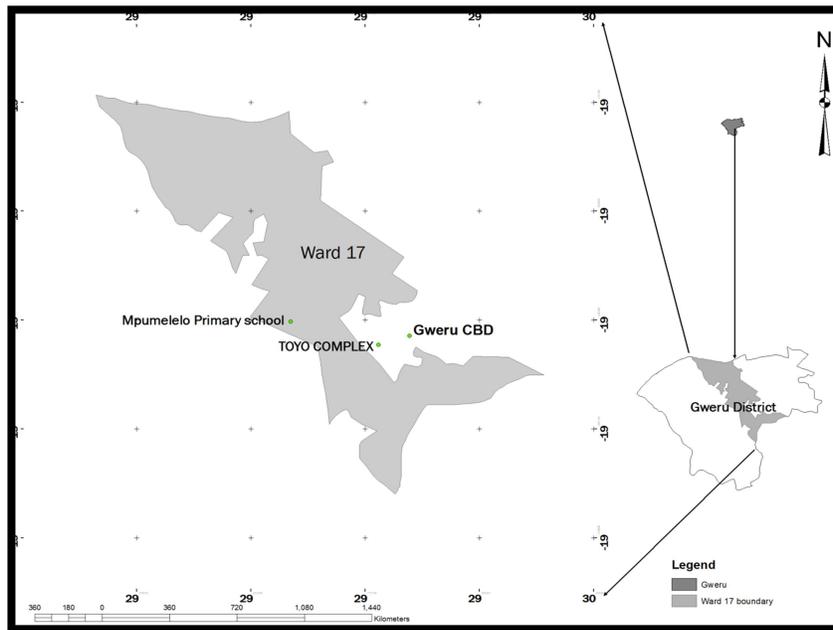
1.2 Description of study area

The area of study is found in Midlands Province along the Harare Bulawayo highway. It is located at 19°25' and lies 285 km south of the capital Harare. The city of Gweru is the fourth largest urban settlement in Zimbabwe in terms of the population size and it is the country's third largest city. Gweru area falls under Agro Ecological Region IV and has an average annual rainfall routine of below 600mm and an annual average temperature of 15-25 degrees, these conditions are suitable for crop and livestock production. According to the (Central Statistical Office, 2012) national census, Gweru has a population of 158 233 the bulk of which is concentrated in the city's high density suburbs of Mkoba which has 19 separate residential suburbs (or villages).

Ward 17 of Mkoba in which study area lies within consists of Villages 15 and 19. The ward has 2114 households and has a total population of 8 940, 4 054 males and 4 886 females. People have been practising urban agriculture on and off plot in Mkoba to alleviate their food security situation as most of the productive members lost their employment since companies closed and downsized. (Mkoba constituency profile, 2011) Most of the residents used to find employment at the Bata Shoe Company before it downsized operations, leaving a population with a high number of unemployed persons. Like most urban areas in Zimbabwe the constituency is characterized by declining standard of living, food shortages and severe power and water cuts.

According to (Dewa, Musara and Mupfururi, 2013) companies like Zimcast, Kariba fire batteries, David Whitehead, Fort Concrete, Industrial Sands Olike, PG industries, BP Shell, Housing Construction Company, Metallurgical Supplies which used to employ people from Mkoba have since closed. Other companies have downsized, like Zim alloys which used to employ 6000 employees to just 500, Jacks Engineering Which had 120 workers and now has 50, Cold Storage Commission which had over 400 but now has 4 and Boc Gases which went from 90 to 14 labourers. Other companies which downsized are Bata Shoe Company, Waterglass and Zimglass. People have now turned to small businesses such as selling recharge cards, firewood, running flea markets, foreign currency exchange and tuck shops and urban agriculture.

Figure 1: Map of the study area



1.3 Statement of the problem

Increased unemployment, Structural Adjustment Programmes (SAPs), HIV and AIDS pandemic, extreme weather events, political instability, sanctions, poor government policies and the global economic decline resulted in urban household food insecurity. People turned to various strategies and among them urban agriculture to enhance their position in terms of food security. The viability of this strategy in reducing food insecurity has to be determined.

1.4 Justification of study

Since time immemorial urban agriculture has been practiced in ancient cities world over and more so increasingly during the recent decades due to economic hardships even though some do it for cultural reasons other than for economic reasons. Urban agriculture is still an informal sector activity in Zimbabwe, it is not backed by policy and legal frameworks which is one of its major challenges and land shortage is another critical issue that remains unresolved. Then there is also water scarcity and the negative light in which urban agriculture is viewed in which affects

policy formulation and government support yet urban agriculture is a very important survival strategy that has been adopted by a significant number of urban dwellers. These negative attitudes and perceptions are as a result of colonial legacies which were anti urban agriculture.

This research is important as it will unearth the aforementioned issues by evaluating the extent to which urban agriculture has enhanced the food security in urban areas and the challenges which it faces. Interrogating the challenges can result in the change of attitudes towards urban agriculture and subsequently policy change. Such a change in policy change is vital for the betterment of this practice as it will lead to better technical, institutional, policy and stakeholder support.

1.5 Delimitation of study

The area of study of this research was on the viability of urban agriculture in reducing food insecurity. The scope of this study is Mkoba 19, in Gweru which is situated in the Midlands province. This area was chosen as an ideal site because urban agriculture is practiced there and there are significant challenges to urban agriculture, water shortages and shortage of land as well as food insecurity.

1.6 Aims and objectives

The aims and objectives are given below

1.7 Aim

The main aim of this study was to research on the viability of urban agriculture in reducing food insecurity.

1.8 The specific objectives of the study

The specific objectives of the study were

(i) To determine the prevalence of urban agriculture

(ii) To establish how urban agriculture affects food security

(iii) To come up with ways to improve urban agriculture in the face of food insecurity

1.9 Key research questions

The key research questions were

- i. How prevalent is urban agriculture?
- ii. How does agriculture affect food security?
- iii. What can be done to improve urban agriculture in the face of food insecurity?

1.10 Limitations of the study

The limitations to the study were the use of one village in the study as the researcher could not access all the villages due to limited time and resources. This affects the level to which the results can be generalised, nevertheless the use of one village was feasible as it was manageable for the researcher. Records of farmers who were farming off-plot in Mkoba 19 were not up to date at the city council and the researcher resorted to the list of names that the councillor provided.

1.11 Ethical considerations

No participant was forced to participate in the study. Consent from respondents was sought through updating them on the issues surrounding the study. Interview responses were also kept in strict confidence.

1.12 Definition of terms

Urban agriculture

It is the production of crops and livestock within the administrative boundaries of the city

Food security

It is when people have enough to eat and are able to make food choices

On-plot

It is the land the surrounds the home commonly referred to as backyard and front yard

Off-plot

Refers to the public and public open land spaces such as roadsides, private lands and along railway lines

City council

Refers to the local authority of a metropolis that is responsible for the management of urban agriculture

Land

Refers to space used for agriculture that comes in the form of on-plot and off-plot

1.13 Organization of the study/ Dissertation lay out

The dissertation consists of five chapters. Chapter one is made up of the general introduction, the problem statement and area of study. Chapter two consists of the literature review from a global, regional, national and local perspective on how urban agriculture enhances food security, the prevalence of urban agriculture, how urban agriculture affects food security and the challenges to urban agriculture. Chapter three looks at the research methodology, how the study was conducted, how data was presented and analysed. Chapter four focuses on data presentation and analysis. Lastly chapter five is made up of the summary, conclusions and recommendations

1.14 Chapter summary

This chapter was mainly focused on the problem statement and the area of study. It discussed in brief about the area of study, gave a background to the study, statement of the problem, aims and objectives, research questions, ethical considerations, limitations, delimitation of the study and it gave the definition of terms as well as the structure or layout of the study.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

A review of the viability of urban agriculture in reducing food insecurity from a global, African and Zimbabwean perspective makes up the greater part of this chapter. Specific attention was given to the prevalence of urban agriculture, how urban agriculture affects food security, the challenges to urban agriculture globally, regionally and locally in Zimbabwe. The theoretical framework was also discussed in this chapter.

2.1 Theoretical framework

Amartya Sen's food entitlement approach suggests that food insecurity is as a result of entitlement failure, people fail to access food and not because of food unavailability but because of poor access due to poverty. There are four categories of entitlements and these are production based entitlement or the growing of food, trade based entitlement or the buying of food, own labour entitlement that is working for food, and inheritance and transfer entitlement, being given food by others. In Zimbabwe most of the entitlements have been compromised as there is unemployment which affects people's ability to buy food. To ensure that people have access to their entitlements they should be given access to land and water to produce their own food so that they become food secure.

2.2 Prevalence of urban agriculture

Archaeologists world over have uncovered remnants of ingenious extensive earth and water works in and around the cities of ancient civilizations. There is evidence of agricultural production for a number of purposes which include for food, for fodder, building materials, fencing, and even medicinal plants. From the gardens of ancient Persia to settlements of the

Roman Empire in Algeria and Morocco, from Europe's mediaeval monastery towns to the city states of the Aztecs and the terraced farms of Machu Picchu high in the Peruvian Andes, UA thrived. Urban agriculture is not new but what is new is the scale (Mougeot, 1994).

In this era there are megacities and they are described as cities with a population of at least ten million people. Only three decades ago there were only five and three of them were in the developing countries. The number of megacities is expected to increase to 23 over the next ten years. Nineteen of these cities will be in developing countries, Mathematicians calculate that by 2015 there will be about 564 cities in the world with one million or more residents. Of these 564 cities, 425 will be in developing world (Mougeot, 2006).

Urban areas are becoming the primary human setting and by 2050, the greater part of urbanisation is likely to occur in the developing countries. In the next few decades, 80% of the world will live in urban areas UNDP (1996). Efforts to address food and nutritional security need to be crafted within the urban conditions as urban agriculture is practised in all cities of the world and the world's population is now mostly concentrated in cities. (Mougeot, 2006) It is idealistic to imagine that cities can ever become food self-sufficient however some cities like Singapore and Hong Kong are already self-reliant in vegetables and meat, the vegetable and livestock demands of Shanghai are totally met by the urban farmers. Most cereal crops can however be grown efficiently only in the rural areas but there is no doubt that urban agriculture at present makes a great contribution to food security in many cities.

(Mougeot. 1999) From the as early as the 1970s non-governmental organisations have been taking part in urban agricultural activities. In many urban areas non-governmental organisations have been working with governments to upscale urban agriculture interventions as in the case of International Development Research Centre (IDRC) in Kenya, Uganda and Zimbabwe,

CEARAH-Periferia in metro Fortaleza of Brazil, Funat in Havana of Cuba, REDE in Lima of Peru and CARE Haiti in Port-au-Prince of Haiti. Bilateral and multilateral organizations play a pivotal role in influencing urban agriculture undertakings. The Swedish International Development Agency (SIDA) funded a workshop in East African to advise policy research into rural-urban food production and the United Nations Food and Agriculture Organisation (FAO) have provided feasibility studies and technical training on several production systems. (Mougeot, 2006) In 2003, a Ministers' Conference that was funded in part by the IDRC on Urban and Peri-urban Agriculture (UPA) was held in Harare, Zimbabwe and was strongly encouraging the promotion of UPA.

2.3 Regional practice of urban agriculture

Personal gardens have always been a custom in European culture, and it is easy to overlook the fact that large scale industrial agriculture is exclusively American. The European Union and the United Nations have not only accepted urban agriculture as a valid land use but have gone to give it political support as seen through their policies. Many of these international sustainability goals trickle down into each country to become integrated into national and municipal governments. (Beatley, 2000) Cities in Europe have a long tradition of gardening in allotments for personal vegetables and flowers. Copenhagen, Amsterdam, and Berlin are large cities that demonstrate this cultural practice. Berlin has more than 80,000 allotment gardens in public use. The United Kingdom has a network of city farms, with a National Federation of City Farms made up of sixty members and New York has 32,000 farms.

Green roofs are a form of gardening that are gaining attention in the United States of America. A green roof is a type of farming where plants and crops grown on the roofs of buildings. They have become more and more common in European cities, especially in Germany and

Netherlands (Beatley, 2000). In the state of New York, state resources are used to compile an inventory of vacant lots, coordinate gardening groups and it is permitted to use public lands for community gardens, state and local agencies facilitate the use of vacant public lands. The state's current statutory scheme provides for interagency, intergovernmental, public and private coordination of community gardens through the state's Office of Community Gardens (Schukoske, 2000).

(Mougeot, 2006) In cities of the North, public UA initiatives initially promoted household and community gardening for food security in times of economic crisis for example, the British Allotments Act of 1925 and the War Gardens of Canada, 1924–1947. Cities such as Amsterdam, London, Stockholm, Berlin, and St Petersburg in Europe, New York, Philadelphia, Cleveland, Montreal, Toronto, and Vancouver in North America have connected UA with resource recycling and conservation, therapy and recreation, education and safe food provision, community development, green architecture, and open space management.

Montreal has the largest community garden program in Canada, now managed at the borough level. Lisbon's pedagogical gardens led the city to develop a city farm that is now visited by more than 100 000 people every year. Delft, in the Netherlands, has combined UA with several other land uses in a heavily populated polder area. In Parisian suburbia, inclusive local land development and management now protects cultivated landscapes for their non-agricultural services, which are highly valued by the public and various urban actors. Vancouver has created its Food Policy Council, which allows the city to integrate and coordinate the activities of its various departments in UA and other aspects of its policies on food and environmental sustainability. National community garden associations and virtual resource centres have sprung up in various places. City Farmer in Vancouver, the Developing Country Farm Radio Network

(DCFRN) in Toronto, and the International Network of Resource Centres on Urban Agriculture and Food Security (RUAF) in Leusden, the Netherlands, to name but a few (Mougeot, 2006).

(UNDP 1996) Urban agriculture today ranges from 10% in large North American cities to as high as 80% in Siberian and Asian smaller cities. From 1970 up to 1991 the percentage of Moscow residents participating in agriculture grew from 20 to 65%. (Mougeot, 2006) Around some Asian cities, where UA has long been a tradition, policymakers and planners have encouraged food production as a critical urban function and have not banned the practice. Many Chinese urban municipalities are purposely made bigger to allow room for an urban food shed. A food shed is the area that supplies food. Most of the food reaches table after crossing state and sometimes national boundaries. Though food remains reasonably priced, it comes with many hidden costs. In order to anticipate and mitigate these costs, producers and consumers need to develop sustainable, self-reliant, local and regional food systems to reduce the food miles.

(Leshner, 2006) Asian countries, in general, have a long tradition of organised urban agriculture. It is intensive and widespread across the region promoting the agricultural recycling of wastes. There is a great diversity of products. There is continuity from the past that allows it to currently be accepted as a normal urban land-use function in most Asian countries. Urban agriculture is not only a poor country phenomenon. Taiwan, which is mostly urbanised, but considered fairly developed, has half of its families in farmer associations. The high vegetable and small- livestock demands of Shanghai are totally met by the city region itself.

It is estimated that up to 50 percent of the population in Latin America are involved in urban Agriculture (Mougeot, 1994). In 1995 the Latin American Urban Agriculture Network was formed to promote these activities (UNDP 1996). Most Pre-Columbian civilizations in the Americas had a tradition in urban agriculture as old as that tradition was in Asia. Pre-Columbian

American activities were destroyed, left unattended during European dominance and there was no continuity of urban farming tradition to the modern day. In officially supported projects most of the modern urban agriculture was based on rural European models that did not prove productive. Asian models of intensive production were introduced by the Japanese in Sao Paulo and the Taiwanese in Panama. International humanitarian organizations introduced French intensive technology. Mexico City, Curitiba and Sao Paulo have official urban agriculture programs.

Another good example of where urban agriculture is practised is in Cuba, Gardeners averaged 3 hours a day in the gardens, in Russia, the average effort applied to urban gardening is about four days per month (Nugent, 2000). The average in Africa, Asia, and Latin America is 3-4 hours a week. By 1998, 30% of Havana's available land was under cultivation and the government's goal was to utilize 25% of Havana's land for food production. In 2001 20 000 residents in the capital city of Havana were actively involved in organic gardening (Greenline, 2001).

(Leshner, 2006) urban agriculture has been practiced for a long time in Africa, the difference with the activity in Asia is that it is generally unsupported by governments and official institutions. There is an old age tradition of urban agriculture, but there is no continuity of its activity from pre-imperialist to modern development. Colonial developers were obsessed with the construction of European glory that was in contrast to the dominated rural cultures. Their concept of a city image was excessively aesthetic to permit urban farming. Even up to today vestiges of these colonial laws still remain and they continue to affect urban agriculture in some countries in Africa.

Over half of Africa's population already lives in cities, and it is expected that this proportion will continue to increase. Although it is recognised that agriculture is a provider of employment and

income for the poor majority urban agriculture still remains neglected. If the available data and predictions are correct, a great part of the African population will live in cities and will rely on agriculture for income. In the beginning of the 1980s, a mere 10-25% of the urban population in Africa was engaged in urban agriculture while up to 70% of the urban population had become cultivators in the 1990s. In Dar es Salaam, the number of families engaged in agricultural production has increased from 18 to 67% from 1967 to 1991 (Bryld, 2003). Kampala dedicates 50% of its land for urban food production. In low-income cities, urban agriculture is considered as the primary source of employment. In Kenya and Tanzania two out of three urban households are engaged in food production activities (Smit et al, 2001)

The practice of urban agriculture has received legal backing in countries such as Uganda and Ghana (Bryld, 2003). Tanzania has also made substantial efforts to incorporate agriculture in its urban land use plans, while it is barred from the urban land use system in Kenya, Zambia and Zimbabwe (Mireri, 2002). Urban agriculture in Accra has since been practised, even during the British colonial era. Since colonial times urban farming has become widely practiced. As the population of Accra grew more people became engaged in urban farming, about 50% of the households in Accra are involved in urban agriculture (Obosu- Mensah, 2002).

Urban agriculturalists are generally composed of disadvantaged groups such as orphans, women, unemployed rural immigrants, and the elderly. There has been an inflow of the low and average income earners, as well as the richer people seeking a good outlay for their money by partaking in urban agriculture for physical and or psychological relaxation (Hovorka et al., 2009). In Atteridgeville in South Africa near Pretoria research has shown that 88% of the households were recent rural migrants and that 54% were involved in urban farming (Smith, 2006). A recent study in informal settlement of Orange Farm again in South Africa, near Johannesburg, established that

89% of households that were engaged in urban farming had no household members in formal employment (Maswikaneng, 2007).

Land for urban agriculture in Zimbabwe can be categorised into two broad types based on its location, there is on-plot and off-plot (Mbiba, 2000). On-plot urban agriculture means farming practises in, on porches and balconies, and around houses. It involves mainly crop and livestock production. Maize is mainly grown during the wet season and vegetables are produced throughout the year. Off-plot agriculture is practised on public spaces and agricultural plots. Most reports concerning off-plot agriculture are about agriculture taking place in public open spaces, where production is largely wanton, outlawed or heavily opposed (Mbiba, 1995)

Women provide most of the labour and manage the inputs for urban agriculture, at all levels of production and marketing, children share and interchange roles with their mothers. It is important to note that urban agriculture lengthens the working hours and workloads of women in comparison to those of men, particularly with the worsening economy thus perpetuating difficulties to the survival of households (Mbiba, 2000). According to Mbiba (1995), urban agriculture in Zimbabwe makes use of basic technology. Inputs are mainly in the form of seeds purchased from local shops or stored harvest from the previous season. (Sedze, 2006) The numbers of males engaged in urban agriculture is increasing nonetheless due to economic hardship and the closure of companies. It is noteworthy that poor households, lodgers and recent migrants have poor access to on-plot agricultural land as seen in Mutare, Harare and Bulawayo of Zimbabwe.

(Marongwe, 2003) agriculture is not categorised as an activity for the urban areas in Zimbabwe and city planning systems do not cater for urban agriculture. Urban agriculture is therefore to some extent viewed as illegal since it is not backed up by any statutory instrument. (Hungwe,

2006) The Nyanga Declaration on Urban Agriculture in Zimbabwe and the Harare Declaration by Ministers of Local Government in Eastern and Southern Africa attributed the contribution of urban agriculture to food security and the reduction of poverty as well as economic and sustainable development. There are no clearly laid down policies on urban agriculture although since 2002 authorities have been supportive of urban agriculture that is organised in an orderly manner.

In Zimbabwe, Harare had a record of regulatory and planning steps providing for agricultural land use on private and public land but the council in recent decades got overwhelmed by the exponential growth and it found itself under-equipped to handle it. At an unofficial level UA is generally accepted, and the city council has begun to change its attitude as a result of information previous research projects. The researchers found few citywide formal mechanisms for conflict resolution, but proposed Parliamentary legislation would explicitly empower local governments to regulate UA (Mudimu et al. 2005).

In Gweru people practise on plot and off plot agricultural activities. (Matsa and Matsa, 2014) Mkoba village 19 is on the periphery of the Gweru Urban Municipality in Gweru District and it is furthest from the city centre. It is a high density area which, like most urban residential areas, have a critical and chronic water, electricity and food shortages. Only a small fraction of the population is employed in the few industries that are still operational in the City of Gweru. The majority make a living out of the informal sector, urban farming, backyard industries, cross border trade, foreign currency exchange, vending of small items such as paraffin, firewood, and cell phone recharge cards among others. In all of the villages residents also practice dry land, urban crop farming on the city's clay soils during the rainy season to bolster their meagre income.

2.4 How urban agriculture affects food security

Urban agriculture is a fairly easy entrepreneurial activity for people at diverse levels of income. For the poorest of the poor, it provides decent access to food. For the steady poor, it provides a source of income and good-quality food at low cost. Middle-income households are offered the possibility of savings and a returns in urban property. For the entrepreneurs, small and large alike it can be lucrative venture (UNDP, 1996). (Moskow, 1996) low-income families in the third world spend over half of their income of their income on food. They can be entirely dependent on food purchases and urban agriculture can adjust these constraints on sustenance independence. She summarised that UA supplements household income, it as a means for women to earn income away from the cultural and social restrictions, it is a fairly easy access activity and it enhances food security.

Food production in urban areas has long been practised in many countries and it is projected that urban agriculture produces between 15 and 20 % of the world's food. The UNDP estimated that there were 800 million urban farmers who produced about 15% of the world's food. UA is an occupation provider in cities (UNDP, 1996). It is estimated plus or minus 200 million urban farmers provide food for the market world over and that 800 million urban dwellers are engaged in UA. Of these 800 million urban dwellers, about 200 million are thought to be market producers and 150 million people are employed full-time. Thus, urban agriculture complements food security significantly and provides a safety net for approximately half of city dwellers worldwide (Apeaning-Addo, 2010)

In Sofia about a third of households earn at least 1- 6% income from urban agriculture (Nugent, 2000). Russia produces 30% of the total food grown in the country and 80% of the vegetables through the usage of urban land. From 1970 to 1990, the number of Moscow families engaged in

food production rose from 20% to 65%. Presently, 14% of London's residents and 44% of those in Vancouver's grow some food in their gardens. Projections suggest that Londoners could produce up to 232,000 tonnes of fruits and vegetables or 18% of the resident's dietary needs (Olufemi and Alabi, 2012). In the USA urban areas produce about a third of the dollar value of all agriculture products. It can also be a very central and extensive phenomenon in particular circumstances (Leshner, 2006).

In Havana urban gardens have markedly increased the quality and quantity of food available to the residents. Most households have had their financial welfare improved. Half of the vegetables consumed in Havana of Cuba are grown in the city's farms and gardens. The government encouraged the cultivation of land and supported farming activities in the city. Most urban residents became very active in farming activities in a bid by the government to make Cuba food self-sufficient.

Some of the large cities in China produce about 90% of their vegetable needs. (Leshner, 2006) many cities in Asia are able to be self-reliant in non-cereal foodstuffs. Singapore is 25% self-reliant in vegetables and 100% in meat. In Hong Kong, 45% of local vegetable foods are produced from 6% of the local urban land area and in Asia urban agriculture is dominated by females. Japan is one of the few countries that take a regular survey of urban agricultural activity and it has very little cultivatable as a country, this increases the inclination towards urban agriculture. After profiling six cities that include Shanghai, Hong Kong among others it was established that it is possible that Asian cities could feed themselves.

(Smit, et al. 1996) Urban agriculture is a big part of the economies in African cities such as Addis Ababa, Harare and Dar es Salaam, to note only a few among the many southern cities. A significant number of people in cities such as Accra and Dar es Salaam are increasingly relying

on urban agriculture for food and income. In Dar es Salaam 90% of the green leafy vegetables consumed were grown in the city. Most went from market farmer to retailer to consumer within sectors of the city. (Bryld, 2003) 70% of the poultry foodstuffs consumed in Kampala were produced within the city boundaries.

In 2007, it was estimated that 25% of the maize that was produced in Zimbabwe was produced in and around the cities (AGRITEX, 2008). In Harare, sixty percent of the low-income produced about 60% of the food that they consumed. Urban agriculture has also helped in meeting household food needs, in Harare, urban agriculture is estimated to provide families engaged in the activity with staple food for up to four months in a year. According to Mougeot (1994), food self-reliance is not self-sufficiency, but it can go a long way towards reducing the food insecurity of vulnerable groups.

2.5 Challenges to urban agriculture

Research has been conducted on the subject of urban agriculture and food security, its contribution to household food security has been recognised for years nonetheless much attention has been focused on rural areas. Food security is emerging as one of the key development challenges for Africa in the 21st Century and it is often misleadingly seen as an issue that only affects rural populations. Much of the writings, and most of the development interventions, around food security focus on rural food security and the plight of the rural poor. Urban areas are often neglected in policy formulations and interventions aimed at reducing food insecurity yet people in urban areas are also affected by food insecurity. Most of the world is going under rapid urbanisation and this has left urban populations vulnerable to food insecurity. The food security challenges facing the urban poor, and the factors that directly or inadvertently enable or constrain

urban food supply, access, distribution and consumption, can no longer be wished away or marginalized (Crush and Frayne, 2010).

There is no international convention on urban agriculture up until now even though it is a global phenomenon. In the first world urban agriculture is more organised than in the developing world. This can be seen through the laws and policies of countries and cities such as Montreal and Toronto in Canada, Vancouver, Lisbon, Delft in Netherlands, and Paris in France. The real paradox is that, on the political agenda, UA is far more advanced in Northern countries than it is in the South even where its practice would be comparatively less critical to the wellbeing of city dwellers (Mougeot, 2006).

At a global level conventions on agriculture were blind to the plight of the urban poor. The 1996 World Food Summit adopted a rurally biased policy oriented plan of action which was committed to the achievement of sustainability and food security through the creation of an enabling political, social and economic environment for the achievement of poverty eradication and for peace and from the onset food security referred to rural food security and poverty meant rural poverty (Crush and Frayne, 2010).

Some officials have negative perceptions about urban agriculture and this poses as a challenge to urban agriculture because the very same city officials are the same authorities responsible for formulating policies on urban agriculture. These perceptions have been a major drawback to policy formulation in line with urban agriculture. Generally most cities were driven by health and hygiene concerns, visual appearances, and the beliefs that a modern city should eliminate agricultural practices. At first they took a much radical view of urban agriculture thus considering it unsuitable for African cities (Rogerson, 1997).

(Crush and Frayne, 2010) the precise intricacy of the urban food security condition drives many governments, international agencies, donors, NGOs and researchers to favour the theoretical and programming ease of rural development and green revolutions for smallholders. As a result urban areas are often neglected in policy formulation and in development interventions. Enthusiasm for rural development and the small farmer is also pervading the world of philanthropic foundations. The Alliance for a Green Revolution in Africa (AGRA), headed by Kofi Anan backed by the Gates Foundation, the Rockefeller Foundation and UK-DFID, views small farmer production as the panacea to food insecurity in Africa

Households that are affected by HIV/AIDS are more vulnerable to food insecurity and their number is growing rapidly. HIV/AIDS is now one of the greatest threats to the eradication of poverty and hunger. Sub Saharan Africa is said to be the most affected in terms of HIV and AIDS. The pandemic affects food security in a number of ways some of which include loss of productive hours for the able bodied whilst attending to the sick. The loss of or incapacitation of the economically active due to disease burden, selling of productive assets such as cattle to raise income for treatment of family members who are sick. (Devereux et al, 2011) notes that the impact of the pandemic is at all levels, the household, national and Global.

Urban gardens can become a source of contestation and conflicts as in New York City where there were conflicts for control of land between the local communities and urban developers. At times the conflicts can become very violent. Municipalities and urban authorities also struggle with the old regulations in a bid to bring a semblance of order to the practice of urban agriculture.

There are no clear tenure systems because of the lack of policy and this has also affected the level of investment in urban agriculture. Again, farmers with no ownership rights cannot use

their land as collateral for credit and might face problems when they need to raise money for investment in farming. In California urban farmers have difficulties with land access and tenure and made policy recommendations (Golden, 2013). Again urban agriculture competes for land with other development activities thus having access to land can be a major challenge to urban agriculture. On top of the aforementioned soil fertility, soil fertility can be a major concern to urban farmers as land in urban areas is at risk of pollution from industrial wastes and effluent.

(Neergard et al, 2009) Indeed the provision of clean and sufficient water to households is at present a challenge that is not likely to be resolved. Competition for water by an agricultural sector is likely to be problematic and the result is that urban residents end up relying on rainwater for irrigation thereby urban agriculture becomes seasonal making it less dependable than the year round practice.

(Olufemi and Alabi, 2012) many urban farmers face challenges trying to find markets for their produce to supermarkets, restaurants, and institutions because of wholesale distributors' monopolies. This competition of urban agriculture against well-established retailers has also been a drawback for the small urban agriculture industry. Most never find profitable avenues to sell their produce and as a result urban agriculture becomes an unprofitable venture.

Many of the urban poor may fail to engage into urban agriculture because of the start-up costs involved. These costs include labour, taxes, water, rent, tools and equipment, inputs, processing and transport costs to the market thereby diminishing their prospects for farming. This lack of capital coupled with limited income, unavailability of loan and credit facilities has been a challenge as well (Olufemi and Alabi, 2012).

Hungwe (2006) The main challenges to practice of urban agriculture in Zimbabwe revolve around three main issues, urban agriculture is a common strategy among the urban poor while, there are no clearly stated laws and policies to govern the practice and the competition for access to land and water with other developmental projects such as housing and industry. There is no clearly laid down policy that spells out policymakers' views on urban agriculture. The unstructured form of urban agriculture is usually a result of the politically motivated nature of the activity.

In Zimbabwe the Urban Councils Act is not explicit on farming though section 227 of the act empowers urban councils to make by- laws for certain areas including prohibition and regulation of the cultivation of land and livestock production. The Town and Country Act, Bees act and Public Health Act also regulate urban agriculture. Protection of land by-law approves cultivation only after permission is sought from the local authority. Section 10 The Protection of land by-law states that no individual shall cultivate any municipal land, or plant, sow tend or reap on any municipal land without council approval (Mavhumashava, 2006). These pieces of legislation have been used in the past to slash illegally grown crops by urban farmers.

(Mbiba, 2000) Within urban areas, urban agriculture is a weak competitor against built development uses. Land that could be used for food production in the city is diminishing rapidly. Urban land is general subject to contestation and without the resolution of administrative urgencies, the future of urban agriculture in Zimbabwe will remain blanketed in uncertainty.

The city is expanding and as more and more people are moving away from the rural areas. Land is becoming a source of conflict between urban farmers, developers, conservationists and the authorities. Environmentalists are increasingly becoming more vocal against urban farming in their attempts to preserve wetlands. The use of chemicals, unsuitable farming practices and poor

choice of crops pollutes the wetlands and they also threaten wildlife biodiversity as well as the vital ecosystem services that are provided by the wetlands provide.

In Harare, almost 90% of urban farmers use chemical fertilisers and nearly a third of off-plot cultivation takes place near wetlands leading to water pollution. This is the basis of the arguments that agriculture must be restricted to rural areas and where it encroaches urban areas it makes them unpleasant. Those who argue against urban agriculture view it as evidence of the failure of modernisation or arrested development which, had it been successful, would have eliminated urban agriculture (Brickhill 1998).

Urban agriculture has also been viewed as environmentally hazardous because it is practiced in polluted environments and also because sometimes, urban farmers use gutter water and sewage effluent due to the high fees levied on tap water. The unregulated urban farming in Gweru together with stream bank cultivation and use of fertilisers and pesticides is said to have contributed to pollution loads in water reservoirs. Urban farmers in Gweru have had blame laid on them for the pollution of water reservoirs and because urban agriculture is at times carried out in polluted atmospheres, making use of sewage effluent and contaminated water due to the high costs and inaccessibility of treated water, this has resulted in urban agriculture being viewed in a negative manner and thus affecting policy.

Apart from focusing on the study of rural areas, research on agriculture when it was carried out in urban areas it was mainly focused on bigger cities while overlooking other smaller cities. Only a few Organisations such as African Food Security Urban Network (AFSUN) and International Development Research Centre (IDRC) have engaged in research on urban agriculture and food security. These organisations have focused on Harare and this has led to extrapolation of the

situation in other cities and urban areas other than Harare. This is unreliable as the situation in every city is unique and has to be understood.

(Crush and Frayne, 2010) The problem is that very little knowledge of what is actually known about the food security problems of the urban poor, the strategies that urban households implement to feed themselves and the challenges that they face in doing so. Currently, the evidence is so fragmented and insufficient that it can only lead to ill-advised or imprudent interventions at the municipal and national level.

Gweru has had water shortages for a number of years now and this has affected (Matsa, 2012) Suburbs that lie on higher ground like those in ward 17 however rarely receive water from Gweno with some residents of Mkoba 19 having had no water from their taps for more than three years now. Water shortages together with climate change have posed a huge challenge to urban agriculture. Gweru was downgraded from agro ecological region three into region 4 signifying the changes in climate.

The residents of Mkoba also do not have ownership rights to the land the land the farm on. This has implications on their ability to access loans as most of them have limited assets resultant in low production. To worsen the situation they have very small pieces of land that would be more productive if the farmers could afford to carry out intensive farming techniques which they cannot due to limited funds and inputs.

Given that the majority of the residents lost their employment and livelihoods they also have trouble raising the capital for urban agriculture. Their small incomes are used for food, school, fees, and rentals and for paying for services such as water electricity and water leaving very little

income to be used for farming. This is also made worse by the fact that there is poor support for urban agriculture in the form of information and technical support for the farmers.

2.6 Chapter summary

A review of the available literature in this chapter showed that urban agriculture is widely practised world over. It explored the various typologies of urban farming practices and their commonness, the effects of urban agriculture on food security and the challenges that farmers face in carrying out their agricultural ventures. Much attention was paid to the big cities of the world while the smaller cities were given very little attention if any. Most scholars wrote on the agricultural practices in capital cities and the larger cities of the various nations in all of the regions across the world. This study aimed at closing that literature gap and it focuses on urban agriculture in the small city of Gweru in Zimbabwe. There was not much literature that has been written on urban agriculture in Gweru particularly in the suburb of Mkoba that the researcher could find.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter highlighted the research methodology employed in the study. This includes the research design, data collection procedures and data analysis. The chapter also looked at the target population, population sample and the sampling technique. This chapter made use of relevant literature concerning research methods particularly on techniques such as interviews, questionnaires and observations.

3.1 Research design

This research employed a mixed research design because of the nature of the study. Questionnaires were used to gather quantitative data, the amount of produce and monthly incomes, ages, sex and employment status of respondents. Interviews, questionnaires and observations were used to collect the qualitative data from the key informants and the participating household heads. Interviews, questionnaires and observations were used to gather data on the prevalence of the practice of urban agriculture, on how urban agriculture affects food security and on the challenges to urban agriculture. According to (Creswell, 2012), mixed methods research design is a procedure for collecting, analysing, and combining both quantitative and qualitative research methods in a single study to understand a research problem.

3.2 Target population

The city of Gweru has a population of 158 233 people according to the Central Statistical Office (2012). The study focused on households in Mkoba 19 suburb that are engaged in urban agriculture. Ward 17 in which the suburb is found has a total population of 8 940, of which 4 054

are males and 4 886 are females. There are a total of 2 218 households in ward and 4 is the average family size.

The study also targeted the councillor for ward 17 in which Mkoba 19 falls in and one City Council official. The key informants were intended to provide data on the administration of urban agriculture and on any other issues relevant to the study.

3.3 Sample size and its determination

Mkoba 19 suburb has 1065 households and it was not possible for every household to participate in the study given the limited time and resources. 10% of the households were required to participate in the study. The researcher then made use of the list of 120 urban farmers from the area of study provided by the Councillor as there were no official records of farmers with the City Council for Ward 17, and took a random sample from that list. 10% of the population of ward 17 was drawn using a random sample so that each household had an equal chance of being selected. Sampling is more feasible as it uses a part of the population rather than the whole. It allows for efficient and effective use of time and resources Purposive sampling was used to select individuals to be interviewed as key informants, Ward 17 Councillor and City council official because they had information pertaining the management and administration of urban agriculture. (Bernard, 2002) asserts that when purposively sampling, the researcher determines that which needs to be known and finds people who are able and willing to provide information based on their knowledge and or experience.

3.4 Research instruments

In collecting data, primary and secondary data collection methods were utilised. Interviews, questionnaires and observations are the primary data collection techniques that were employed

and the secondary sources of data were the City Council of Gweru, the Central Statistics Office, journals, textbooks and the internet.

3.5 Questionnaires

Both open ended and closed ended questions were used to gather the necessary data concerning the viability of urban agriculture in enhancing food security as well as basic characteristics of household heads such as age, gender, marital status, employment status, level of income and household size. Closed ended questions were meant to collect specific data and save time whilst unstructured questions were meant to make sure that the views of the respondents were also taken into consideration and that they were given a chance to explain themselves. Before the distribution of questionnaires permission was sought from the councillor. A total of 107 copies of the questionnaires were administered to a total of 107 household heads engaged in urban agriculture in Mkoba 19 and these questionnaires were self-administered. They were meant to gather data on the prevalence of urban agriculture, how urban agriculture affects food security and on the challenges to urban agriculture as well as the possible solutions to the challenges.

3.6 Interviews

(Patton, 1990) an interview is a discussion with a purpose and consists of direct narrations from people about their experience, opinion, feelings and knowledge. The researcher approached the interviewees with interview guides that had been designed to direct the interviews. The ward 17 Councillor and the Council Official who are responsible authorities for the management and administration of urban agriculture were interviewed. The Councillor and the Council Official were briefed on the purpose of the study and that information they were to provide was for educational purposes. The interview with the Councillor took place at his home where the researcher was invited and the interview with the Council Official was conducted at the interviewee's office.

The Council Official briefed on the policy and the official stance of the council on urban agriculture and the challenges the council was facing in managing urban agricultural activities. The councillor as the key person on the ground in the area of study also gave his views on the trends and the benefits as well as the challenges to urban agriculture.

3.7 Observation

The researcher used a checklist to observe the agricultural activities in Mkoba 19. The researcher observed the agricultural practices, the types of farming both on-plot and off-plot as well as the extent to which agriculture was being practised by the households to which the questionnaires were administered. The kinds of crops and livestock were also observed.

3.8 Secondary data

The research made use of relevant secondary sources, books, reports and journals as well. Using secondary sources is convenient and affordable. Secondary sources enabled the researcher to trace the background of urban agriculture and food security from a global, regional, national and local level. The prevalence of urban agriculture, the effects of urban agriculture on food security and the challenges to urban agriculture were sourced from the aforementioned sources to gain a background. Data on the number of household was sourced from the Central Statistical Office and the City council so as to calculate the number of households that were going to participate in the study.

3.9 Data Analysis

The research findings were qualitative and quantitative thus presentation and analysis was both descriptive and summarised in tables and charts. After the collection of data, it has to be presented and analysed in such a manner that allows conclusions to be drawn. Descriptive analysis method was employed to draw conclusions from the data that was gathered. Robbie

(1989) descriptive analysis techniques are useful because they enable the researcher to organise, summarise and describe observations, interviews and questionnaires, making it easy to interpret data.

3.10 Chapter summary

This chapter looked at the research design, the research methodology that the research employed and the means that were utilised to conduct research. It touched on the data collection tools that were utilised, that is questionnaires, interviews and observations. The chapter also dissected the analysis and presentation of data that was gathered from the field. Data was analysed and presented in the form of descriptive summaries, charts and tables as it was qualitative and quantitative

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND DISCUSSION

4.0 Introduction

This chapter presented and discussed the findings of the study. The data gathered from households engaging in urban agriculture, and from the key informants was organised and combined to give a description of the prevalence of urban agriculture, its effects on household food security, the challenges to urban agriculture and the possible solutions to those challenges. Charts and tables were used to present the quantitative data and qualitative data was presented in the form of descriptive analyses.

4.1 Distribution of questionnaires

107 copies of the questionnaire were distributed and 73 (68%) of the participants were female and 34 (32%) of the respondents were males. More females responded because most men went to work leaving females at home by day, there were some female headed households and more women were actively involved in agriculture than males. The researcher drew a sample from the list of names that was provided by the Ward 17 Councilor and participants were selected through a random sample so that each name had an equal opportunity of being selected.

Key informants, Ward 17 Councillor and the Council official were interviewed, the Council Official at the City Council of Gweru and the Ward 17 Councillor at his home in Mkoba 19. Interviews disclosed information on the prevalence, effects and challenges to urban agriculture. The Council Official expressed that there were no records of farmers for the suburb and that there was no broad policy pertaining to urban agricultural activities in Gweru. The researcher resorted to the list that was provided by the Ward 17 Councillor.

4.2 Socio-demographic information of respondents

Table 1: demography of respondents

Age	18-30	31-45	46-60	61 and over
Total	16 (15%)	64 (60%)	26 (24%)	1 (1%)
Marital status	Single	Married	Divorced	widowed
Total	17 (16%)	84 (78%)	4 (4%)	2 (2%)

Most respondents were in the 31-45 (60%) year age group, followed by 46-60 (24%), then the 18-30 (15%) and the least were the over 60 (1%). There were more people aged between 31-45 and 46-60 because the study targeted household heads engaged in urban agriculture. Those over 61 were the least as most people in that age group were retired and relocated to the rural areas while those who remained in urban areas were no longer very active in agriculture. Of the respondents 84 (78%) were married, followed by the single 17 (16%), then the divorced 4 (4%) and then lastly the widowed 2 (2%). This was because the married have larger families and therefore have a greater risk of food insecurity hence the need to practise urban agriculture.

Each household had at least four members and members varied from 1-3 thirty one (29%), 4-6 sixty one (57%), 7-10 eleven (10%), and above 10 four (4%). All households had been practising urban agriculture for more than five years, that is, 28 (26%) had practised for five years, 27 (25%) had been for 6 to 10 years, 33 (31%) for 11 to 20 years, and 19 (18%) for over twenty years.

4.3 Employment status

Table 2 employment status

Employment status	Male	Female	Total
Yes	15 (14%)	5 (5%)	20 (19%)
No	19 (18%)	68 (64%)	87 (81%)
Total	34 (32%)	73 (68%)	107 (100%)

More males than females were formally employed from the findings, 20 (19%) males were formally employed while 5 (5%) women were formally employed. 68 (64%) females were unemployed and 19 (18%) men were unemployed. Out of 73 women who participated in the study, 68 or 93% were unemployed and of the 34 men 19 or 56% were unemployed whilst 44% were formally employed. Of the 73 (100%) women 7% were formally employed. (Maswikaneng, 2007) a study in the settlement of Orange Farm, south of Johannesburg, found that 89% of households engaged in urban farming had no household members in formal employment

Twelve (24%) of the respondents were employed and the rest, thirty eight (76%) were unemployed. Of the 20 (19%) employed respondents 5 (26%) earned \$60-120, 10 (49%) earned \$120-200, 3 (15%) earned \$200-300 and 2 (10%) earned \$300-400. Some besides formal employment indicated that they had other sources of income, the likes of vending markets, flea markets, backyard industries and urban agriculture.

4.4 Prevalence of urban agriculture

Table 3 Reasons for engaging in urban agriculture

Reasons for engaging in urban agriculture	Positive Responses
Economic hardships	78 (73%)
Source of food	107 (100%)
Unemployment	67 (63%)
Many dependents	36 (34%)
Land and water availability	40 (37%)

Respondents presented multiple responses thus totals may not add to a 100%

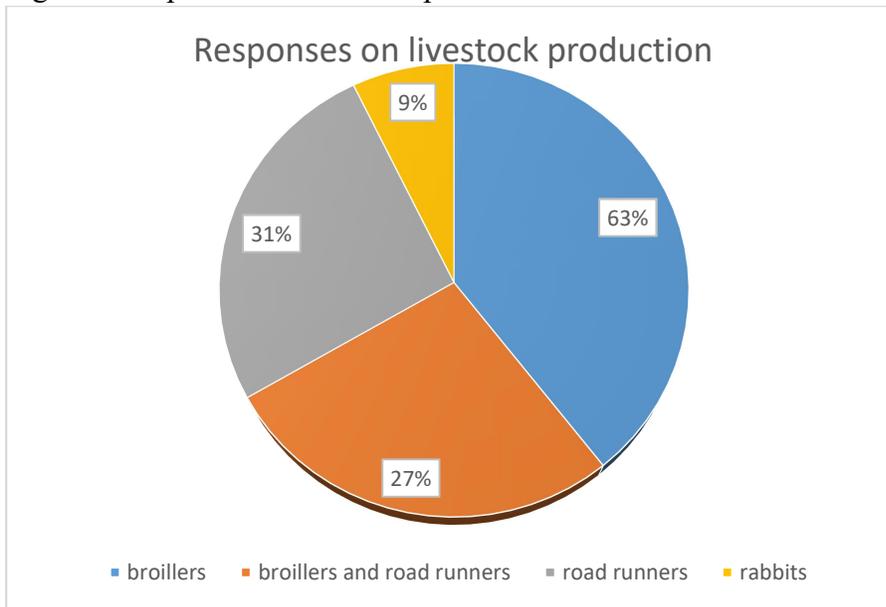
From the research findings all respondents 107 (100%) answered affirmative when asked about the engagement of their households in urban agriculture. Multiple responses also revealed that 107 (100%) were involved in urban agriculture for food, 78 (73%) said that they were engaged in urban agriculture because of economic hardships, 67 (63%) said it was because they were unemployed that they engaged in urban farming, 40 (37%) said they were making use of the available land and water, and 36 (34%) said that they had many dependents whom they had to feed. (Hovorka et al, 2009) emphasised that economic catastrophe drives urban agriculture, which offers a safety net for the poor and for households looking to augment dwindling incomes.

4.5 Livestock Production

Asked about livestock production 67 (63%) answered no and 40 (37%) of the respondents answered yes. Of the respondents who answered yes 25 (63%) kept broilers, 12 (31%) kept road runners, 10 (27%) kept broilers and road runners and 4 (9%) kept rabbits. Of the respondents

who kept road runners 4 (1%) had more than 10 chickens, all 4 (1%) kept less than 10 rabbits, 10 (4%) kept more than 25 broiler chickens.

Figure 2: responses on livestock production



Respondents gave multiple answers and responses may not add up to 100%

Most residents kept livestock in small numbers for personal consumption and sold very little. From the data gathered livestock production was meant for subsistence as a supplement for leafy vegetables. Livestock kept ranged from broilers, road runners which are an indigenous breed of chickens to rabbits. Most of the residents kept broilers as they have quick maturity and are suitable for consumption within a few weeks' time. Some kept both road runners and broilers however road runners mature slowly. A small number kept rabbits also for household consumption because they are fairly easy to rear and they breed quickly.

Plate 1: broiler production



Typical backyard broiler project in Mkoba 19

4.6 Crop production

All the households 107 (100%) practised on plot urban agriculture whilst 71 (66%) households practised on plot and off plot urban agriculture. Of the households that practised off plot agriculture 71 (100%), some had more than one plot of land. 60 (85%) households had 1 plot, 7 (10%) had 2 and 4 (5%) had 3 plots. The land they farmed on was availed by the City Council of Gweru and the households that got plots used to pay 1\$ USD rent to the City Council for the land which has long ceased to be the case, other farmers were renting land from the nearby farms whilst some were members of the CARE International community gardens. 60 (85%) of the households had space in the community gardens and some of those 60 had other pieces of land, council land that they used to pay a dollar for. This reiterates (Mbiba, 2000) land for urban agriculture in Zimbabwe can be categorised into two broad types based on its location, there is on-plot and off-plot urban agriculture.

Inputs included seed, fertiliser, organic manure, hoes, watering cans and harrows that were bought locally, with water and land being the basic requirements. For leafy vegetables households exchanged and sold each other cuttings and used organic manure mostly in the form of chicken droppings to fertilise their gardens. Ammonium nitrate (Top) and Compound D fertilisers were the most commonly used among the respondents to fertilise the plots for maize production. (Mbiba, 1995) in Zimbabwe urban agriculture utilises basic technology. Inputs are mainly seeds bought locally or stored from the previous harvest.

60 (56%) mentioned that they had received direct NGO support from CARE International in the form of boreholes for watering crops in the gardens, fences, tools and water tanks whilst others, 32 (30%) indicated that they had also benefited indirectly from the boreholes and gardens as well. 15 (14%) stated that they had not received any support whatsoever. “The Councillor said the government also drilled boreholes from which people obtain water for irrigating crops and also assisted when there was a worm outbreak last farming season in 2013. Land for farming was designated to households by the City Council and they used to pay for the land but they have since stopped however they have kept a hold on the land. Some farm on public land but they stated they had been cultivating the land without any approval or knowledge of the Council Officials.”

Leafy vegetables and maize were the main crops that were grown by the households according to the data collected from the interviews and questionnaires. Maize was said to be grown during the rainy season by 95 (89%) of the households while leafy vegetables were grown all year round by 107 (100%) of the households. During the dry season households indicated that they grew leafy vegetables on plot and even off plot in community gardens depending on the availability of water. On plot cultivation was said to be dependent on tape, well and borehole water, during the

rainy season however the vegetables were rain fed. Some households 12 (13%) grew maize on plot during the rainy season and it was irrigated when there was low rainfall.

Plate 2: Leafy vegetable production



Women and children provided most of the labour for urban agriculture while men were at work during the day, 100 (93%) of the households provided their own labour while only 7 (7%) indicated that they hired labour, household heads who hired help were formally employed. From tillage, sowing, weeding and harvesting women and children were more active. After harvests women went on to sell the surplus at the markets and to neighbours. According to (Mbiba, 2000) women provide labour and manage the inputs for urban agriculture at every level of production, planting, watering, harvesting and selling, children share and interchange participation in these activities with their mothers.

Consumers ranged from the households that cultivated the crops, buyers were mostly neighbouring households to those at the marketplace. 75 (70%) of the households sold surplus of their leafy vegetables and 32 (30%) stated that they grew them for their own consumption. From the 65 (70%) that sold vegetables, 33 (51%) sold vegetables that are worth more than 15\$ USD

per month and the other 32 (49%) sold less than 10\$ USD. Only 2 (2%) households sold a small fraction of their maize produce and the rest 93 (98) % indicated that maize was for household consumption.

On the question is urban agriculture a worthwhile activity all 107 (100%) of the respondents answered to the affirmative and were interested in it. They stated that they got food and some found alternative employment in working the fields. For households with many members urban agriculture made it easier for them to feed themselves given the harsh economic environment. (90%) said they wished to continue farming their plots and backyard gardens for the foreseeable future whilst 10% stated they preferred to be employed formally. Responses of the respondents were quoted:

“Farming is an activity that provides us with food and income, communities interact as a result of the activity.”

“Urban agriculture is very important because it allows us to stay in touch with our cultural roots and on top of that it is a source of food and income for our family. We have plenty to eat and our children do not starve, we can feed them with our labour, we can have a good return for very little investment and we always have good harvests.”

4.7 How urban agriculture affects food security

Most households were self-reliant on their on-plot gardens for leafy vegetables and some households were totally dependent on their plots for grain and their harvests lasted until the next harvest. 100 (93%) of the households stated that they did not buy leafy vegetables as they had enough from their gardens. All the households consumed over 90% of their produce and sold very little. Of the 71 households that practised off plot agriculture 3 (4%) harvested enough

maize to last them a year, 19 (27%) of the households harvested enough for 4 months without buying mealie-meal, 24 (34%) ate their grain harvests for 3 months, 16 (22%) indicated that their harvests lasted them 2 months and 9 (13%) did not specify. (Mbiba, 1993) urban agriculture helped households to meet their food needs, in Harare it was estimated to provide households with staple food for up to four months in a year.

Small livestock were kept for meat as a supplement for leafy vegetables, all 67 (100%) households that kept broiler chickens, road runners and rabbits stated that keeping livestock helped to improve the quality of food they ate. It ensured food variety and meat consumption of those households. Households that reared livestock were able to consume meat on a regular basis given the high costs of meat on the market. Keeping livestock also provided households with manure for their gardens as they used the droppings to fertilise their gardens thereby improving the quality of their vegetables. Broiler chickens ensured a continuous supply of meat as they mature quicker than other breeds of chickens, having refrigerators also elongated the periods for which the chickens could be eaten.

Other households also got income from their produce which they used to buy other food stuffs such as cooking oil, sugar and salt to mention but a few. 70% of the households earned some income from selling their produce and this also helped enhance the food security status of households. Money earned was used to pay for the grinding of mealie-meal and to buy inputs for the next season thereby making urban agriculture a self-sustaining venture. This confirms (Moskow, 1996) when she wrote that urban agriculture enhances food security.

4.8 Challenges to urban agriculture

Data gathered from interviews and questionnaires suggested that lack of policy was a major challenge to urban agriculture. The City Council pays a blind eye to the practise of urban

agriculture in Mkoba 19 and there is very little support that the households have been getting. Urban agriculture is not part of the city's master plan and this has affected resource allocation as far as urban agriculture is concerned. 95% of the respondents stated that they had not been getting support from the government. Other actors gave minimal support and the infrastructure they had provided was no longer functional as some of the boreholes were worn out and were not deep enough.

80% of the participants indicated that there was shortage of land for farming. Harvests are directly proportional to the size of land and farmers stated that the land they had was small to be economically viable as a business model and was even too small to cater for their subsistence needs. They could have harvested more produce if they had bigger pieces of land. Some households only practised on plot agriculture because there was shortage of land. Those who had managed to get land when it was still being rented for a dollar were fortunate enough because they managed to hold on to the land even when they no longer pay for it. Some of the respondents 30% lost out when CARE International was granted some of the land by the City council for its community gardens programme. Some stated they could not invest in the land by building infrastructure as the land was not theirs.

Interview and questionnaire findings also pinpointed water as one of the major challenges to urban agriculture. Most of the households stated that they had been experiencing water challenges for the longest of times. Mkoba 19 lies on higher ground and this affects provision of municipal water coupled with the shortage of electricity and obsolete water infrastructure. To compound the situation the area has also been experiencing droughts. Households indicated that they can only grow leafy vegetables that require less water and have long since stopped growing tomatoes, carrots, lettuce and other crops that require more water. Maize production was

practised seasonally due to water shortages and this reduced the yield by as much as 50% as households could grow two crops per year and harvest twice as much given that there is shortage of land, intensive productions was said to be a better option. Rainwater was said to be unreliable as most of the seasons had seen poor rainfall which affected household yields. The Councillor was quoted saying:

“The ground is much higher in Mkoba 19 and this makes the drilling of boreholes very expensive, the few boreholes that we have are not deep enough and most of the times they do not have any water at all, the pumps at Gwenhoro cannot pump much water to higher ground and the rainfall is poor at times. Last year however we had good rains and we expect this year to have just as good a rainy seson. If it rains at least people will have something to eat.”

Plate 3: Dry gardens



Most of the respondents 87% were unemployed and they stated that it was hard to raise the capital for agricultural inputs. Loans are also hard to access when one is not formally employed thus funding was a challenge for urban farmers. Unemployment coupled with poor support from the City council posed a major challenge for most farmer. 104 (97%) of the households when asked about the challenges they were facing they specified that funds were a challenge. The households also did not have ownership to the land they farmed on so they could not use the land to access loans. This was also compounded by the fact that in Mkoba 19 urban agriculture is not a very profitable venture.

Of the challenges that households were facing interviews and questionnaires revealed that urban farmers had a problem with livestock especially donkeys, donkeys ate the crops because there were no fences around the open spaces that households farmed on. Off plot farmers especially had this problem of donkeys eating their crops. 30 (42%) of the off-plot farmers cited that they had their crops eaten by donkeys at one time.

4.9 Proposed solutions to the challenges

All the respondents indicated that water was crucial to the success of urban agriculture as a means to food security. The government should ensure adequate water supply to Mkoba 19 as it is the major resource needed for farming. Without enough water gardens will continue to dry out and farmers will be forced to grow only crops that require less water thereby diminishing diversity if crops that are grown. This translates into food insecurity for the poor families and increased costs for those who can manage to buy vegetables.

On the question what should be done to solve the challenges 80% indicated that the City Council should provide them with more land as they had small pieces of land to farm on. Most of the households indicated the need for more land as they had no plots to grow maize on, only 71 (85%) of the respondents had other plots whilst the rest were left to farm on their small backyard gardens. One respondent was quoted:

“Some farmers have been fortunate enough to get pieces of land to cultivate on while the rest of us have very tiny pieces of land on which we can only grow a few beds of vegetables, if we had bigger pieces of land like the others maybe we could also have enough to eat because food is now expensive”

The respondents hinted that laws against large livestock in the urban areas should be enforced so that crops are protected. Households indicated that livestock especially donkeys posed a threat to their crops and that the City Council should come up with laws to control large livestock in the urban areas as the places they farmed on could not be fenced or protected from the donkeys. 50% of the households that practised off-plot agriculture claimed to have had their crops consumed by donkeys at one time.

Another solution that the respondents suggested was that of government support. Households stated that the government should provide more support to the urban farmers. The government should provide support in the form of extension officers and inputs to the farmers as it was hard to raise the capital that is required for farming by the urban poor. Extension officers and inputs were said to be vital for the sustenance of urban agriculture as most of the respondents had received little to no training on urban farming. This would also ensure that people are well acquainted with good farming practices to ensure environmental sustainability. Some suggested that the government and other stakeholder should facilitate the access to cheap loans by the poor households as it was nearly impossible to source loans and funding without formal employment and collateral.

4.10 Chapter summary

This chapter was focused on the presentation of the actual data that was collected from the field. The socio-demographic characteristics of the participants were summarised in tables and the participation of respondents in livestock production was presented in a chart. The prevalence of urban agriculture, the effects of urban agriculture and challenges as well as the proposed solutions to the challenges were also presented in this chapter.

CHAPTER FIVE

CONCLUSIONS AND RECOMENDATIONS

5.0 Introduction

This chapter summarised the research findings on the objectives to the study, the prevalence of urban agriculture, the effects of urban agriculture on food security and the challenges to urban agriculture as well as giving recommendations that should be adopted to better the practice of urban agriculture. It was mainly focused on drawing conclusions from the data that was presented in Chapter Four and deducing recommendations.

5.1 Conclusions

Mkoba 19 households have been facing harsh times economically over the past decades from the research findings. The majority of the residents are unemployed and vulnerable to food insecurity as they have very little disposable income with which they can buy food with. Most have resorted to urban agriculture as a way of bettering their food security situation. Urban agriculture is very common in most cities and it has been a source of food for many families across the world. It has been widely accepted by governments as a legitimate livelihood and supported by policy, institutional and technical support however in Zimbabwe the case is different as it paid a blind eye.

People have been growing leafy vegetables and the staple maize as well as rearing livestock mainly chickens and rabbits. Most households have been able to withstand the harsh economic environment as a result of urban farming through which they can sustain themselves for months at a time. Without urban agriculture some households would not be able to feed themselves adequately.

Urban agriculture has been very beneficial however it has been faced with its own challenges. There are currently no laws to govern the practise of urban agriculture and farmers have been greatly disadvantaged from that. Also land and water shortages have gone to compound the poor food security statuses of most households in Mkoba 19. When successful in growing crops especially off-plot households had been facing livestock challenges as donkeys were consuming the crops. There has been poor government and stakeholder support in urban agriculture in Mkoba as well. This could have been as a result of the lack of policy that resources have not been allocated towards urban agriculture.

Respondents suggested the solutions to the aforementioned problems and the ranged from a call for government and stakeholder support to policy formulation, policy in line with urban agriculture and policy on livestock in urban areas so as to safeguard their crops. A desperate call for adequate water supply was made as well to ensure that urban agriculture would thrive.

5.2 Recommendations

The following recommendations emanated from this study

- Increased access to land and credit, access to land will certify that residents have better harvests as harvests in Mkoba 19 were directly proportional to the size of the land were agriculture was practised. Also this will make capital for inputs available to the low income households and ensure that their ventures are sustainable and profitable thus making households self-sufficient in food.
- Policy formulation in line with urban agriculture is essential for urban agriculture because without legislation efforts to support urban agriculture will be half baked. Legalising urban agriculture will lead to better support and organisation of urban agriculture. Urban

agriculture is still not recognised as a legitimate economic activity and recognition will go a long way in improving urban agriculture.

- Improved water supply is crucial to all agricultural activities. Water shortages have been a major drawback to urban agriculture and improved water supply will reflect positively on urban agriculture. There is need for more alternative water sources other than dependence on tap water. More boreholes are needed as there are water shortages and such boreholes should be deep enough as Mkoba 19 lies on higher ground. This will go a long way in reducing the rate at which gardens are drying up.
- Increased technical and institutional support will go a long way in ensuring that urban agriculture thrives. Most residents are facing difficulties in raising the capital requirements to engage in urban agriculture. Urban agriculture utilises cheap simple technologies and there should be enough support for those households that cannot afford them. Extension services will go a long way in ensuring environmental sustainability as households will be taught on good farming practices that conserve the environment and at the same time effective to increase yields.
- Partnerships to strengthen urban agriculture are also key to the success of urban agriculture as a means to food security. A multi stakeholder approach is also crucial for urban agriculture to thrive, the government and local authorities should partner and encourage other stakeholders to support urban agriculture.

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APPENDIX 1

Questionnaire

Demographic characteristics

1. Gender Female Male

2. Marital status.....

3. What is your age?

Below 18.....

18-30years.....

31-45years.....

46-60years.....

61 and over.....

4. What is the size of your household?

.....

5. Are you formally employed?

.....

6. Do you have other sources of income?

.....

7. If yes to question 6, name them?

.....

8. What is your approximate total income per month?

.....

Prevalence of Urban Agriculture

9. Does your household engage in urban agriculture?

.....

10. For how long has your household been engaged in urban agriculture?

.....

11. If answered yes to question why does your household engage in urban agriculture?

.....

12. Where do you practice urban agriculture?

Backyard.....

Plot.....

How do you access the land you farm on?

.....

13. How do you fund your agricultural project?

.....

14. Do you receive any support from the government and other actors?

.....

15. What kind of support do you receive?

.....

Crop Production

1. Which crops do you cultivate, list in order of importance

-
2. What is your cropping pattern according to seasons?
-

Livestock Production

3. Do you keep livestock?
-

4. If yes to question, please list the type of livestock and their numbers.
-

How urban agriculture affects food security

5. Approximately how much do you yield of two major crops mentioned?
-

6. Who are the consumers of the produce?
-

7. For how many months do your harvests last?
-

8. How much of the harvests are sold?

.....

9. How much of the harvests is kept for consumption?

.....

10. Who consumes the livestock that is reared?

.....

11. What percentage of livestock kept is sold?

.....

12. Of the livestock kept what percentage is for personal consumption?

.....

13. Approximately how much income do you get from urban agriculture per month?

.....

14. Do you think urban agriculture is a viable means to food security

Challenges to urban agriculture

15. What are the major challenges that you have been facing in practicing urban agriculture

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

.....
.....

32. What do you think should be done to improve on these challenges?

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

APPENDIX 2

Interview Guide for Key informants

Topic: The viability of urban agriculture in reducing food insecurity in Zimbabwe: The case of Gweru, Mkoba suburbs.

General Information

Date of interview:.....

Questionnaire Number:.....

Starting Time:.....

Ending Time:.....

Name of Organisation represented:

16. How many households are engaged in urban agriculture in Mkoba?

17. How many plots do they farm on?

18. In your own view, which crops do they grow and which animals do they keep?

Crops.....

Animals.....

19. Approximately, how much are the household harvests of each crop mentioned?

20. In your own opinion, what are the cropping patterns for each season?

21. What are the policy guidelines on urban agriculture in the area of study in your own view?
22. How is the land for urban agriculture acquired?
23. In your own opinion who provides labour for urban agriculture activities?
24. In your own opinion, who are the consumers of the produce of urban agricultural activities?
25. What are the inputs that are used in urban agriculture in your view?
26. In your opinion, what influences households to participate in urban agriculture?
27. In your opinion, what are the major challenges to the practice of urban agriculture?
28. Do you think urban agriculture is a viable means to food security?
29. To promote urban agriculture, what do you think is being done by the following actors?

Central Government

Local Authority (Gweru city council)

NGOs
30. What in your own opinion could be done to improve on the situation?
31. Do you think urban agriculture will continue in the following years?
32. If yes to question 15, what could encourage this development?

Thank you

APPENDIX 3

Observation Checklist

Things to be observed	YES	NO
Agricultural practice		
Livestock in backyards		
Crops in gardens		
Dried gardens		
Alternative water sources		