University of Fort Hare

Together in Excellence

Urban agriculture and food security in Zimbabwe. The case of Harare.

By

Chikondowa Prosper. O

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Department of Development Studies

Faculty of Management and Commerce,

University of Fort Hare.

Republic of South Africa

Supervisor Professor Rahim

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Declaration

I Prosper O Chikondowa, hereby declare that this dissertation is my original work and effort and that it has not been previously submitted or presented to any academic institution for any purpose. The researcher is fully responsible for any mistakes made during completion of this thesis. All work from other previous researchers has been fully acknowledged through referencing.

Signed Pchikondowa.....

Date 21/03/2018.....

Chikondowa Prosper. O **Student No" 201207356**

Dedication

This dissertation is dedicated to my family. I love you all. Thank you for being a source of inspiration and thank you for being a blessing from God.

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I would like to extend my profound appreciation to a number of people who worked with me unstintingly for the successful completion of this dissertation.

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Abstract

This study seeks to evaluate the role of urban agriculture on food security in Zimbabwe. The study was motivated by the fact that food security is a great challenge in Zimbabwe and it seems as if the government is running out of ideas and policies to curb this challenge mostly in urban areas. Misaligned macroeconomic policies such as Economic Structural Adjustment Programme and Fast Track Land Reform Programme forced industrial closure which caused high retrenchment, unemployment, underemployment and low wages. Urban agriculture has been used by many countries mostly in the north as a way of livelihood and it has been successful. However, it has struggled for policy attention as a developmental strategy in developing countries, particularly in Zimbabwe. This has been promoted by the government's failure to acknowledge it as a means of living. The statutory and legal framework is the main challenge facing urban agriculture. On the methodological lens, the study adopted the quantitative research methodology. Data was collected through the use of questionnaires using a sample of sixty households. The study established that urban agriculture improves food security of urban households. This is ensured through the direct consumption of food produced which includes maize and vegetables. This also helps to save some income since they are no longer buying every foodstuff required. Some would go on to sell their produce which helps in paying school fees, buying other food requirements, paying rents and other bills. However, there are still challenges which include shortage of inputs such as water, land and fertilizer and destruction of crops by city council. From the study the researcher recommends that the government should legalise urban agriculture and it should be integrated in urban developmental policies.

List of Abbreviations and Acronyms

AIDS	Acquired Immunodeficiency Syndrome
BNA	Basic Needs Approach
BTI	Bertelsmann Stiftung's Transformation Index
ENDA-Z	Environmental and Development Activities Zimbabwe
ESAP	Economic Structural Adjustment Program
FAO	Food and Agriculture Organisation
FEWS NET	Famine Early Warning System Network
FTLRP	Fast Track Land Reform Program
GDP	Gross Domestic Product
GMB	Grain Marketing Board
HIV	Human Immunodeficiency Virus
IDRC	International Development Research Centre
ILO	International Labour Organisation
MDGs	Millennium Development Goals
SD	Sustainable Development
SPSS	Statistical Package for Social Sciences
SSA	Sub-Saharan Africa
UN	United Nations

UNDP	United Nations Development Programme
UN-Habitat	United Nations Human Settlement Programme
USAID	United States Agency for International Development
WCED	World Commission on Environment and Development
ZANU-PF	Zimbabwe African National Union-Patriotic Front
ZIMACE	Zimbabwe Commodity Exchange
ZFarming	Zero Acreage Farming
ZIMPREST	Zimbabwe Program for Economic and Social Transformation
ZimStat	Zimbabwe Statistics
ZimVAC	Zimbabwe Vulnerability Assessment Committee

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CHAPTER 1: OVERVIEW AND BACKGROUND OF THE STUDY

1.1. Introduction

This study seeks to investigate the role of urban agriculture on households' food security. Generally, the world is facing a fundamental challenge of ensuring that everyone has sufficient food at all times. This challenge has left millions and thousands of people around the world living in poverty, hunger, and starvation. Having noticed the alarming rates of food insecurity, leaders around the world have tried to join hands in coming up with ideas and strategies on how to curb food insecurity. The initiatives such as the World Food Summit and Millennium Development Goals (MDGs) were initiated aiming to alleviate poverty and food security among other crucial issues around the globe.

Food insecurity has struck both urban and rural areas. In 2010 the total number of underfed individuals in the world was approximately 925 million with 98% of them being in developing countries (FAO, 2011). In Sub-Saharan Africa (SSA) food security in urban areas is expected to continue as a challenge as urbanization rate is growing faster. The UN-Habitat (2006) reports that the percentage of urban residents in SSA is expected to rise from 30% to 47% of the total population during the period lasting from 2005 to 2030. The conditions can be worsened by environmental and climate changes that have been unconstructive for the past decade and have failed to sustain the needs of the ever-increasing population mostly in the South.

Consequently, more urban problems will arise as economies of most SSA countries are failing to create enough employment opportunities. This has had some implications for urban households mostly the poor households and female-headed

ones. In 2008, world food situation appeared to be a crisis, particularly in the developing world which is paralleled by high food prices and low food services. This created negative implications for household food security of vulnerable groups (FAO, 2009). Food crisis and unstable socio-economic environment make the urban poor tend to suffer the most as they lack sufficient income and consumption, lack of access to employment and food, inadequate services including health and education (ZimVAC, 2003)

According to Todaro and Smith (2012) urbanization in Africa is growing at an unprecedented rate and unlike in developed countries where it was accompanied by industrialization, the rate of urbanization in Africa is much higher than the level of industrialization. Thus, most of the people moving to urban areas are unemployed. Bhebhe et al (2016) indicated that Zimbabwe has the highest unemployment in the world which is standing at 95%. This unemployment has had profound effects on the socio-economic life of Zimbabweans as they are faced with decreasing per capita income. Which in turn have an impact on their ability to fight poverty and food insecurity since their buying power has been reduced? As a result; families have to look for alternative means of survival (Bhebhe et al, 2016).

Historically farming has been seen as a rural occupation and city dwellers as consumers of rural foodstuffs (Mbiba, 2000). However, due to the shortfall of the jobs, urban residents simply could not feed themselves without the production of their backyards, roadside verges, riverbanks, parks, and allotments. Like in other countries urban agriculture has been promoted for various reasons. Urbanization coupled with low agricultural production in the rural and communal areas and

underperforming macro-economy are among chief reasons for the growth of urban agriculture in Zimbabwe.

Since her independence in 1980, Zimbabwe has gone through many phases socially, economically and politically. The government has had some programs and policies such as Growth with Equity of 1981, Economic Structural Adjustment Program (ESAP), Zimbabwe Program for Economic and Social Transformation (ZIMPREST), Fast Track Land Reform Program (FTLRP) of 2000 and Indigenisation Policy aiming to improve the well-being of citizens. Nevertheless, there have been different outcomes from these policies and programmes but most of them have failed to improve poverty levels rather poverty levels have been escalating especially from 1991 to date.

From 1980 to 1989 the economy of Zimbabwe was stable with the manufacturing sector contributing most to the countries' GDP. According to Kanyenze (2006), the manufacturing industry contributed 15% of Gross Domestic Product in 1965 and the sector's share improved to 25% by 1980. He further pointed out that, the share of manufacturing output in GDP had an average of 23, 3% from 1980 to 1989 and agricultural sector contributed an average of 12, 2% of GDP during that same period. It should be acknowledged that the flourishing of manufacturing industries was due to a strong agricultural sector that was producing enough to sustain the economy of the country. It was this agriculture system that made manufacturing industry to thrive in the 1980s since the industry relied heavily on products such as cotton and tobacco. For this reason, agriculture was once referred to as the heart of the Zimbabwean economy (Sachikonye, 2003).

However, since the 1990s the economy has been declining and the living standards of most Zimbabweans are waning. Mostly since the introduction of Economic Structural Adjustment Programmes (ESAP) and the fast track land reform program of 2000 that resulted in many socio-economic challenges such as industrial closure, retrenchment, and decreasing income. ESAP was introduced in 1991 after the country was found in a quagmire of inert economic growth characterized by unemployment, underemployment, shortage of foreign exchange, fading fiscal and external balances. ESAP was a combination of macroeconomic policies such as devaluation, privatization, trade liberalization and removal of state subsidies. The assumption was all these policies would ultimately boost economic growth, reduce government expenditures, increase foreign investment, and eventually enhance employment opportunities.

However, the results were contradictory of what was being expected as the removal of government subsidies on social services such as education and health proved costly. The introduction of user fee was not good for the poor as most of the people could not pay their hospital bills. Bijlmakers et al (1996) highlighted that, between 1989 and 1994 drugs dispensed to public health centres declined by 67%.Trade liberalization also shuns the growth of the economy as some local companies could not compete with imported goods that flooded the market. In terms of education, there was a high number of school dropouts recorded in the 1990s.

The introduction of ESAP brought a new era in terms of food insecurity in Zimbabwe. The farmers themselves could not produce enough food for the country since they had lost government subsidies which means they had to buy agricultural inputs at a higher cost than before. This was worsened by 1992 drought which saw the

economy contracting by 7.5% and many of the agriculture-based sectors affected (Bijlmakers et al, 1996). Some companies could not compete with foreign produced products as a result of trade liberalization. Mhone (1995) indicated that two years after the implementation of ESAP, the living standards of most people in Zimbabwe declined. He further noted that credit crunch and currency depreciation did not affect industries only but also affected the living standards of the low-income population because the final price of goods and services went up. Between 1989 and 1992 the food price rose by 92%, clothing by 52%, amenities by 50%, medical care by 44%, transportation by 94% and education by 92% (Mhone, 1995).

The situation was exacerbated by the introduction of the Fast track land Reform Programme (FTLRP) in the early 2000s. There are different motives for land redistribution programmes around the world. According to Deininger et al (2009) the major economic underlying principle behind land reallocation lies in the assumption that there is a relationship between the size of the farm and production. Farmers with small farms are said to be more productivity as compared to those who have large farms since small farms are easy to manage. Issues of fairness are also said to have a certain level of influence in land redistribution programmes around the world particularly in Africa in which the majority of the people rely on farming for a living. The history of colonization and land appropriation during the colonization era also motive the move for land reallocation as a way of addressing land ownership imbalances created by colonization (Zikhali, 2008b). Political concern and equity can be justified as reasons for the fast track land reform programme in Zimbabwe as the bulk of the arable land in areas that receive high rainfall was in the hands of a white minority.

According to Zikhali (2008a) when Zimbabwe attained her independence from the British colonial rule it inherited a dual agricultural sector with commercial intensive sector alongside traditional or communal farming system There was a modernized large-scale commercial farming which co-existed along a non-mechanized traditional small-scale sector. This necessitated the fast track land reform programme for Zimbabwe. The large-scale commercial farms are located in areas with good fertile soils, good road network and areas that receive better annual rainfall. These areas are mostly natural regions 1, 2 and 3. On the other hand, the non-mechanized traditional small-scale farmers are located in rural areas with poor road network; poor infertile soils receive poor annual rainfall and have a high population per square meter as compared to large-scale commercial farms. These areas are located in natural regions 4 and 5. It is important here to note that, Zimbabwe has five natural regions and are named based mostly on rainfall received in that particular area. With region one, receiving more rainfall out of the five regions. The idea for land reform programme was to move people from rural over populated areas to large-scale commercial farms.

Nevertheless, this was disaster creation as the country ended up in food predicament. The introduction of the programme plummeted agriculture production of the country. According to Richardson (2005) by 2003 the economy had dropped by 30% and the economy had contracted by 15%. The shrunk of agricultural output meant disaster to other sectors given that agriculture is the backbone of the Zimbabwean economy.

Prior to FTLRP more than 70% of people employed in the agriculture sector and the sector accounted around 14% of the GDP and between 20% and 33% of export

earnings (Ruswa, 2004). The programme reduced the value of land as ownership was shifted from private owners to the government. The government would go on to lease that land to some small inexperienced farmers who had no title deeds. It is estimated that commercial land lost its aggregate value by 75% between 2000 and 2001 as a result of property titled deeds lost (Richardson, 2005).

The resettled farmers had no needed experience for commercial farming; as a result, they could not produce for the country given the dire need for food in the country by that time mostly in the urban areas. A study by Nhundu and Mushunje (2010) on irrigation development after FTLRP revealed that there was a steep decline in the area developed for irrigation from 200 000ha to about 120 000ha. This was mainly due to the shortage of skill by new farmers on how to maintain and develop the irrigation system. There were no mechanisms or training service to farmers either from the government or donor agents for irrigation development. Many people suffered due to the collapse of commercial farming. The yearly production of maize which is the staple food of Zimbabwe diminished from a high of about 2 300 000 metric tonnes in 1999 to about 500 000 metric tonnes in 2002 (USAID, 2013). This points the shortage of food and high prices giving challenge mostly for the urban people who rely on buying food.

According to Government of Zimbabwe (2005), the situation in Zimbabwe in the early 2000s in terms of poverty and malnutrition was terrible and there was little food filtering into urban areas from rural areas. This placed urban population in a vulnerable position given the rate at which the macro-economy was falling at. The country was in need of food import and food aid; however, there was no foreign currency to help the situation. More so, Zimbabwe was being condemned for violent

FTLRP mostly by the Western countries which regarded the programme as brutal and undemocratic. This worsened the situation in both urban and rural areas as people suffered from food insecurity. Over the years the macro-economy continued to sink and most people lost their jobs. According to Potts (2006) job losses and intense macro-economy calamity shattered the livelihoods of many urban dwellers and produced conditions of severe poverty in cities and towns.

According to Kanyenze (2006), the contribution of the manufacturing sector to GDP of Zimbabwe declined from a high of 27% in 1992 to 19, 2% by 1995 to 7, 2% by 2002. Manufacturing index also declined from 100 in 1990 to 59, 3 in 1995. From 1997 to 2008 the overall manufacturing industry's contribution declined by 90% (Saungweme et al, 2014). Bertelsmann Stiftung's Transformation Index (BTI) (2016) pointed out that, industrial capacity utilization was almost 60% in 2011, but it has fallen to 40% in 2013 and 36% in 2014.

In 2012 GDP was 10, 6%, however, it declined by 4, 5% in 2013 and by 3, 1% in 2014 (BTI, 2016). The decline in manufacturing industry can be linked to lack of capital to replace deteriorating equipment, undependable energy and water supply, political and economic instability. This together with indigenization policy has discouraged foreign direct investment. According to Kutiwa et al (2010) by the dawn of new millennium Zimbabwe the former breadbasket of Africa had turned out to be a net food importer and this caused serious consequences on household food security and the economy as a whole. This necessitates other alternative avenues to sustain household food security of which urban agriculture can be a viable way.

According to Government of Zimbabwe (2016) about 2.8 million (30%) of Zimbabweans are food insecure and 72% of the population are living in chronicle

poverty. This has been heightened by socioeconomic challenges emanating from continuous droughts, and poor management of macro-economy. This has also caused rapid urbanization, especially due to rural-urban migration in the past two decades. Droughts have been the major pushing factor for rural-urban migration. People are moving to urban areas hoping for employment.

However, due to industrial closure and mass retrenchment, there has been high unemployment and dwindling incomes triggering high food insecurity levels in the urban areas and it has been worsened by the high urban influx. A ZimStat survey of 2011 indicated that 84% of workers are contracted by micro, small and medium enterprises. However, some can go for several months without receiving their wages and when they get them they only get it in pieces (Bertelsmann Stiftung's Transformation Index (BTI), 2016). It is against this background of high food insecurity levels in urban areas that this thesis has been undertaken to see if urban agriculture can be an alternative way to mitigate food insecurity and advance the livelihoods of urban residents.

Urban agriculture is not a new phenomenon in Zimbabwe. In 1990 only 8% of the urban land was cultivated and by 2001 the figure had grown to 16% (Assan 2014). This extraordinary growth might be linked to socioeconomic hardships such as food insecurity, poverty, and the decrease in income being faced by the country. So people are engaging in urban agriculture so as to bridge the gap between their needs and economic reality. Mbiba (1995) propounded that, the rise of urban farming depends on several factors such as nature urban and national economy, urban policies, and land title deeds, availability of open space, poverty levels, food insecurity and climatic change. Urban agriculture in Zimbabwe can be linked to

crumple of the national economy that has caused food insecurity and high poverty levels.

In Zimbabwe urban agriculture has not been implicitly recognized and has not been attention in terms of coming up with statutory and legal frameworks that sort to develop it. Instead, it has been considered a temporal activity that cannot be integrated into development policies of a country in general and of cities and towns in particular (Tevera and Chikanda, 2009). Hayson (2007) noted that, although urban farming looks like simple, it falls to many challenges and success of it depends on the extent to which it has been incorporated into urban development policies and expansion strategies in urban neighbourhoods. He further pointed out that development, expansion, and success of urban agriculture as a survival and development strategy depends on key decision makers such as policymakers and urban planners views it. According to Marongwe (2003), Zimbabwe has no constitutional sections that recognize urban agriculture as an activity that can help urban residents to improve their well-being. Hence, city planning systems do not cater for urban agriculture. Therefore, urban agriculture is regarded as illegal since it is not backed by any statutory instrument.

However, in 2002 The Nyanga Declaration on Urban Agriculture in Zimbabwe and the Harare Declaration by Ministries of Local Government in Eastern and Southern Africa accepted that urban agriculture can contribute positively to urban food security, poverty alleviation, local economic growth and sustainable urban agriculture (Hungwe, 2006). However, despite the provision of the 2002 declaration and the acknowledgment of the importance of urban agriculture, the recognition of its existing or prospective benefits, there are no policies and laws that encourage and monitor

urban agriculture in Zimbabwe. However, some city councils have managed to make some bylaws and supporting programs for urban agriculture. For example, Bulawayo has some garden projects aiming at helping the poor households'.

1.1. Problem Statement

Food is one of human basic needs and it is crucial for human survival, growth and good health. Therefore, it should always be available in good quantity and quality. Eicher and Staatz (1985) emphasized the availability and accessibility of food to a person as a fundamental human right. And this right can be enjoyed when one is food secure. To ensure food security different government and other stakeholders have initiated and supported a variety of programmes.

Urban agriculture has become an increasingly popular practice in both developed and developing countries. It has been generally perceived as a solution to a surfeit of urban livelihood challenges in developing countries. With the increase in urbanization and socio-economic meltdown in Zimbabwe following the introduction of fast-track land reform programme urban residents have now embraced different strategies such as street vending to challenge food insecurity.

Chaminuka and Makaye (2015) noted that, due to high levels of poverty and serious hunger urban residents have embarked on urban agriculture as one of the safety valves since opportunities in the formal sectors are all but non-existent. The manufacturing sector has shut down therefore urban agriculture is seen as an alternative solution to food security. Nevertheless, there are no legal laws and policies that encourage urban agriculture in Zimbabwe and this can be a great

challenge for urban farmers to receive full benefits of urban agriculture as it is regarded as an illegal activity.

Furthermore, urban agriculture is also practiced on open spaces, which are public or private land. Consequently, farmers have the limited security of tenure since private or public institutions can take the land for other uses at any time. This also causes a lot of conflicts over land because another farmer can occupy the land which was occupied by another farmer the previous year. According to Chaminuka and Makaye (2015) illegality of urban agriculture has caused disputes mainly due to the way people access the land. People have embraced different strategies to get a piece of land to a farm which includes self-allocation, invasion, and inheritance The failure to recognize urban agriculture by the city rulers and planners has caused and intensified urban land conflicts.

In order to promote urban agriculture, there should be some clear policies on urban agriculture. These policies could act as incentives for urban farmers. Policies could be in form of land tenure. Land tenure can work as an incentive to the farmers and therefore they can even make some costly improvements to their land and this also has a potential of giving high-outs. For example, a farmer who has title deeds can sacrifice to have irrigation on his plot and this can improve output per year. Urban agriculture policies can also make it a sustainable livelihood and should be seen as a way to counter the challenge of food insecurity in Zimbabwe'

1.2. **Research Questions.**

a. Can urban agriculture be a viable way for food security?

b. What are the challenges faced by urban farmers?

c. What can be done to strengthen urban agriculture?

1.3. Objectives of the Study

a. To establish how urban agriculture can boost food security in Zimbabwe.

b. To determine if urban agriculture is an alternative way to substitute income from formal jobs.

c. Recommend or propose policies that can make urban agriculture a sustainable livelihood.

1.4. Significance of the Study

Urbanization in Africa has brought a lot in urban areas in recent years. Urban agriculture has been one of the effects that have been brought by urbanization. The practice has grown due to the collapse of the macro-economy. Jongwe (2014) carried out a research in a bid to find out the interaction that exists between urban agriculture and urban household food security in Gweru city, Zimbabwe and found that urban agriculture practicing households were food-secure than non-practicing households.

The same study also established households that were active in urban agriculture were socially stable as compared to those that were not active. (Taru and Basure 2010) analysed conflicts that exist in urban agriculture among urban farmers in which they revealed that urban farmers had disputes over land since there are no title deeds for the farmers over land. However, there is no literature on urban agriculture

as an alternative way for livelihoods that can be used for food security in the midst of the economic meltdown in Zimbabwe.

More so, the study seeks to assess quantitatively the role of urban agriculture in ensuring food security in urban agriculture practicing households in Kuwadzana and Crow-borough. The available literature does not highlight how the absence of clear urban agriculture institutionalized framework affects the viability of the activity. The study will shed light on the concrete benefits derived from urban agriculture and it will contribute to the body of literature on urban agriculture. This study seeks to fill the gap between urban agriculture as a hobby and urban agriculture as a livelihood strategy. This paper shall also strive to demonstrate the sustainability of urban agriculture. The study will help policymakers and city fathers to formulate and implement policies that will make urban agriculture a sustainable practice.

1.5. Research Methodology

Research methodology entails the process of choosing the method or methods that will be used for data collection during the research. There are several research methods that are used in the social science field, namely quantitative, qualitative methods, mixed approach (triangulation) and historical approach. Qualitative research is the research methodology which uses words for data collection and analysis (Clarke and Braun, 2013). Contrarily, quantitative research collect data using numbers and uses arithmetical procedures to analyse it. Quantitative research deals with logic, numbers, and objective based on convergent reasoning rather than divergent reasoning. It refers to methods that give an explanation for a social phenomenon by gathering facts that are reduced into numbers. A mixed methods approach whereby the researcher amalgamates qualitative and quantitative research

methods. The historical approach entails the analysis of political, social and economic changes over a number of years.

1.6. Research Design

Thomas (2000) defines research design as actions that will be followed in the process of gathering information and also how this data will be analysed. A plan for collecting, measuring and analysing data is a research design (Gray, 2012). It involves collecting data, measuring and analysing it. There are two most used research designs in social sciences namely; case study and survey.

Case studies are generally used when one is carrying out a qualitative research while survey method is used when the quantitative method is used. This study will use the survey method to gather information. The survey collects data in a planned and procedural way on different characteristics that a researcher wants to investigate from a sample. Thomas (2000) noted that, survey research entails choosing a particular class or group of people with certain characteristics and collect data from them, then reduce that data into useful information so as to gain a deep understanding of that group.

A population is a group of people with the characteristics that are needed in the study, whereas sample is a fraction of the people taken from the population. Shepard (2010) defined population as all people with the characteristics of the study. He then went on to explain that; a sample is a small number of cases drawn from large populations.

The targeted population of this study is residents of Kuwadzana and Crow-borough residential areas. The sample will include men and women of 18 years and above. A

sample of sixty (60) respondents will be used. Sixty (60) questionnaires will be administered in this study. Respondents will be purposefully selected for this study and it will be those involved in urban agriculture. Hence purpose sampling method will be used. Nutley et al (2009) expounded that, purposive by its nature targets information-rich respondents, interventions or activities that are earmarked for any study.

Furthermore, Patton (1990) states that the strength of judgmental selection lies in its capacity in selecting respondents who are information-laden for the topic under study. In this study, information-laden respondents are those involved in urban agriculture and those that make policies that govern the use of urban land. The residential areas where the respondents are going to be drawn are high residential areas that have vast land of open spaces where they practice their agricultural activities.

For, Woolgar and Suchman (1989), data can be gathered using direct observation, interviews, questionnaires, tests or other forms of measurement. In this study, data will be gathered by issuing out closed-ended questionnaires. A total of sixty (60) questionnaires will be administered. These questionnaires will be answered to thirty women (30) and thirty (30) men. As discussed in population and sampling respondents will be purposively sampled and respondents will be chosen from urban agriculture practicing households. A sample of thirty women and thirty men will be chosen because the researcher wants to have balanced views from an equal number of women and men.

According to Shepard (2010), a questionnaire is a written set of questions that survey participants answer by themselves. There are two types of questionnaires

namely; open-ended and closed-ended questionnaire. A closed-ended questionnaire is questionnaires that consist those questions which are narrow and have a determined number of responses are possible. On the other hand, open-ended questions give respondents chance ask to express themselves when answering questions by using their own words, (Shepard, 2010).

Nevertheless, answers obtained through the use of open-ended questions are difficult to compute and the researcher may unconsciously fail to give the proper meaning when trying to rearticulate the answers. Therefore this study will employ closed-ended questionnaires as a way of gathering data. According to Shepard (2010) closed-ended are very specific and since information can be quantified it is easy to compare. They also permit the use of arithmetical procedures which made them easy for quantification.

However, there are also disadvantages for using open-ended questions for example; open-ended questions are fixed and researchers cannot constantly incorporate significant unexpected information (Shepard, 2010). To counter this challenge the researcher will try to construct questions that cover all important information about urban agriculture and poverty alleviation. There is also another challenge for using the questionnaire in general which gives low response rate especially mailed questionnaire (Shepard, 2010).

For Babbie (2011) data analysis as a process that entails the breaking down data into information that can show the real picture of the situation under study. The Statistical Package for Social Sciences (SPSS) is the statistical analysis software which will be used for data analysis process. This package will be used because it is

simple, easy to work with and was specifically designed for social science researchers especially those that use quantitative methods.

SPSS is preferred in this study because it helps to generate descriptive statistics. This means information that can be arranged, summarized and presented in a simple and direct ways (Shepard, 2010). These descriptive statistics such as frequencies, percentages, and graphs can also show various trends that exist in the data obtained. Information collected through the use of semi-structured interviews will be used to augment information collected through the use of closed-ended questionnaires. Detailed research methodology shall be discussed in chapter three of the study.

1.7. Delimitation and Limitations of the Study

Delimitations are challenges which the researcher will encounter throughout the course of the research. It is a section that shows circumstances and situations that might restrict research methodology and data analysis. The number of respondents in this study will be below the average of the whole population in Kuwadzana, Harare and the information from these participants may fail to show the role of urban agriculture towards food security in the whole of Zimbabwe. In short, there might be a challenge of representation of the whole population and this will make it difficult for the researcher to generalize the results across the whole population. On the same note, the study will be carried out in one location and the results will not be generalized through the whole of Zimbabwe. Cities and towns of Zimbabwe are located in different regions with different soils, rainfall, and temperatures so the output from urban agriculture can be different. Thus, generalizations should be treated with caution. Time and financial constraints also limit the outcome of the

study. However, efforts will be made to get information from different residents and other officials that can give valid information and try to reduce the limitations and delimitations of the study.

1.8. Ethical Considerations

Ethical consideration involves observing values and principles that should be followed by researchers when conducting social research. Ethical issues also refer to research concerns that guide the correctness of the researcher's actions in relation to the participants of the research or those who are affected by it, (Gray, 2004). In other words, ethics entails being faithful and honest. Welman and Kruger (2005) postulates that, honesty is a crucial aspect of research that involves a level of trust and credibility to promote knowledge generation. He went on to allude that the worst offense against honesty is plagiarism, which involves direct copying or paraphrasing someone's work without acknowledging.

To ensure this, information from the participants of the study will only be used for the purpose of this study. The consent of the research participants will be asked for before the research is carried out and the reason for the study will be revealed to the subjects before they participated. It is of high significance that, the research participants are presented with all information regarding the nature of the research so that they can decide to take part or not. That is the respondents will be asked about their willingness to participate in the research. Values of individuals, communities, and societies must not be violated.

1.9. Conclusion

Food security is essential for human well-being. According to FEWS NET (2014), food security is whereby every person at all times has physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for active and healthy life. It has four main pillars namely; availability, accessibility, utilization, and stability.

Food security has remained one of the developmental challenges in Africa mostly in the urban area. The urbanization in SSA has not been accompanied by necessary conditions that ensure development. Industrial development has been out-paced by urbanization. Instead of industrial development, most of the industries are closing down due to unfavourable industrial development platform mostly influenced by political instability in Zimbabwe. This means most urban dwellers have found themselves under-employed or unemployed. This has had profound implications on the ability of urban low-income households who cannot feed themselves and acquire some necessary services such as medical services and education. Consequently, people have turned to other survival strategies and urban agriculture has been one of the most adopted approaches.

1.10. Research layout

This study has five chapters. The first chapter has introduced the study, outlining problem statement, research objectives, justification and limitations of the study. The second chapter focuses on theoretical framework and conceptualization of urban agriculture. The theoretical perspective that underpins the study is explained and reviewed. Necessary information on urban agriculture and food security in Zimbabwe

from previous studies is reviewed linking it to the current situation. Urban agriculture from a broad perspective is also covered. History and development of urban agriculture in Zimbabwe, particularly Harare shall be discussed. Evolving knowledge about food security will be briefly discussed. History of food security (insecurity) in Zimbabwe shall be discussed mostly after ESAP and FTLRP that saw the collapse of the economy.

Chapter four is focused on research methodology. The chapter gives detailed information on how the data will be collected, from whom and how? It will also outline how the data gathered from the research participants will be analysed. Chapter five outlines the findings of the research. Detailed analysis of the findings is covered under this chapter. The final chapter is dedicated to conclusion and recommendations based on research findings.

CHAPTER 2: THEORETICAL AND EMPIRICAL REVIEW OF LITERATURE

2.1. Introduction

This chapter presents literature review which is related to urban agriculture and food security around the globe and in Zimbabwe. It also covers the conceptual and theoretical frameworks that underpin the study. Main concepts in the study are urban agriculture and food security and they are critically discussed in detail as the chapter unfolds. On the other hand, under the theoretical framework, two theories related to the study will be critically discussed. The chapter also thrive to show the development of urban agriculture from the colonial era to date. The discussion highlights challenges of urban agriculture as a livelihood strategy mainly emanating from lack of a legal framework that guides urban agriculture. Food security is also discussed in this chapter. The discussion will show how Zimbabwe changed from being a food-basket of SSA to a net food importer. This is done mostly through scrutinising essential economic and social policies of the country from independence to date. The discussion goes on to highlight the current food security status of the country. The chapter, therefore, commences with conceptualizing urban agriculture then food security follows.

2.2. Defining Urban Agriculture

Urban growth dynamics and expansion have posed serious questions of food production and processing, transport and consumption. Different strategies to feed the ever-increasing population are needed. Urban agriculture has been one of the most adopted approaches in both developed and developing nations. Urban agriculture has been defined in different ways by different scholars mainly basing on

the nature of diversity that is the type of agriculture undertaken, size of farms, location and the use of outputs.

Mbiba (1995) defined urban agriculture as crop cultivation and livestock production within the administratively and urban zoned areas. This means livestock rearing and crop cultivation activities that are carried out within the boundaries of a city and the activities can vanish with the development of a city or a town or metropolitan. He further asserts that urban agriculture can be classified into three categories namely; on-plot, off-plot, and peri-urban agriculture.

On-plot agriculture is the farming that is being practiced on plots around houses, for example, poultry keeping and vegetable production (Mbiba, 2000). This form of agriculture is mainly practiced throughout the year as it requires a small piece of land and it is easy to manage. Off-plot agriculture is often practiced on the public land on open spaces, utility service areas, and agricultural allotments. For him, the production is mainly for family consumption although the percentage for selling is slightly higher than that of on-plot agriculture. The poor and vulnerable groups who could participate in this sector are progressively pushed out by higher income earners households. Peri-urban agriculture is the third and last category in which the production of crops and livestock in the areas outside the city boundary are economically integrated into the city or town, (Mbiba, 1995).

Kekana (2006) define urban agriculture as an informal activity focusing on crop cultivation and livestock rearing in an urban setting. Here urban agriculture is viewed as an illegal activity that does not have any space in the urban area. Kekana regards agriculture as a rural activity that should be practiced in the rural setting only. However, urban agriculture should not be seen as an illegal activity since it produces

food for the urbanities mostly the poor. It should be seen as integral part of the urban activities and should be given policy attention. Reuther and Dewar (2006) stated that, urban agriculture is an agricultural activity that is being done within the boundaries of an urban area. They went on to clarify that; it encompasses all branches of agricultural activities such as horticulture, aquaculture, livestock production and forestry.

Premat (2005) has a broad understanding of urban agriculture and his definition captures food cropping on buildings. He defined urban agriculture as all farming practices carried out by urban dwellers within the borders or areas close to the city and this could be for family consumption or commercial purposes. He also noted that urban agriculture can be done by groups meaning there is a possibility of having cooperatives in urban agriculture. This definition went on to highlight the importance of certain processes such as cultivation, animal rearing, processing and distribution of these different agricultural products. He further noted that the products might be edible or not and they are largely produced via the utilization of human and material resources, products, and services located in and around the urban area, in turn, contributing considerable material and human resources to that area.

Mougeot (2005) defined urban agriculture as an industry which deals with production, processing, and distribution of different food and non-food stuff within the administrative boundary of a city, metropolis or a town using human and material resources and services and in return giving services and products to urban residents. Mbiba (1995) defined urban agriculture as crop and/or livestock production

within jurisdictional boundaries of a city or a town. He identified poultry keeping and backyard gardening as parts of urban agriculture.

Specht et al (2015) recognised that urban agriculture is a broad concept and it exists in different ways. They noted that the definitions of urban agriculture which are in circulation now have not covered all feasible types of agriculture. They introduced zero acreage farming (ZFarming) and this definition tries to cover all agricultural activities which do not use farmland or open space but utilize buildings meant for other purposes. For them, ZFarming covers the production on rooftops gardens, rooftop greenhouses, edible green walls as well as further innovative forms such as indoor farms or vertical greenhouses. The term ZFarming was coined to explain all urban agriculture in and on buildings and it was an operational tool that could allow them to include all forms of related to buildings while avoiding conflicts with existing definitions. It is a complimentary term to urban agriculture rather than a competing term.

The study used Premat's definition as it captures all aspects of urban agriculture in the area of the study. Premat (2005) highlighted that urban agriculture is all agricultural activities within a city, town or metropolis which are developed individually or collectively by people for self-consumption or commercialization purposes. Urban agriculture in Zimbabwe is mainly practiced for those two reasons. The industrial closure, low incomes, and unemployment have left people with no option than practicing urban agriculture as a survival strategy. Premat (2005) also noted that people are involved in different agricultural activities such as crop cultivation or livestock raising, processing and distribution of a variety of products. People in the area of the study are involved in different agricultural activities. Some are engaging in poultry keeping, some in rabbit farming and some in crop production.

Consequently, the definition has a better explanation of what is happening in the study area.

2.3. Importance of Urban Agriculture

Kekana (2006) asserts that there is no theory of urban agriculture as the available literature is still based on specific country or urban area. If there had been such a theory on urban agriculture, it could have been used to ensconce the appreciation of the activity as a way of alleviating food insecurity or poverty alleviation in general. However, there are some publications on how urban agriculture has helped to alleviate poverty, food insecurity and improve incomes through direct saving on food purchases and giving nutritional diversity.

Mougeot (2005) maintained that urban agriculture has been successful in countries such as Chile, Cuba, Philippines, and Indonesia. In Cuba, the Ministry of Agriculture opened offices in Havana to help urban farmers with credit and technical assistance (Altieri et al. 1999). They went further to assert that, in Havana urban agriculture has improved in both quality and quantity of food produced as a result the income welfare of the households has also improved. In Bulgaria, there is also the formulation of policies to support about 40% of urban dwellers who are benefiting from urban agriculture (Yoveva et al, 1998). This shows how important urban agriculture has become to be as a source of living. Purnomohadi (2000) noted that, urban agriculture has proven to be crucial for urban poor in Mexico as the growing of lettuce, tomatoes, cassava, cabbage and sweet potatoes for both consumption and market have been growing. This has helped in improving household's dietary, food security and also lower food market prices. In China, most urban farmers have also benefited immensely from the use of greenhouses with 90% of households involved

in urban agriculture being food secure (Yi-Zhong and Zhangen, 2014). This was mainly due to the use of highly mechanized systems and strict monitoring process.

Golden (2016) asserts that, urban agriculture can work as an agent of community development. In her study which she carried out in California, she found out that urban agriculture created a social bond between producers, government officials, and consumers. They could meet and share ideas on how urban agriculture could be taken to a new level of development. Therefore, urban agriculture enabled people to have social interaction that initiated community development. As for the farmers' determination, activism and self-motivation were seen as impacts.

In Africa, urban agriculture is dominated by women and this is linked to cultural beliefs (Maxwell et al, 2000). Moyo (2013) maintained that, in Africa, urban agriculture is influenced by rural-urban migration in the 1960s, which caused urban poverty and was exacerbated by the ESAPs that advocated for the minimum interference of the government in the economy of a country. According to Mkwambisi et al (2010) who carried out a research in Malawi on urban agriculture, poverty, and food security; they found that households surveyed produced more than what the government of Malawi recommends as a typical food budget. However, this was not enough as the product could be sold to households to acquire some households' needs. Sawio (1998) asserted that, urban agriculture had a positive impact on the household economy as it helps in creating jobs and improving incomes. Production of vegetables has proved to be crucial for urban farmers as the market is readily available. For example, 90% of leaf vegetables marketed in Dar es Salaam is from urban agriculture and the farmers have managed to get a reasonable income. Bryld (2003) who carried out a research on urban agriculture in Zambia revealed that income from urban farming was difficult to quantify due to ad hoc nature, payment in

kind and the reluctance of farmers to reveal their income. However, he concluded that 50% of urban farmers, were food secure.

Foeken (2013) they did their study in Nairobi, Kenya and they found that urban farming was done primarily to improve household food situation but not in terms of quality only but the dietary composition too. Their study also revealed that urban agriculture was not helping households who were practicing it only but non-practicing households also who could buy vegetables and other prices at lower prices as compared to those at the marketplaces. Here urban agriculture is helping the farmer to generate some income and helping buyers to save some money as they are buying vegetables at lower prices.

The Bulawayo City Council (2008) claim that urban agriculture enhances food production, help in income generation, improve food availability and this also enhances nutrition. Vulnerable groups such as unemployed, youth, widows and those living with HIV/AIDS can feel self-reliance and self-productive through practicing urban agriculture.

A study by ZimVac (2009) on urban food security established that urban agriculture remains one of the livelihoods strategies employed by urbanites to access food alongside petty trading, cross-border and self-employment. According to this study vegetables and maize were most crops grown. Mashonaland had the highest proportion of households with 82% engaging in urban farming and Matabeleland South had least at 30%. The study also found out that most of the households would go up to eight months using maize from their own production.

A study by Lewis (2013) in Johannesburg, South Africa indicated that people engage in urban agriculture so that they can have dietary diversity. Some of his respondents

sold their products to big supermarkets such as SPAR and some sold through informal markets to hawkers. Reuther and Dewar (2006) acknowledged that urban agriculture is mostly undertaken for survival purposes as poor households practice it in backyards to augment their incomes. They went further to assert that urban farming is not a luxurious activity but a necessity that emanates from the need for solutions to a wide range of problems. Some of the challenges include unemployment, food insecurity, and poverty and income shortage.

Therefore, urban agriculture should be given legitimate status in Zimbabwe so that people can utilize open spaces available in the city for urban agriculture. Policies should be made so that people of all social status can access land with equity. Men, women and all vulnerable groups should be given chance to have land and practices urban agriculture. Innovative policy intervention by the national and local government is needed to benefit those in need through urban agriculture in terms of food security and job creation.

2.4. Theoretical Overview

This part of the study gives the theoretical framework which underpins the study. Two theories namely; sustainable development and basic needs approach by will be critically discussed. The sustainable development mainly focuses on the interconnectedness of the social life, economic activities, and environment. It advocates for the balance of policies between these three pillars of development. On the other hand, basic needs approach is based on meeting the minimum needs of a human being without which a person cannot survive. However, the study is going to use basic needs approach.

2.5. Sustainable Development (SD)

The concept of sustainable development was first raised at the United Nations Conference on the Human Environment, which was held in Stockholm in 1972. The 1972 conference recognized that human-driven development has potential to cause unprecedented harm to the environment. Prior to this, the issues of the environment were almost been exclusive reserve of the environmentalists, ecologists, and conservationists who were idealistic in their view of nature conservation and environmental protection. They were concerned with issues such as air pollution and whaling. Preservation of the wilderness and conservation of the natural environment were at the core of their policies. They never attempted to act on the interconnectedness of the social, economic and environmental issues.

Sustainable development was taken to another level by the World Commission on Environment and Development (WCED) in 1987 in a report titled, "Our Common Future". The commission was asked by the United Nations General Council to form the global agenda for change. The commission's mandate gave it three objectives, firstly to re-examine the critical environmental and development issues and formulate realistic proposals for dealing with them. Secondly, to propose forms of international cooperation on the issues that will influence policies and events in the direction of needed changes. The last objective was to raise the levels of understanding and commitment to actions of individuals, voluntary organizations, businesses, institutes, and governments.

The commission realized that the development trends of that time left many poor people vulnerable to the effects of economic activities, while at the same time degrading the environment. Therefore, it recognized that it is impossible to separate

economic and social development from environmental issues. Many of development activities erode the environmental resources upon which they are based. And this environmental degradation undermines economic development at one point or another.

Hence, it is problematic to try to deal with environmental problems without a broader perspective that encompasses the factors underlying world poverty and international inequality. Thus, there was a need for sustainable development. The commission wanted to come up with a theory that could amend the weaknesses of the previous development theories that had treated economic, social and environmental development as different entities.

According to United Nations (1987), sustainable development is the development that meets the needs of the present generation without compromising the ability of the future generations to meet their own needs. It went on to emphasize that, sustainable development requires meeting the basic needs of all and extending to all the opportunity to fulfil their aspirations for a better life.

The commission envisaged a new era of economic growth which is based on policies that sustain and expand the environmental resource base. For them, this economic growth is absolutely essential to relieve the great poverty that is deepening in the much of the developing countries. However, for this future to be a reality there is a need for decisive political action on managing environmental resources to ensure both sustainable human progress and human survival (United Nations, 1987).

The sustainable development framework has three pillars namely; economic, social and environment. The economic pillar entails that; an economically sustainable

system must be able to produce goods and services on a continuing basis to maintain manageable levels of government and external debt and to avoid extreme sectorial imbalances which damage agricultural or industrial production. An environmentally sustainable system must maintain stable resource base avoiding over-exploitation of renewable resources systems or environmental sink functions and depleting non-renewable resources only to the extent that investment is made inadequate substitutes. This includes maintenance of the biodiversity, atmospheric stability, and other ecosystem functions not ordinarily classed as economic resources. Then socially sustainable system must achieve distributional equity, adequate provision of social services including health and education, gender equity and political accountability and participation.

The dynamic interplay among the three sectors renders development unattainable if they are treated separately. The commission noted that the world was a large world in which human activities and their effects were neatly separated within nations, within sectors and within broad areas of concern that is the environment, social and economics but the division does no longer exist. On the same note, environmental crisis, economic crisis, social crisis and developmental crisis cannot be separated (United Nations, 1987).

Furthermore, the commission highlighted that economic activities have multiplied over the past decades and this could grow to an even high degree. These economic activities have had profound effects on the environment as people have concentrated on investing in houses, transport, farms, and industries. These economic activities rely on raw materials from the soil, seas, forests, and waterways. Economic growth has been promoted by the use of new technology which seems to minimize consumption of resources but it put the world on pollution risk. Pollution

has been growing rapidly in the developing world where there is both more urgency for growth and less capacity to minimize damaging side effects (United Nations, 1987). Thus, the ecology and economic growth are increasingly becoming more intertwined. The fear will now shift from the effects of the impact of the economic growth to the ecology to the effects of the ecological stress to the economic prospects.

Furthermore, the commission also noted that life-threatening environmental concerns have surfaced in the developing world. The communal areas are coming under pressure from the rapidly growing number of farmers and the landless. And the urban areas are filling with people, cars, and factories. There is also increasing the gap between the developed and developing countries, whereby the developed countries are always dominating developing countries. Thus, inequality is the world's greatest environmental challenge and development challenge as well (United Nations, 1987).

More so, most developing countries have decreasing per capita income. Rising poverty and unemployment have increased pressure on the environmental resources as many people have been forced to rely more directly on them. Many governments have cut back efforts to protect the environment and to bring ecological considerations into developing planning (United Nations, 1987). Hence, meeting important needs requires not only a new era of economic growth for the nations in which the majority are poor. But an assurance that those poor get their fair share of the resources required to sustain that growth.

According to United Nations (1987) sustainable development is not a fixed state of harmony, but rather a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development and institutional change are made consistent with future as well as present needs. Sustainable development represents the balanced integration of social and environmental objectives with economic development. Further, growing population can cause the pressure on resources and slow any rise in living standards. Thus sustainable development can only be pursued if population size and growth are in harmony with the changing productive potential of the ecosystem (United Nations, 1987).

Nonetheless, the sustainable development like another approach received its share of criticism. The most prominent criticism is that of the neo-Marxist which is concerned with the inequalities that exist around the globe mostly among the continents of the world. The advocates of this approach suggest that sustainable development is not attainable within the current world system. Their concerns were on the political and economic processes which link people and places. These processes tend to serve to keep some places undeveloped whilst simultaneously enabling others to keep exploiting these regions in the course of their own development.

According to this view, the recommendations made by the world commission on economic development report are desirable but not attainable without the restructuring of the global economy, (Elliott, 2006). The inequalities are not only among continents of the world but also between countries, within countries and between the rich and the poor. Consequently each region, country, and person

pursues their own interest which renders sustainable development unattainable with such differences.

More so, although sustainable development seeks to reform the comparatively destructive modernization discourse, its changes are not deep or enduring enough to label a fundamental revolutionary change to development policy. The approach seems to overemphasize the importance of sustainable growth over other components of development and this shows that it neglects to reconcile development's contradictions inherent and downfalls. Therefore the framework fails to take into account the way that the north contributes to the inferiority and subordination of the poor south. The emphasis on production seems to separate economics from social and environmental well-being.

According to Escobar (1995) the sustainable development approach unsuccessfully attempts to network two contradictory endeavours namely environmental protection and economic expansion. For him adopting the concept of sustainable development means two old enemies, growth and the environment are reconciled. It is growth and not environment that needs to be sustained. Therefore, the approach purports that only minor adjustments to the market system need to launch a new era of environmentally sound development, hiding the fact that the economic framework itself cannot hope to accommodate environmental considerations (Escobar, 1995). The absence of an empathetic relationship with the natural environment in the definitions is in direct conflict with arguments in a contemporary debate that emphasize the importance of holistic and experimental education.

Given the economic meltdown in Zimbabwe which has caused high levels of food insecurity, decrease in income levels, unemployment and poverty; people in urban

areas have embraced urban agriculture as one of the survival plan to meet their daily needs. However, there are no policies to guide urban agriculture, which raise some fear for the destruction of the environment by urban farmers, which may cause long-term effects, thereby negatively affect the future generations that is the environment may fail to support some activities in the coming years. For example, the use of the chemical can have effects on urban farmers and the environment thereby hindering development. As a result, urban policymakers should use sustainable development framework in policy making so that urban agriculture can be practiced safely. The policies will enable people to meet their social and economic needs and protecting ecological integrity at the same time.

2.6. Basic Needs Approach

The basic needs approach dominated development discourse in the 1970s after the failure of modernization theory which was advocating for industrialization and hoping that as the economy grows, human development will automatically take place through a trickle-down process. The approach was developed by the International Labour Organisation in 1976 campaigning for human capital development to increase productivity and growth in output. It was trying to give special attention to the specific needs of the poor in developing countries (Streeten, 2011). It was seen as a more direct attack on poverty through the direct provision of certain essential services. The idea was to move away from modernization theory that was growth orientation and had failed to trim down poverty. It was underpinned by the idea that growth and equity issues must be pursued simultaneously if economic development and an even allocation of developmental benefits for both rich and poor are to be achieved (Emmerij, 2010).

The Basic Needs Approach was focusing on putting the poor at the center of all development initiatives. It was a bottom-up blueprint model whereby the poor have to point their needs and the government and other development agents come up with projects on how to achieve the needs of the poor. Basic needs approach was built on the idea that, poverty emanates from a series of causes, therefore, there is a need for interaction of a number of inter-related activities which can work together from different directions for a common goal or goals (Emmerij, 2010).

The main objective of basic needs approach was to make sure that, every person at least has a chance to live a better life (Streeten, 2011). In order to achieve this, the approach identified certain human minimum basic needs without which a person has little or no chance of survival. These basic needs include minimum consumption of food, shelter, clothing, access to safe and clean water, sanitation, health, public transport and participation of poor people in decision making were of paramount importance according to the proponents of the approach (Lewis, 1981).

It is also crucial to note that employment, education, and income among the poor are crucial tangible basic needs identified by basic needs approach. Hence the basic needs strategy is aimed at the lowest absolute income group in a given country, those people having inadequate purchasing power to satisfy their basic needs (Streeten, 2011). Although this approach was developed focusing on rural areas as it was neglected by the modernization approach. It is also useful to urban development especially to countries like Zimbabwe now characterized by food insecurity, high levels of poverty, income decrease among another development challenges. This approach is more people-centred as it gives much attention to the special needs of every human being.

Nevertheless, basic needs approach like other approaches also faced its share of some criticisms. It is mostly criticised for its focusing on providing the poor with their basic needs. Increases in consumption level of the poor at the cost of increasing investment and savings in the economy can be detrimental to the socio-economy growth of future generations as people are not saving. The approach failed to recognize the existence of structural factors that perpetuate the gap between the rich and the poor. It failed to give information on how to deal with those structures for the poor to access basic needs.

More so, it can be urged that the poor would be better off with meeting basic needs through higher incomes realized through higher investment rates. In basic needs approach, people have no role to play. They are only beneficiaries of the outcomes without them playing any role in the economy. People should be physically involved in the economy as workers or business owners as there could be high returns that can help them enhance their living standards. They should be one of the factors of production so that they can have better living standards beyond having basic needs only.

Furthermore, it is difficulty in defining basic needs and whether such returns are higher than those from more conventional investment in human capital or investment in more traditional forms of physical capital. Basic needs are different from one person to another, one community to another and from one country to another.

Nonetheless, the Maslow hierarchy of needs gave an explicit explanation of basic needs (Jerome, 2013). The needs are arranged in five levels and according to their importance. The biological and physiological needs that constitute clean air, food, shelter and safe water are placed at the bottom of the hierarchy of needs. These are

considered as primary needs. The second level of needs is safety needs which constitute protection, security, law, and stability. The third level is belongingness and love and this constitutes affection, relationships in different environments for example in a family, workplace, and school. The fourth level of needs is esteem needs and it comprises of achievement, status, responsibility, and reputation. The final level of needs is self-actualization which comprises of personal growth and fulfilment.

Therefore, BNA remains a relevant approach to development especially when the government is failing to create an enabling environment for economic and human development. The main aim of BNA is to ensure that at least every human being has his/ her basic needs. It covers the welfare of citizens especially the poor. It is about protecting people against destitution and poverty.

Given the situation in Zimbabwe, it is crucial for the government to support different livelihoods strategies such as urban agriculture to ensure that at least poor urban dwellers have their basic needs. Urban agriculture can improve households' food availability, access, stability and utilization through being involved in the production or accessing it from those who practice urban farming. Urban agriculture can also help urban agriculture by improving nutrients and can also create employment (piece jobs) as well. Some people can practice urban farming for raising incomes, especially those involved in poultry keeping and that income can help them pay their bills, for example, water and electricity bills and buy food. As a result, urban agriculture can improve food security from different angles depending on households' economic and social status.

2.7. Towards a Theory of Sustainable Food Security

Food insecurity in Zimbabwe has been a challenge for a long time and this need to be addressed. Efforts have been made to solve this problem but the effects are still transparent. However, an entitlement system for urban poor households can improve their food security status. This system coupled with some policies of population control could enhance sustainable food security in Zimbabwe. Entitlements have been defined by Sen (1984) as a set of alternative commodity bundles that a person can command in a society using the totality of rights and opportunities that he or she faces. Sen characterizes food insecurity as a result of lack of access to entitlements. Entitlements indicate an individual's power within the social, economic and political system, and their respective access to resources.

A person's entitlement set is the full range of goods and services that he or she can acquire by converting his or her endowments that is assets and resources, including labour power through exchange entitlement mappings. In the context food security, the entitlement approach aims scrupulously to describe all legal sources of food, which can be reduced to four categories namely; production-based entitlement (growing food), trade-based entitlement (buying food), own-labour entitlement (working for food) and inheritance and transfer entitlement (being given food by others). Looking at the entitlement system and the case of many urban areas in Zimbabwe which have many open spaces and fertile soils for farming. There is need for improving the accessibility of these open spaces by urban dwellers for them to practice their farming activities. One can say urban residence are endowed with open land and if this land is utilised this can ultimately change their food security.

2.8. Empirical Overview of Urban Agriculture and Food Security in Zimbabwe

This section highlights the general situation on urban agriculture and food security in Zimbabwe. It shows the development of urban agriculture and the views of the government concerning urban agriculture. Food security as a crucial aspect of the study is scrutinised from the period prior independence and post independence as well.

2.8.1 Urban Agriculture in Zimbabwe

The study of urban agriculture is deeply rooted in the political economy of a country, hence the need for giving historical background. Urban agriculture in Zimbabwe is not a new phenomenon. It can be traced back to the formation of old cities. Chaminuka and Makaye (2015) noted that, urban agriculture in Zimbabwe dates back to the formation of colonial cities. They urged that it was done for multiple reasons which include subsistence, economic develop and hobby. According to Taru and Basure (2010), Harare was established by the British settlers for administrative purpose and a focal point for industry and commerce.

Taru and Basure (2010) opines that, when colonist arrived in Salisbury now Harare, the area steadily grew into a city and as the city was growing all farming activities in the area slowly but surely vanished as they pave way for industrial developments and around 1950 the signs of a big city were there. The settlers' regime viewed urban areas as a temporary place for work and was supposed to cater for industrial and residential purposes only. During the colonial era, urban houses were only given to those who were employed in the town. A series of laws were passed in a bid to restrict movement of people into towns. As a result, there was minimal practice of urban agriculture since only workers were allowed to live in towns and were allowed

to grow very little vegetables at the back of their houses for consumption only (Jongwe, 2014)

Kutiwa et al (2010), notes that crop cultivation remained as a historical activity that has no space in the urban settings and only vegetable production for consumption was allowed. The government did not have a problem with such agriculture. However, a few by-laws were passed in a move that was meant to protect the environment. The Municipal Act Chapter 125 forbids crop cultivation on municipal land prior to municipals' approval and all plants grown without the authorization of the municipality would be destructed Kutiwa et al (2010). The government saw urban agriculture as an environmental threat that could disturb the ecosystem and cause global warm. Therefore, extensive crop production was not allowed.

By the dawn of independence in 1980, there was influx urbanization mostly by people moving from rural areas to urban areas that is rural-urban migration. The laws which were used to restrict people from entering urban areas were abandoned by the new government. People moved to towns hoping to be employed, unfortunately, the formal sector could not absorb all of them. Todaro and Smith (2012) asserted that, urbanization in Africa is not associated with industrialization as it was with the developed countries. Urbanization in Zimbabwe was and still is not accompanied by industrial development as a result people could not be absorbed into the industries.

Historically urban areas were usually associated with advantages of cluster economies and economies of scale and proximity as well as numerous economic and social services such as cheap transport, cheap food, and skilled workers. However, the social costs during the ESAP era washed away this assumption in

Zimbabwe. This contradicts with the assumption that urbanisation is closely associated with economic growth (Todaro and Smith, 2012). People suffered from a lot of challenges as the standards of living for the working class and unemployed declined.

Hence, people had to look for other alternative ways such as sand mining, vending and urban agriculture to earn a living from these activities. According to Richard, H. Adams (1996), urban agriculture was prevalent in 1985 and this pushed the then Minister of Local Government and Town Planning to allow the formation of urban agricultural co-operatives. Co-operatives were established and they were supposed to work closely with the local government. The local government was supposed to help urban farmers practice land conversation through extension services. Nonetheless, these co-operatives failed and since then there are no policies concerned with controlling urban agriculture.

The introduction of Economic Structural Adjustment Programmes (ESAP) in the 1990s had some implications on the general populace. This also saw the relaxation of urban agriculture governing by-laws. ESAP had adverse effects on the economy in general as most companies downsized and closed down due to ESAP policies. Workers were retrenched and they turned to urban agriculture as a safety valve. For those who remain employed, their wages were very low. Todaro and Smith (2012) opine that, urban population in developing countries has increased massively in the twentieth century at an unprecedented rate. However, the levels of per capita income are low as compared to that of now developed countries at the same stage.

According to Todaro and Smith (2012), purported that urbanization in Africa is extraordinary to such an extent that the economic, environmental and social services

will not be able to cope with the situation. Low wages meant urbanites could no longer be able to acquire all their basic needs and had to turn to other alternatives among which urban agriculture is a potential.

It is also imperative to mention the 1992 drought when one is discussing economic and social issues of Zimbabwe. The drought had massive effects from the household level to national level as many households could not feed themselves. Farmers failed to produce enough for the market and there was a severe food shortage in urban and rural areas. The government and donor organisations tried to help the public through food aid. However, the assistance was mainly focused on rural areas. People in towns were forced to look for other alternative strategies that could help them and urban agriculture was one of the strategies.

The International Development Research Centre (IDRC) (2010) explained that, from 1990 to 1994, there was a sharp rise in the area under urban cultivation in Harare which nearly doubled to about 16% of the town's area and has been persistently increasing ever since. There was also a study by Environmental and Developmental Activities Zimbabwe (ENDA-Z) and Mbiba that confirms the increase of urban agriculture in the 1990s. They claimed land under cultivation on public land had doubled between the year 1990 and 1996 (Mbiba, 2001).

In 2000 the government introduced the Fast Track Land Reform Program which together with inconsistent macroeconomic policies caused near demise of the commercial agricultural sector as the country was forced to be a net importer of food. This was a hard time for the majority of the Zimbabweans as food shortages plunged the country especially low-income households. People had to rely mostly on food aid, however, this did not benefit everyone who was in need as the food was being

politicised by ZANU PF government. Food aid was mainly given to political alliance. Therefore, supporters of ZANU PF obtained the bulk of the food (Sachikonye, 2003).

Food shortages led to absurd food prices and the expansion of urban food production as an approach towards self-reliance and self-sufficiency (FEWS NET, 2013). According to Jayne et al. (2006) inflation caused the prices to go high beyond the reach of many households. Basic needs in many instances were not accessible through normal channels and whenever you find it, the prices would be exorbitant.

The same publication also claims that annual inflation was 114% in June 2002 rising to 364% in June 2003 and 622 % in January 2004 and in 2008 it rose to 230 million which meant a drastic increase in the price of basic commodities. The minimum wages lagged behind the ever-increasing cost of living for many households in the country (Labour and Economic Development Institute of Zimbabwe, 2004). Structural unemployment was estimated to be more than 60% of the employable population in the formal job market (UNDP, 2003). In addition to that, nutritional surveys also showed growth rates of stunning growth and death of children under age of five in both urban and rural areas (Jayne et al, 2006).

Urban agriculture reached new heights after Operation Murambatsvina "clean-up campaign" of 2005. It was a programme implemented by the government to demolish all illegal structures in urban areas mostly in residential areas (Potts, 2006). This operation focused on the demolition of all informal residential areas and houses in the city. Houses that were built in the backyard for purposes such as tuck-shop and for keeping chickens were destructed. Informal marketplaces such as flea markets and vending stalls were also demolished. The demolition of all these crucial places was equal to the demolition of livelihoods strategies since many people relied

on such places and buildings for their daily living. Considering the general levels of unemployment that was caused by retrenchment, downsizing and other socio-economic and political factors from the previous decade destruction of such important structures was a blow for the majority of urban dwellers.

As a result, many people were pushed to urban agriculture since some of them did not have rural areas to migrate to. Moreover, most people they consider urban life to be better as compared to rural life even if they are not employed in urban areas due to urban bias. Urban bias is the impression that most governments in developing countries favour the urban sector in their development policies, thereby creating a widening gap between the urban and rural areas (Todaro and Smith, 2012). This notion keeps a high level of rural-urban migration and promotes the growth of slums and the informal sector.

2.8.2. Policies and Legal Framework for Urban Agriculture in Zimbabwe

Urban farming has proved a promising livelihood strategy. Nonetheless, it remains a controversial issue between urban farmers and the government mostly local government. Regardless of the stagnation of rural agriculture and the general economy of the country at large, urban agriculture has not been considering as a viable stance for food security in towns and cities. According to Bulawayo City Council (2008) urban farming in the Zimbabweans towns and cities has been ignored for a long time and has been considered as an insignificant movement in terms of its input to the urban development. Over the years farmers and city council have been fighting and there has been massive crop destruction in some years (Chaminuka and Makaye, 2015).

In Zimbabwe, agriculture is not regarded as an urban activity; rather it is classified as a rural and communal area activity. As a result, urban planning laws and policies do not cater for urban agriculture. Mbiba (2000) supported the non-existence of urban agriculture supporting programmes by arguing that, there are no loans, subsidies, credit facilities or extension services. Extension services in urban agriculture in Harare are not provided since urban farming remains an activity shrouded in illegality and uncertainty (Masoka, 1997, cited in (Mbiba, 2001). The legal and institutional voids that limit support for urban agriculture continue largely to prevail, on account of the absence of political commitment to change the status quo.

According to Katsaruware et al (2014), urban farming has not been given any policy consideration other than restricting it as much as possible or allowing it temporarily until full functions took over. Nonetheless, the Nyanga Declaration on Urban Agriculture of 2002 which was signed in Zimbabwe by Ministers of Local Government in Eastern and Southern Africa acknowledged that urban agriculture contributes to urban food security, poverty reduction, local economic development and sustainable urban development (Sithole et al, 2012). The declaration paved way for the formulation of policy and frameworks that guide urban agriculture. The document also gave powers to the local governments to formulate policies and have partnerships with other stakeholders to embrace urban agriculture as part of urban development.

Even though there was this acknowledgement of the probable benefits of urban farming to be a safety valve and a way out of poverty for city dwellers. There are no legal and statutory provisions in Zimbabwe for promoting and monitoring urban agricultural activities are agonizingly absent. Taru and Basure (2010) expounded that, in 1997 the local government destructed some plants that were grown on public

lands and this period was marked by overt conflicts between urban farmers and the city council. Assan (2014) purported that, urban agriculture has no comprehensive legal status and present-day reality is that urban planners have no constructive ideas about agricultural activities within or around cities of Zimbabwe.

The role of urban farming is often undermined; farmers are evicted, dismissed and condemned for causing air pollution, promoting environmental pollution and illness within the city. Despite this criticism urban agricultural produce has become an integral part of the cities providing poultry and green vegetables such as tomatoes, rape, carrots, and beans. Assan (2014) also noted that proposal by urban farmers to get permits so that they can engage in urban agriculture without fear has not worked. This shows the resistance of city authorities to urban agriculture despite positive contribution it has made to urban farmers.

However, despite the antagonism from the city council authorities, the practice of urban agriculture has proved to be resilient since the practice stood the test of time. The resilience of urban farmers is caused by rising unemployment levels, poverty, hunger and food insecurity which leaves urbanites without other options besides urban farming. The failure by national and local authorities to come up with policies and proper institutional framework has exacerbated conflicts and struggles involved in urban agriculture (Mushayavanhu, 2003).

Furthermore, (Chaminuka and Makaye, 2015) also noted the danger of not having a legal framework for urban agriculture as there have been conflicts and disputes among farmers themselves over land for farming. Acceptance of urban farming as an inclusive feature of any urban area would settle all these challenges as allocation would be done legally. In addition, the failure by the city authorities to come up with

policies on urban agriculture that would also be used in land allocation has promoted unequal land access between the rich and the poor. The poor have been out powered by those who are rich who can bride authorities to access the land. According to Kutiwa et al (2010) accessibility of land to the urban farmers is curtailed by intense antagonism from other urban land use such as housing and built-up development hence creating urban land conflict.

2.9. Food Security in Zimbabwe

Food security is a multidimensional concept that has evolved over time. It originated in the 1970s as the world faced an international food crisis. Food security was first defined as the availability at all times of world food supplies of basic foodstuffs to sustain a steady expansion of food consumption and to offset fluctuations in production and prices (UN, 1976). This definition was looking food security at an international level and focused on the macro-economic nature of the world. The assumption was that, if food is available at international level prices would be low and exportation would ensure that those areas with no food would eventually access it through trade. Nevertheless, during the same period, food insecurity in developing countries such as Kenya and Ethiopia remained high (Richardson, 2005). In spite of the positive changes in supply and low food prices, food security remained in the 1980s.

Jayne et al. (2006) defines food security as a condition whereby all persons in a population can produce or procure enough food for an active and healthy life. Eicher and Staatz (1985) defined food security as a state whereby all individuals in a population have access to a nutritionally adequate diet. Peacock (1995) defines food security as having adequate means of procuring one's basic food needs either by growing, manufacturing, mining or trading.

According to FEWS NET (2014), food security is whereby every person at all times has physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for active and healthy life. The study is going to adopt this definition as it tends to cover different aspects of food security. FEWS NET (2014) highlighted four pillars that underpin food security, namely; food availability, access, utilization, and stability.

Food availability addresses the issue of supply and can be measured by food production, reserve levels, and net trade. However, the ability to meet demand does not necessarily guarantee food security because some may be in need of food but they cannot demand because they do not have money to buy. Access is an important aspect of food security and in this case, access is determined by a number of factors such as incomes, expenditure, markets, and price. Utilization as a pillar of food security is this addresses how the food is helping the body to meet the needed nutrients for a balanced diet and healthy body. Food should always be available at all times to everyone in right quantity and quality that is food stability.

Food security can be achieved when either political, economic or social conditions do not deny people accessing food. Maxwell and Wiebe (1998) expounded that people can be said to be food secure when all individuals mostly the women, poor, children and other marginalised groups have food that they want. Thus, for him, people are food secure when the most vulnerable groups in societies have the food they want in their hands.

Furthermore, it is crucial to recognize that food insecurity cannot be accredited to a particular aspect but there is a dynamic interaction of multiple social, economic, environmental and political factors. So many factors have been advanced to explain

Africa's persistent food insecurity which includes political instability, climate changes, soil quality, poor agricultural policies, international trade barriers, shortage of inputs, and the preponderance of small-scale over large-scale production and HIV/AIDS pandemic (Cooke and Downie, 2010). Therefore, it is crucial for one to take note of the complexity and interrelatedness of these factors when one is discussing food security in Africa as they affect food security one way or another.

According to Mutambara and Munodawafa (2014) the government of Zimbabwe has a triple threat that needs strong attention namely; HIV/AIDS, dilapidating basic services, and food security. There are two types of food insecurity namely; chronic or constant and transitory or transient. Constant food insecurity is whereby there is extreme food insecurity that continues over a long period of time with people failing to acquire enough food. Transitory or transient food insecurity is when households fail to access adequate food for short time normally due to price changes and poor production (Anderson and Tyers, 1990)). The discussion on food security in Zimbabwe will be based on four determinants of food security namely; availability, access, utilisation, and stability.

2.9.1. Food Availability

Food availability entails the physical presence of enough food at all times. This is determined by several factors such as own domestic production, food aid, trade and food prices. Zimbabwe was once a breadbasket of the Sub-Saharan Africa in the 1980s but turned to be a net food importer the following decade. This can be attributed to a number of factors that include macroeconomic and political policies, droughts and climatic changes. Zimbabwe is an agrarian country and the economy is agro-based. The staple food of the country is cereal led by maize supported by millet and sorghum. In the 1980s there was a remarkable maize production both in

communal and commercial farming areas and this can be credited to the adoption of hybrids, good seasonal rainfall pattern and general support by the government to farmers through inputs and extension services (Mashingaidze, 2004).

The country would go on to supply other countries such as Angola, Mozambique, and Ethiopia who were in need by then. Jayne et al (2006) noted that, in 1980s Zimbabwe received worldwide compliments for its agricultural policies and surplus grain. Although the country faced some years of low production but food availability would be still achieved through the national grain the Grain Marketing Board (GMB). According to Jayne et al (2006) the peak of maize production during the 1980s, the GMB was holding over three years of food availability reserves and over eight years supply of small grains. In the early 1990s, the country faced some shocks in production but that was cut short through the use of reserved grain. Food aid from international agents also played a role though not prominent.

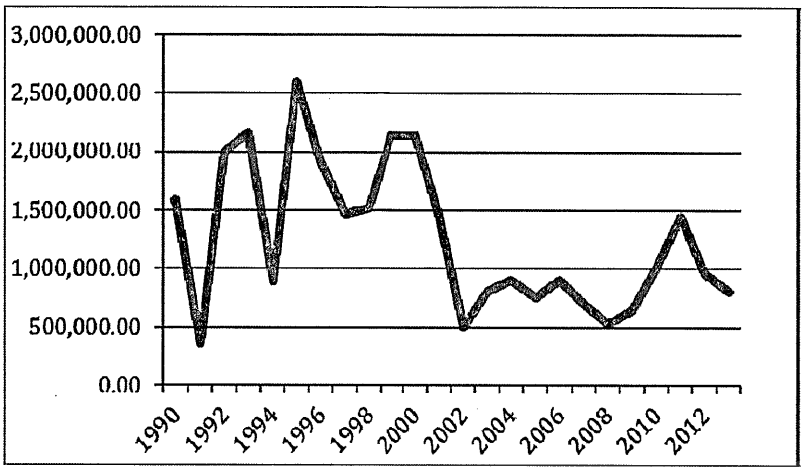
However, continued fluctuations in production in the 1990s made the grain reserve to shrink. This was mostly due to erratic rainfall patterns which were mostly noted in 1992 and 1998/9 production years. The situation was worsened in the early 2000s when the country could not produce enough there was a need for strong international food aid. In 2003 it was reported by Zimbabwe Vulnerability Assessment Committee (ZimVAC) that about 49% of the total Zimbabwean population was supported under the food relief activities (Jayne et al, 2006). This period was characterised by the start of inflation that ended up as the highest hyperinflation in the world in 2008. This disrupted the supply of food and other services. Tawodzera (2011) noted that in 2008 between April and October both the government and donors managed to import 316 000 tonnes and this left cereal harvest deficit at 666 000 tonnes. Inflation also disturbed the accessibility of the food

by most people given the general failure of the economy. The market in 2008 was characterised by a shortage of staple food.

Although there was an improvement in 2009 the general performance of the national economy food challenges continued since there was a slight improvement in agricultural production. Tawodzera et al (2012) noted that production of cereals in Zimbabwe is 428 000 tonnes while the total requirement 2, 1 million tonnes. This shows how food availability in Zimbabwe has fallen short of the demand. In 2015 ZimVAC also reported a decline in cereal production and predicted that there was a need for some 69 171 million tonnes of cereals to meet domestic requirements for the year.

According to Tawodzera et al (2012), maize production deficits averaged over 500 000 tonnes per year after 2000. Conclusively food availability in Zimbabwe was stable in the 1980s and part of 1900s this was mainly through production, food aid, and market. However, since the dawn of the new millennium food production has been fluctuating thereby causing a shortage of the food even in the marketplace. The graph below shows maize production which is the main cereal and staple food of the country from 1990 t0 2012.

Figure 1 shows the maize production in Zimbabwe from 1990 to 2012.



Source Tawodzera et al 2012

2.9.2. Food Accessibility

Food access is defined as the ability by household to acquire food for nutritious diet through different ways such as self-production, buying, gifs or food aid. This is determined by a numerous factors namely physical access, economic access which encompasses the power to generate income, the power to purchase and food prices and socio-political access which is rights to common resources. For Pinstrup-Andersen (2009) food access can be achieved by strengthening the buying power of money and the concrete food availability. They added that it should be easily accessed by all economic and social groups including the elderly, sick, physically challenged and women. Food access should not be compromised with other basic needs such as healthcare, education, and rent.

In Zimbabwe, food availability has been a challenge for a while as discussed above. Production has been low for a long period which challenges availability of food and automatically accesses since most of the people in the country used to rely on their own production than other means. Jayne et al (2006) assert that, as the low of

demand and supply claim, low production of food caused the food accessibility to be a problem mostly to those who relied on buying. To make matters worse basic commodities were rarely available in the formal markets.

This was worsened by hyperinflation that resulted in prices of basic commodities such as food going beyond the reach of many households in urban areas. Although the Reserve Bank of Zimbabwe introduced some monetary policies in 2003 which were meant to halt inflation, food prices such as maize meal, rice, cooking oil, bread, and sugar remained high (Jayne et al. 2006). The situation was better in rural areas where they had access to food from relief organisations although the aid was not enough. The rural areas are the most definite destination for many food aid agencies that always use accessibility to socio-economic means as a yardstick for receiving aid. And people who are disadvantaged according to this criterion are located in rural areas.

Food access in town and cities remained a challenge given high employment in the country. The study by Tawodzera (2016) established that unemployment and household food shortage was extremely high. Of the 462 households surveyed in Harare, 96% were food insure whilst 72 % were severely food insecure Tawodzera et al (2016). The adoption of the American dollar as the main currency and the inauguration of coalition government stabilised the economy in 2009. Inflation was brought down and food supply was improved, nevertheless, it remained beyond the reach of the majority.

However, although there was a change in 2009 as compared to the previous eight years there were and there are still challenges in urban areas. The urban area wanted fundamental political and economic reforms that would deal with major

economic, social and political challenges. Food security continued to be a problem despite the end of inflation and food availability. People have no means to access it as they are unemployed and underemployed. According to Tawodzera et al (2016), nothing has changed especially for low-income people as unemployment and low wages continue and these people are faced with new challenges such as high rentals, water bills, electricity bills, health bills, education and transport costs that leave them with little money to buy food.

2.9.3. Food Utilisation

Food utilisation refers to how well every person makes the most of the food they consume in terms of the amount of nutrients and how useful are the nutrients to a certain individual are the nutrients. Food must have all nutrients necessary for peoples' physical and mental growth. This aspect of food security is mainly measured in children in Zimbabwe. Nutritional studies are mostly for less than five years' children. A study by ZimVac (2009) asserted that stunting affected about 35% of children who were less than 5. Nutritional assessments indicated high levels of malnutrition in both rural and urban areas and this indicates lack of food utilisation. Research which was carried out by Tawodzera (2010) in many urban areas in Southern Africa revealed that dietary diversity in Harare was low as compared to any other city in Southern Africa.

Failure by the majority of people to access enough food can be the cause of malnutrition. People cannot improve their dietary if they do not have supply and access to food. However, according to Tawodzera et al (2016), there was an improvement in food diversity in 2012 as compared to 2008 consumption. This can be attributed to the change in the economy. The study also established that in a survey of 420 households only 10% consumed foods from at least eight food groups

a day in Harare. The study indicated that most families omitted foods such as eggs, dairy products, meat, poultry, tubes and vegetables due to high prices between 2006 and 2008. This can justify urban agriculture as these products can be easily produced within urban areas and make them available as they are crucial for nutrients specifically proteins.

2.9.4. Food Stability

Food stability covers other three pillars of food security and involves the level of uncertainty or susceptibility to the future disturbances in food security. Stability can be disturbed by a range of factors namely; price shocks, climatic changes, production policies among others. Food stability has been erratic mostly due to fluctuations in supply and access. The FTLRP caused food instability in the country as new farmers could not produce enough for the country.

In addition, the decline of the economy also played a big role in destabilising food security in the country as many people were left unemployed and their buying power was eroded. Droughts have also contributed a lot as the rains are not enough for the whole season. On the same note, the food aid and import have also failed to stabilise food security.

2.10. Causes of Food Insecurity in Zimbabwe

There are several factors that are contributing to the continuation of food insecurity in Zimbabwe and they complement each other one way or another and they tend to change over time. These factors range from political, social, economic to environmental factors. Below is a comprehensive discussion of the causes of food insecurity in Zimbabwe.

2.10.1. Lack of Policy Coordination for Production

There are some basic resources for any form of production and these are land, capital, labour, and management. In Zimbabwe the policy landscape is in consternation hence it has failed to give a balance between those four basic inputs. The government embarked on land redistribution programme which saw many black people being allocated on large-scale farms. However, in the process production was disrupted and it negatively affected the food security of the country.

Although it was assumed that the situation will get better when the newly resettled farmers get settled. This has failed to materialise because the country is still food insecure after two decades of resettlement programme. Jayne et al. (2006) noted that, the newly resettled farmers are having low production due to lack of farming experience, inadequate extension services, shortage of labour and technology to boost production. There have been some funds and inputs given to the farmers by the government. However, there have not been enough follow-ups by the government as there are reports of some farmers using funds meant for agricultural production to stock market. Consequently, there is no investment in agriculture and this threatens both short and long-term food security.

In addition, the government has adopted an all size fits all ideology. This is most noted in implementing policies and strategies that treat farmers as a homogenous group. Zimbabwe has five natural regions and they have different rainfall patterns and soil quality. However, the government has tended to encourage the production of maize in all regions. Instead of promoting drought-resistant crops such as rapoko, sorghum, and millet to regions which are located in regions that receive low rainfall emphasise has been given to maize production (Jayne et al, 2006). This promoted

food insecurity to households which lies in natural regions four and five have focused on crops that are not suitable for their climatic conditions.

Food security can be ensured through a fine combination of short term and long term agricultural and food security policies. For a government to have sound food security policies there should be interaction with different stakeholders such as civil and donor organisations. However, there have been contestations and disagreements between these stakeholders. For, example the government blame giving exaggerated numbers of production and number of people who are food insecure. On the other hand, donor and civil society indict the government for giving wrong information because the government uses food hand-outs to gain support and deny other poor people in the process especially those of opposition parties (Tawodzera et al; 2016). As a result, uninformed policies are implemented and food insecurity continues to rule.

Jayne et al, (2006) proposed four major actions that should be used to avoid food security policy failures. First, there should be comprehensive methods for collecting statistics on food security and this should be employed when food security strategies and decisions are made. This should include crops grown in certain areas, number of farmers and output volumes. Secondly, the food security policies should not be focused on the humanitarian crisis.

Attention should be given to support production, incentives and trade issues. Thirdly, they proposed that there should be policies that encourage boosting of self-production and self-reliance. Issues such as support schemes, incentives, information, technology, and credit should be considered. Lastly, legal instruments and government administrative regulations underpinning food security management

should be considered too. There should be legal and statutory instruments where we find a policy that guides crop production.

2.10.2. HIV and AIDS

HIV and AIDS have been a challenge for quite a long time around the world. The situation around the world is not different to that of Zimbabwe given the economy downslide facing the country. HIV and AIDS epidemic has affected food security directly and indirectly. According to FEWS NET (2014) economic difficulties has augmented HIV and AIDS which is currently at 14, 7 % and is still a significant challenge for the country's economy and health system.

There is a high number of orphans due to HIV and AIDS in Southern Africa. As a result, numbers of a child or single headed families are increasing. Child-headed families are left with children who do not have income earning capacities and agricultural production skills.

Consequently, the household finds itself in food insecure and poverty. For such households to have help from the local community it is difficult given the economic and social difficulties in the country. ZimVAC (2003) asserted that families with people living with HIV and AIDS have a higher chance of dropping from school as compared to those who are not affected. The removal of children from school diminishes the human capital stock for future generations. This point to continuous food insecurity of such households' in the fact that food can be accessed if one has some capacity to acquire it.

Table 1.1 below shows how HIV and AIDS affect food security.

Activity/Sphere	Impact	Implications
Infections	HIV and AIDS affected people they do not work for long hours.	Working for few hours can reduce the amount of income earned or amount of food produced and eventually create a gap in household labour and earnings
Caring for the sick	Small households particularly affected by caring for the infirmity	Members of the family will always pay attention to the sick which can reduce their productivity in other areas that bring food or income for the family.
Assets	Households divest tangible assets	Savings and income for medical care rather than investing in productive activities
children	Children are forced to drop out and take care of the sick family member. Inability of the extended families to provide food and care to orphaned children	Lack of educated future generation
Labour	Time for caring for the sick	Loss of labour results in reduction

	instead of engaging in valuable productive hours	in the area cultivated or less labour intensive crops that might not be enough to feed the family
Knowledge gap	Generational transfer of agricultural knowledge lost due to age difference between those who live and those who die	Production and skills knowledge from one generation to the other cannot be achieved.
Malnutrition	Children in houses affected by HIV and AIDS may suffer from malnutrition.	Household stress and divergence of resources to needy areas
Other illness	Persistent vulnerability to other illness for both the infected and non-infected as food intake declines	Inability to work the land and increased asset stripping
Livestock	Sequestration of livestock to meet medical costs	Loss of knowledge and skills may force some families to sell their animals

2.10.3. Physical and Natural Constraints

Zimbabwe enjoyed a prosperous decade after gaining independence, however after that decade the country found itself in a predicament due to climatic changes mostly characterised by floods, erratic rains and droughts caused a fall in agricultural output

which is the backbone of the economy. This was intensified by poor infrastructure in form of roads, irrigation, and other important communications networks. After the FTLRP, irrigation systems in former white-owned commercial farms was vandalised and some underutilised. Nhundu and Mushunje (2010) asserted that after FTLRP land under irrigation reduced for both small and large-scale farms. They also maintained that new farmers are failing to use or maintain the system. So physical and natural constraints contribute to low output, lack of access to market and low incomes for households. This affects the availability of food in marketplaces and triggers high food costs.

2.10.4. Lack of Food Security Policy for Urban Poor

Food insecurity and poverty in cities and towns is rampant but there are no policies that directly focus on addressing the issues. Before the adoption of ESAP, the government used to help the urban people through subsidising food goods. However, the ESAP assumed that the urban poor will be cushioned through government's intervention in controlling prices of basic goods. Although the idea promised to do so in the early years it automatically failed due to the emergence of grey (parallel) market.

2.10.5. Dissolution of the strategic grain reserve

During the 1980s, the Grain Marketing Board had sufficient grain reserves to cover several years of low maize production. However, the centralized grain marketing system suffered administrative and operational inefficiencies and the Grain Marketing Board had a huge deficit at the end of the 1980s (Jayne et al. 2006). Thus, maintaining a three-year stock of maize for national and regional food security became unaffordable. The adoption of the economic structural adjustment programme by government in 1991 removed the agricultural production and food

security subsidies. The government pricing policy during the economic structural adjustment programme era caused Grain Marketing Board shortfall of competing effectively with other privately owned grain traders and payment conditions through the Zimbabwe Commodity Exchange (ZimACE). Thus, the national food security and strategic grain reserve programme were severely paralyzed.

The Grain Marketing Board failed to maintain the required grain reserves from 1998 onwards (Jayne et al. 2006). Milling companies had to source their own grains in order to run their mills at minimum capacity. It became uneconomical to sell maize meal at government-controlled prices. The government pricing strategy to ensure food security collapsed, culminating an increase in maize meal prices and a worsening of the food security status for both urban and rural families. Finally, the capacity to import food in years of low production was also reduced due to the poor performance of the economy and this has serious food security implications from 2000 to date.

2.11. Conclusion

This chapter has shown that urban agriculture is a broad concept as different scholars' defined it in many ways. However, although there are differences in defining it, the central issue from all of these definitions is that urban agriculture is an agricultural activity carried out within urban boundaries for the well-being of those involved. People practice urban agriculture for various reasons among them being for food security, supplementing incomes and poverty alleviation.

Two theories of development have been discussed in this chapter namely; sustainable development and basic needs approach. Sustainable development was developed by the world commission on environmental development in a report called

our common future. This framework advocated for an approach that is holistic to development. Economic development and social development were supposed to be pursued simultaneously with environmental protection. Social development, economic development, and environmental protection are seen as inseparable. Sustainable development is seen as a way of managing natural and physical resources in a way that could enable economic, social and environmental needs to be achieved concurrently.

On the other hand, basic needs approach which was developed by the International Labour Organisation (ILO) in 1976.It focuses on ensuring that every human being has his/her basic needs all the time. These basic needs include minimum consumption of food, shelter, clothing, access to safe and clean water, sanitation, health, public transport and participation of poor people in decision making were of paramount importance according to the proponents of the approach. The approach is generally regarded as a more direct attach to poverty. Human minimum basic needs are human requirements for survival without which a person has little or no chance of survival.

This chapter has also highlighted the overview of urban agriculture and food security in Zimbabwe. Historical development of urban agriculture has been critically discussed. Urban agriculture started in the early development of colonial cities in Zimbabwe. Nonetheless, there was unprecedented urbanization after independence. Laws that used to control the entrance of people from rural areas to cities were abandoned. Most people moved into urban areas hoping to find employment. However, urbanization in Zimbabwe like in most of Sub-Sahara Africa countries was not accompanied by industrial growth and many new urban dwellers could not find

employment. Consequently, they had to look for other survival strategies and urban agriculture was one of them.

Status of food security in Zimbabwe was also discussed and lastly the causes of food security in Zimbabwe. During the 1980s, Zimbabwe was food secure at the national level although some households would face transitional food insecurity during the course of the year mostly towards harvesting season. The country would export some of its surplus maize to countries in the Southern Africa and this shows the sufficiency of food at national level. Food security in the 1980s was mostly ensured through the strengthening of Grain Marketing Board which could reserve maize enough to save the country for three years in the time of low production. The Grain Marketing Board had the monopoly power to buy all grain products then sell it to private millers and other food producing companies in the country.

However, the introduction of ESAP in 1991 means government subsidies agricultural production was removed. This allowed other private grain traders to compete with the Grain Marketing Board (GMB). Consequently, the GMB lost customers since it could not offer same prices with the private grain traders and farmers opted to sell their products to the private traders. This means the GMB could not store enough grain for future use. This was the major cause of food insecurity in Zimbabwe.

Nevertheless, ESAP was complemented by the FTLRP which disrupted farming activities and reduced production of the commercial farms. This together with HIV and AIDS pandemic and climatic changes worsened the food insecurity in Zimbabwe. The next chapter is going to focus on research methodology.

CHAPTER 3: RESEARCH METHODOLOGY

3.1. Introduction

Previous chapters focused on the literature review on the role of urban agriculture as a way of improving food security. This chapter focuses on research methodology and design that guided the investigation. The purpose and rationality of the methodology chosen shall be explained in this chapter. The steps taken for data collection and the analysis procedures will be explained as this chapter unfolds.

Hart (1998) purported that the significance of research methodology is to show the suitability of the technique used for data collection and the methodology employed. For him, references to relevant literature are often given to demonstrate the understanding of data gathering methods and procedural connotations and to justify the use of alternative techniques.

3.2. Research Methodology

Research methodology entails the process of choosing the method or methods that will be used for data collection during the research. There are three main research methods that are used in the social science field, namely quantitative, qualitative and mixed methods. The study used the quantitative method.

According to Leedy and Ormrod (2001) quantitative research is a research that seeks explanations and predictions that generalize to other persons and places with the intention to establish, confirm or validate the relationships and to develop generalizations that contribute to a theory. Patton (1990) maintains that, it emphasizes on the adoption of standardized analytical instruments to assess reality

and use of quantitative data, highly structured deductive approaches and focus on facts.

According to Creswell (2003), a quantitative approach is one which the investigator primarily uses positivist claims for developing knowledge; that is cause and effect thinking, reduction of specific variables and hypotheses and questions use of measurement and observation and the test of theories. It employs strategies of inquiry such as experiments and surveys and collects information using predetermined instruments that yield statistical data. Welman and Kruger (2005) states that, quantitative method underlies data from the natural-scientific method in social behavioural inquiry and holds that exploration must be restricted to what we can perceive and quantify.

There were several advantages of using quantitative research method in this study. It allowed the research to be carried over a large sample and this strengthens the analysis as result generalizations can be made over a large sample (Shepard, 2010). It is also important to note that, the quantitative approach allows quantification of results and this allows people to have a deep understanding of the relationship between variables. This gives the quantitative approach a great advantage as compared to the qualitative approach that tends to describe every situation in words without giving a clear margin of the relationship in quantity. In this study information on the role of urban agriculture can be quantified so that the researcher can have conclusion supported by the figures on the role of urban agriculture to food security in urban areas. More so, data collected through quantitative approach can be quantified and this makes it easy for comparison reasons. Under the quantitative approach, less time is needed as compared to the qualitative approach.

Nonetheless, the quantitative approach in this study may fail to capture all necessary information, for example, it focuses much on collecting data that can be quantified rather than narrating human circumstances that led to a certain action. This means other variables that affect urban agriculture or food security can be missed out thereby reaching a false conclusion. Large samples have been noted as an advantage of using quantitative method however that can be a disadvantage because large samples are always expensive to cover. This study was carried out over a short period of time; therefore, it would not allow covering a large number of research participants. On the same note, a large quantity could not be used in this study due to the shortage of resources such as money. Confirmation bias can be a challenge of using quantitative approach; this is whereby the researcher focuses on testing theory or hypothesis leaving out some crucial phenomenon of the study.

Creswell (2003) expounded that, qualitative research is a research method that builds knowledge on multiple meanings of individuals, groups or societal experiences, perspectives, and history. Qualitative research is the research methodology which uses words for data collection, data analysis, and interpretation (Clarke and Braun, 2013). This perspective is referred to as the constructivist, naturalistic or interpretive approach. Creswell (2009) defined qualitative research approach as an inquiry that tackles a societal human problem based on a complex, everyday life, experience, and human interactions, conducted in a natural setting. The overall idea for using qualitative research method is to understand the phenomena in its natural setting. Different data collection instruments such as interviews, questionnaires, observation, and interaction are utilized in the process of data collection.

There are several advantages of using qualitative methods. For instance, it allows the researcher to extract information from research respondents basing on their own life experiences rather than the thinking of the researcher. The inductive nature of the qualitative research makes it possible for the researcher to understand the situation independently as it is presented by the respondents.

According to Hofstee (2006) qualitative research approach has a design that provides contextual or subjective accuracy against possible generalizations. The final product of qualitative research inquiry is rich in both context and meaning as opposed to the quantitative method which tends to explain and describe phenomena. It is important here to note that, qualitative research method utilize open-ended questionnaire or interviews as tools for data collection.

However, qualitative research method requires the great use of resources for instance money and time for interviews and data analysis. The method also tends to analysis any situation using words and the information cannot be quantified. Consequently, the relationship between variables is difficult to measure and quantitative research methods are the best method to use when measuring variables that need to be quantified. For the mentioned reasons it was difficult for the researcher to utilize qualitative research method as the only method of the study. Therefore, the research adopted a quantitative research method.

Triangulation approach or mixed methods is one in which the researcher tends to base knowledge claims on pragmatic grounds that is a consequence-oriented, problem-centred and pluralistic (Creswell, 2003). Mixed methods tend to use both quantitative and qualitative methods simultaneously for data collection in a single research and the overall strength of mixed methods is greater than of the two

methods used separately. Using mixed method approach would allow bridging weaknesses for either qualitative or quantitative. Fidel (2008) asserted that, the idea of using mixed research method is based on the notion that, one approach will compensate the weakness and limitations of the other. Nonetheless, the compensation can be minimal given the differences of the methods.

However, both qualitative and quantitative research methods have gained popularity in the area of social science and their use concurrently has developed immensely. Using quantitative method allow a great deal of gathering quantifiable data that produces descriptive statistics. On the other hand, the qualitative method allows gathering data that can help understand descriptive statistics. The use of both quantitative and qualitative methods allows verification of facts. Consequently, gives confidence in the research output. This justifies the use of mixed research approach in social sciences.

Of the three discussed methods of inquiry, this study is going to use quantitative methods. Quantitative was chosen because it allows the use of a large quantity; hence, the generalisation of the results over a population can be made. This study seeks to investigate the role of urban agriculture in food security. Thus, the quantitative research method will be used to gather information such as quantity of agricultural output, types of crops grown, size of household and the use of agricultural output. A survey method was adopted in this study.

3.3. Research Design

Thomas (2000) defines research design as actions that will be followed in the processing of gathering information and also how this data will be analysed. A plan for collecting, measuring and analysing data is a research design (Gray 2012). The

research design is viewed as the functional plan in which certain research methods and procedures are linked together to acquire a reliable and a valid body of data for empirically grounded analyses, conclusions, and theory formulation.

According to Welman and Kruger (2005), research design is the overall plan according to which respondents are selected; data collection instruments, as well as data analysis techniques, are chosen. It can be seen as a research framework that guides data collection, measuring, and analysis as to reach a reliable conclusion. Oescher (2011) asserted that, the main function of a research design is to enable the researcher to anticipate what the appropriate research decisions are likely to be and to maximise the validity of the eventual results. This study used survey research design.

A survey is any activity that collects information in an organized and methodological manner about characteristics of interest from some or all units of a population using well- defined concepts, methods and procedures, and compiles such information into a useful summary form. According to Creswell (2003), there are two types of survey namely; cross-sectional studies in which a sample or a cross-section of a population is studied at a single point and longitudinal studies whereby the study is carried over a long period of time using structured interviews or questionnaires for data collection. This study chose to use cross-sectional study in which a sample from the targeted population is chosen. This entails that, information on urban agriculture was collected from a sample once then analysis follows. Thomas (2000) noted that, survey research involves identifying a specific group or category of people and collecting information from some of them in order to gain insight into what the entire group does or thinks.

Shepard (2010) identified advantages of using survey for example; he pointed out that data from survey research can be quantified. The fact that data can be quantified, it means it is also easy to compare information from previous or other studies. Information can also be collected from a large number of people without challenges in interpreting it. Using survey research design in this study allowed statistical presentation of information which gives a clear view on the level on the contribution of urban agriculture to food security.

Conversely, a survey can be expensive owing to a large number of the population involved. In case of using questionnaires, there might be low response rate. This study was carried out in short time and large sample presents a challenge. In order to overcome the challenges of survey research, the researcher is going to use a small sample but enough to draw conclusions so as to reduce the expenses. More so, the researcher tried to use easy and short but meaningful research questions so that people would not get bored when reading and answering the questionnaire so as to have high response rate.

3.4. Population and Sampling

Population is a group of people with the characteristics that are needed in the study, whereas sample is a fraction of the people taken from the population. Shepard (2010) defined population as all people with the characteristics of the study. It entails all members that meet a set of specifications or a specified criterion. He then went on to explain that; a sample is a limited number of cases drawn from a large population. Sampling involves taking a representative selection of the population and

using the data collected from that sample as research information. It is a subgroup of a population.

Targeted population of this study were residents of Kuwadzana and Crow-borough residential areas specifically those who are active in urban agriculture. A sample of sixty (60) respondents was chosen from sixty different households'. Sixty (60) questionnaires were administered in this study. The sample population was chosen using the simple random sampling technique. This is a type of probability sampling in which the units composing a population are assigned numbers. A set of numbers is then generated and the units having those numbers are selected (Babbie, 2010). This sampling technique was chosen because every household head had an equal opportunity of being selected which is independent of any other event in the selection process, thus eliminating bias during the selection process. The technique also ensures that the research data obtained can be generalised to the entire population within a computable margin of error.

3.5. Data Collection

In the study, data was obtained from different households' in Kuwadzana and Crow-borough residential area. Suchman (2007) highlights that, data can be gathered using direct observation, interviews, questionnaires, tests or other forms of measurement. In this study, data was gathered by issuing out questionnaires composed of closed-ended and open-ended questions. The inclusion of both closed-ended and open-ended questions permitted gathering of both quantitative and qualitative information. It is important to note that the major setback of closed-ended questions is that, the use of such questions often gives rise to the criticism that they

force respondents to express ideas they may not have, use words they would not normally use, and that they are thereby misrepresented (Gomm, 2008).

Nonetheless, closed-ended questions were chosen because they make answers easier to quantify and compare but sometimes they fail to capture in-depth responses and the respondent's opinions and attitudes. The open-ended questions, though difficult to quantify and compare, allowed for more in-depth responses when required. As discussed in population and sampling respondents were purposively sampled and respondents were chosen from urban agriculture practicing households. Both women and men were involved in this study and an equal number of both sides were involved. Thirty (30) men and 30 women were respondents to the questions. This helped in having a balanced discussion basing on the fact that an equal number of women and men who were used as research participants.

3.1. Questionnaire

According to Babbie (2011), a questionnaire is a written set of questions that survey participants answer by themselves. There are two types of questionnaires namely; open-ended and closed-ended questionnaire. The closed-ended questionnaire is a questionnaire that has those questions for which a limited, predetermined set of answers is possible. On the other hand, open-ended questions ask the respondents to answer in their own words (Babbie, 2011).

Nevertheless, answers to open-ended questions are difficult to quantify and the researcher may unconsciously change the meaning of respondent's answers by rephrasing them. Consequently, the conclusion of the researcher will not reflect the real views of the respondents but of the researcher. Fronkfort-Nachmias and Nachmias (2008) noted that a questionnaire must be able to translate research

objectives into specific questions and answers to such questions will provide the data for hypothesis testing.

Questionnaire construction is the first stage of carrying out a survey so it must be thoroughly prepared and designed. Therefore, this study will employ closed-ended questionnaires as a way of gathering data. According to Shepard (2010), closed-ended questions have the advantage of accuracy and comparability of responses. They also permit the use of statistical techniques which made them easy for quantification.

Questionnaires are also familiar, user-friendly and it allows them to answer them at their own convenience and this also respondents enough time to think about their response before answering. In this case, respondents will have time to think about how they use their products from urban agriculture. Questionnaires are also capable of collecting the vast amount of data with minimal effort which gives them an economic advantage. This can also be credited to the availability of a number of participants in one area which also reduce time consumptions and other resources.

When administering questionnaires to respondents, researchers have time to gain rapport and also time to give brief information on the purpose of the study which can also allow high response rate and more valid information from respondents. Closed-ended questionnaires were used in this study because if properly constructed and administered, it can serve as an appropriate and useful instrument for data collection. Information collected through the use of questionnaires are easy to code, analyses and for interpretation. Questionnaires are also going to be used because they can be answered in the absence of researcher, this helps respondents to

answer with great freedom since the researcher will not be there to influence his/her respondents.

More so respondents can also feel free to answer sensitive questions in the absence of the researcher that would not be answered in the presence of the researcher. The validity of information can also be ensured using questionnaires by repeating the same questions in different ways. More so, closed-ended questionnaires took little time to answer as compared to other research instruments and this ensures that the respondents quickly finish without getting bored.

To counter this challenge the researcher tried to construct questions that cover all important information about urban agriculture and poverty alleviation. There is also another challenge for using the questionnaire in general which gives low response rate especially mailed questionnaire (Shepard, 2010). To safeguard against this challenge the researcher is going to go door to door delivery and collection of the questionnaire.

There are two different ways of administering a questionnaire namely self-administered questionnaire and interviews. Self-administered questionnaires include methods such as household drop-off, mailed questionnaires, and group administered questionnaire. Household drop-off way of administering a questionnaire is whereby the researcher goes to the respondent's home or work and hand a questionnaire to the respondent. The respondent normally is asked to answer the questionnaire on his/her convenient time and the researcher comes back to pick the answered questionnaire. This method allows the respondent to ask for clarifications on how the questionnaire should be answered and get clarification about the study.

The mailed questionnaire is when the researcher sends a questionnaire to respondent through email. This allows the questionnaire to be sent to many respondents at a time. This method is inexpensive as compared to a self-administered questionnaire. However, there are also disadvantages of using mailed questionnaires as the response rate might below. The other mode of administering a questionnaire is group administered questionnaire. This is whereby the researchers visit a group of people respondents and ask them to answer structured questions. Each respondent is given his or her own questionnaire to answer. This study adopted the household drop-off administering method. Questionnaires will be drop at the respondents' household, give them time to answer and come for collection

3.7. Data Analysis

Data analysis is a process which involves the process of breaking down data into smaller units to reveal their characteristics, elements, and structure (Babbie, 2011). The Statistical Package for Social Sciences (SPSS) is the statistical analysis programme which was used for data analysis process. This package was chosen because it is simple, easy to work with and was specifically designed for social science researchers especially those that use quantitative methods.

SPSS was preferred in this study because it helped to produce descriptive statistics. Descriptive statistics refer to information that can be organized, summarised and presented in simple and direct ways (Shepard, 2010). These include statistics such as percentages, ratios, proportions, frequencies, charts, tables, and graphs. These descriptive statistics can also show various trends that exist in data obtained.

3.8. Validity and Reliability

Data collected about the role of urban agriculture on food security has to be representative of the object of the study. Sapsford and Jupp (2006) opine that, the validity of the information is the extent to which the sample gives an accurate representation of the population which it is supposed to represent. The population chosen for this study is a low-income residential area and the area is surrounded by open spaces where residents grow different crops. The area has also a number of people who are involved in poultry keeping, therefore, could produce valid data with reliance on the study of the reliability of the data collection instruments.

Meticulousness and accurateness are of vital implication in any study carried out in any field. Meticulousness points to the essential conciseness and adequacy of the data gathered. One the other hand accurateness refers to the precision of the information generated. This can be achieved by paying considerable attention to the reliability and validity of instruments of data collection (Shepard, 2010). In social sciences, reliability is confirmed when the same information is gathered from the same research area in the same location by different investigators over at different times using same research instruments. In this study, a pilot study was carried out first before the final study to ensure reliability.

The reliability of data collection instruments can be enhanced by assistance from peer and supervisor reviews. However, data gathered through interviews cannot be repeated by word for word, but the information should remain the same if the information is to be declared valid and reliable. The validity of the findings is essentially linked to the objectives set for the measurement. Hence, the instruments are valid if they measure what they were planned to measure.

Reliability refers to the consistency of results. If a particular technique is applied to measure the same objective at different times it must give same results for it to be reliable. Sapsford and Jupp (2006) pointed out that reliability can be achieved and discussed in terms of research design and data collection. Reliability can be achieved through pre-test of a questionnaire or an interview guide. The pre-test is mostly known as a pilot study. The purpose of having a pre-test or pilot study is to find out if the research questions can generate the information sought. This study also used a pre-test before proceeding to final data collection.

Babbie (2011) defined validity as the degree to which the pragmatic measure sufficiently shows the reality of the situation under study. Validity refers to the level of accurateness of the information gathered and its preciseness in giving a truthful and clear picture of the factors under investigation. It is regarded as the degree of precision of the information generated from a study to explain the real phenomena in the area of the study. This can be measured by how the results published accurately match with the raw data collected. It can be achieved when the instruments of measurement accurately measure what they were designed to measure. Instruments of measurements are also valid if they measure exactly what they are designed to measure (Gray, 2012).

In this study instruments of measurements were designed to measure the role of urban agriculture as a way of boosting food security in urban households. In this study validity was achieved through the investigated problem, the research questions, aim of the study and theoretical conceptual perspectives of this study relate to how validity is defined. The questionnaires helped in finding out the relationship between urban agriculture and food security in Zimbabwe. Furthermore,

to ensure reality research questions were repeated in different styles to see if respondents were supplying informed information.

3.9. Conclusion

The preceding part has highlighted the research methodology and design used for data collection in this study. There are three main research methods used in social science namely; quantitative approach, qualitative approach, and mixed research methods. Of these three methods, the quantitative method was used for collecting data from people of Kuwadzana and Crow-borough residential area. This was done through the use of a survey research. The study chooses quantitative method and survey method as they allow collection of data from large samples. Use of a large sample allows results generalizations since they allow detailed analysis.

Questionnaires were the main research instrument for data collection, supplemented by observation. Data analysis was done using the Statistical Package for Social Science which is a statistical analysis programme used for data analysis process. This package was chosen because it is simple, easy to work with and was specifically meant for social science research. It produces descriptive statistics which can help to give a deep analysis of the variables studied.

Finally, the study followed some ethical requirements of any research study. Prior to data collection, the consent of the research participants to take part in the research was asked for. The aim and purpose of the study will be revealed to the respondents before they participated. Issues of confidentiality about the information given by the respondents was guaranteed and information used for the purpose of the study only.

The following chapter is going to focus on results presentation obtained from the study. A thorough discussion of the results obtained will be done also.

CHAPTER 5: DATA PRESENTATION, ANALYSIS, AND DISCUSSION

4.1. Introduction

Urban agriculture has been neglected by development practitioners and urban planners for a long time. It never existed in the development plans of cities and towns as a way of livelihood. However, recently it has proved to be one of the key livelihood strategies adopted by different countries mostly in Asia, America and Europe. In Africa, it has also set its roots although, it has been mainly informal. Nevertheless, evidence from countries such as South Africa, Malawi, Tanzania, and Namibia has shown it contributes to food security, generation of income and employment creation. Even though that is the case, urban agriculture in Zimbabwe is still illegal and it has never been given policy attention rather than to restrict it as an illegal practice. Due to this omission, this study seeks to provide the real picture on the ground in the urban area, specifically Harare with the hope of sensitizing the government and all development agencies. The information collected by the research captured aspects such as reasons for engaging in urban agriculture, use of agricultural products, impacts of urban agriculture on households' welfare and challenges faced by urban farmers.

The purpose of this chapter is to present, critically analyse and discuss data collected from Kuwadzana and Crow-borough. Data collected was used to assert the role on of urban agriculture on urban household food security. Data was collected from a sample of sixty households using questionnaires.

4.2. Demographic Characteristics of Respondents

The key demographic characteristics of the respondents that are relevant to this study include age, gender, the size of the household, level of education and employment status. This will be dealt with in the following paragraphs.

4.2.1. The age of the respondents

The research respondents in the study fell in the age category of 18 to over 56 years old as illustrated in table 2.1 below.

Table 2 shows age distribution of research respondents.

	Frequency	Percent	Valid Percent	Cumulative Percent
18- 25 years	3	5.0	5.0	5.0
26 - 35 years	14	23.3	23.3	28.3
36 - 45 years	22	36.7	36.7	65.0
46 - 55 years	13	21.7	21.7	86.7
56 and above	8	13.3	13.3	100.0
Total	60	100.0	100.0	

Age of the research respondents was classified into five categories that are; 18 – 25 years, 26 – 35 years, 36 – 45 years, 46 – 55 years and those above 56 years. The majority of the respondents fell within the age range of 36 – 45 years which constitute 36, 7% (22 people) of the respondents. The second highest range was 26 – 35 years which constituted 23, 3% (14 people), followed by 46 – 55 years which had 21, 7% (13 people), followed by those above 56 years who constituted 13, 3% (8 people) of the respondents and lastly 18 – 25 years who constituted 5% (3 people) of the respondents. From this statistics, it is clear that those who are practicing urban

farming are adults. This suggests the importance of urban agriculture in urban households for food security and generation of additional income especially for the active age group who are mostly breadwinners of many households. The respondents are responsible for providing food and other basic needs for their households. Therefore there is need to practice urban agriculture to provide different needs for their households. Involvement of few people who are between the age of 18 and 25 years may be caused by the perception of young people that, agriculture is a traditional practice that should only exist in rural areas. Urban agriculture as a profession is not appreciated in urban settings. Thus, the involvement of young people in urban agriculture is difficult because of perceptions which regarded agriculture as a traditional activity. Majority of young people they do not want to associate themselves with traditional activities hence their absence in urban agriculture. This necessitates the need by the government and development researchers to explore the viability of urban agriculture as a source of income and employment creation to promote it.

4.2.2. Gender Distribution

It is the view of this study that, a gender perspective adds a significant insight into urban household food security because gender is an integral and inseparable part of every household's welfare. Gender is one of the factors that influence access to urban agriculture resources, most importantly land. Previous studies have shown that urban agriculture was dominated by women while men were focusing on formal employment (Mbiba,1995). However, in this study, an equal number of women and men was used bearing in mind the high rate of unemployment in the Zimbabwe due to the fall of formal employment. People of different gender have a different perspective so it was crucial to mix their views equally. The idea was to understand

their views on urban agriculture as a way to fight urban household food insecurity and the need for both female and male to meet their basic needs.

4.2.3. Level of Education

Level of education for those involved in urban agriculture was also of interest because it allows us to know the people practicing urban agriculture. Education is generally regarded as one of the factors that influence social class and quality of life. As shown below the majority of the respondents (35 people or 58, 3%) had tertiary level education, followed by (22 or 36, 7%) with secondary education level and only (3 or 5%) attained primary level as their highest level of their education. The results portray that, urban agriculture is being practiced by people from all three levels of education. This is in line with studies which were undertaken in Dar es Salaam in Tanzania, Harare in Zimbabwe and Kampala in Uganda which found that a significant percentage of urban farmers attained tertiary education as their highest level of education.

As shown above, there is no link between the level of education and involvement in urban agriculture. Since there is a general view that, urban farming as a way of livelihood for those with a low level of education. Mara (2009) who undertook a study of urban agriculture in Addis Ababa in Ethiopia concluded that urban farmers generally have low educational status. If it was the case in Harare the majority from this study should have been those from who attained primary level as their highest level of education.

The practice of urban agriculture by people who attained primary, secondary and tertiary education suggests the economic difficulties facing the country of Zimbabwe

and the people residing in. People do not have jobs which can give them enough money to cater for their families. Zimbabwe with 95% unemployment has one of the highest unemployment rates in the world (Bhebhe et al, 2016). Therefore, they resort to urban farming to supplement the income they get from formal jobs, informal jobs, casual jobs, petty trading and other income-generating activities. Hence, education has little or no influence on whether one should practice urban agriculture or not under the current Zimbabwean economy.

Table 3 below shows level of education of research respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Primary	3	5.0	5.0	5.0
Secondary	22	36.7	36.7	41.7
Tertiary	35	58.3	58.3	100.0
Total	60	100.0	100.0	

4.2.4. Employment Status of the breadwinner

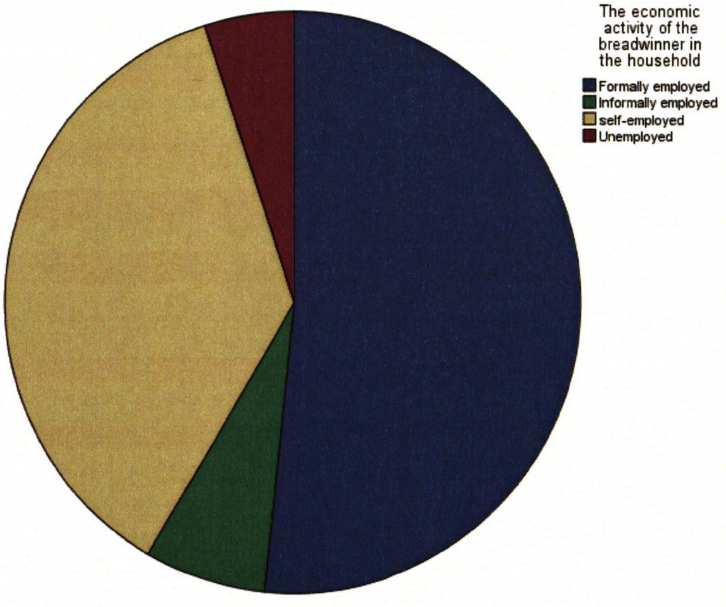
In this study, it was also imperative to find out about the employment status of the breadwinner for each sampled household since it has a significant influence on the households food security status. Jerome (2013) expounded that, human behaviour, more than not, is motivated by the ability to meet basic needs such as food. It is generally assumed that those in the lower class of the social system would be the one practicing urban agriculture as a survival strategy.

However, the study showed that more than half of the research respondents 51.7% (31 people) were formally employed, followed by 33.7% (22 people) who are self-

employed, followed by 6.7% (4 people) who are informally employed and lastly 5% (3 people) who are unemployed. This is in line with (Foeken, 2013) who carried out studies in Malawi, Kenya, and Ethiopia and found out that, many households with informally as well as formally employed households are constantly turning to urban farming for the production of food for own consumption as well as income generation.

The fact that people who are formally employed have a higher percentage of those practicing urban agriculture imply the importance of urban agriculture as a way of livelihood. This could be caused by underemployment and poor remuneration and people have embraced urban agriculture to supplement their salaries. Therefore, urban agriculture is carried out to augment existing incomes. The diagram below shows the employment status of breadwinners.

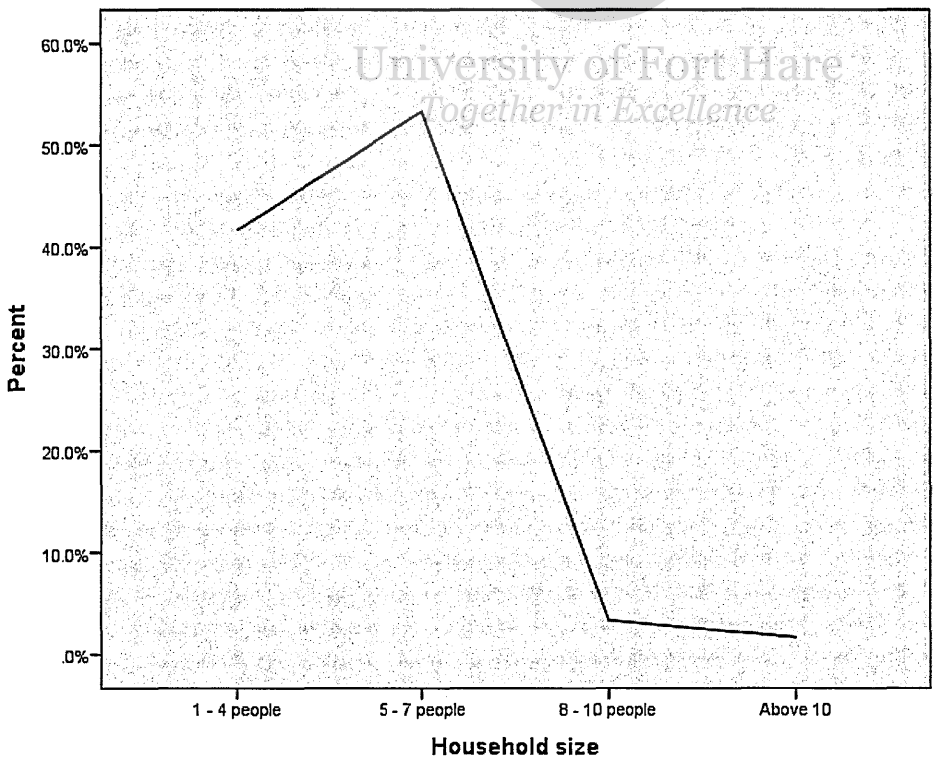
Figure 2 below shows employment class of breadwinner in respondent's households.



4.2.5. Household size

Household size is a critical component of a household which also determines food demand. Therefore, household size could also help in determining the importance of urban agriculture in different households. Logically, a household with a small size will also require little food. The number of people living in a household influences the amount of food required by that family.

Figure 3 below shows sizes of the sampled households.



Most (32) of the households had a size of between 5 to 7 people and this constituted 53.3 % of the sampled households, followed by those that have between 1 and 4

people and this constitute 41. 3% (25 households), followed by those that have between 8 and 10 people and this constituted 3.3% (2 households) and lastly, that has above 10 people and it constituted (1.7%). From the above table, one can easily see that households with a size between 5 and 7 have a higher proportion of those involved in urban agriculture. This could be caused by the need to have alternative sources of food that could help families supplement their incomes.

According to Todaro and Smith (2012) the greater the proportion of dependent persons in a family, the more challenging it is for people who are working in that family to support those who are not. From this assertion, it is clear that a household with more dependents would be likely to be involved in urban agriculture as compared to those with fewer dependents. Large households require substantially more food and to have a wider range of food coping strategies as compared to a single person or smaller households.

4.2.6. Table 4 below shows Basic Characteristics of the sample

Characteristics	% of sample	Total
Gender of respondents: Male	50%	
Female	50%	100%
Age of respondents: 18 – 25 years	5%	
26 – 35 years	23.3%	
36 – 45 years	36.7%	
46 – 55 years	21.7%	
56 years and above	13.3%	
Educational Level: Primary	5%	
Secondary	36.7%	100%
Tertiary	58.3%	
Size of Household: 1 – 4 people	41.7%	
5 – 7 people	53.3%	
8 – 10 people	3.3%	
Above 10 people	1.7%	
Employment Status: Formally employed	51.7%	
Informally employed	6.7%	
Self-employed	36.7%	100%
Unemployed	5%	

4.3. Involvement in Urban Agriculture

Urban agriculture has been practiced for years in different countries around the globe. However, this was done for family consumption only. The growth of food insecurity, poverty and unemployment brought a new phenomenon of urban agriculture as a viable way of ensuring food security and employment creation. Nonetheless, this new phenomenon has not been fully embraced in developmental policies of many countries mostly developing countries in Africa.

In this study, respondents were asked about the period they have been practicing urban agriculture. The periods were divided into four groups; from 1 – 3 years, 4 – 5 years, 7 – 10 years and above 10 years. Only 18.3% indicated that they have been in urban farming for the period which is equal or less than three years. 23.3% confirmed that they have been in urban agriculture for the period which is between 4 and 6 years, while 31.7% have been practicing it for the period between 7 and 10 years. 26.7% indicated they have been practicing it for a period which is above 10 years.

Having a big figure of households which have been practicing urban agriculture for more than 10 years in Zimbabwe shows the importance of urban agriculture. For those that have been practicing it for 7 or more years, they might have been pushed to urban farming due to economic doldrums of the country mostly in the past decade. The economic meltdown was mostly characterized by hyper-inflation, unemployment, and a shortage of basic needs in the formal market and only available in grey market at high prices. Therefore, people would have been forced to urban agriculture as a coping up strategy.

Table 5 below illustrates period households have been practising urban agriculture.

4.3.1. Period in urban agriculture

	Frequency	Percent	Valid Percent	Cumulative Percent
1 - 3 years	11	18.3	18.3	18.3
4 - 6 years	14	23.3	23.3	41.7
7 - 10 years	19	31.7	31.7	73.3
Above 10 years	16	26.7	26.7	100.0
Total	60	100.0	100.0	

4.3.2. Land Acquisition

Land as a natural capital is crucial for farmers which should be owned individually for full utilization. However, there should be laws and principles that should be followed in order to keep the environment safe and productive. Means of acquiring land for urban agriculture was also sorted from the respondents. The study found out that land was acquired through different ways which include renting, inheritance and self-allocation. 36.7% indicated that they acquired the land through self-allocation, whereby people find open spaces and start their farming activities without consulting anyone. This method has been used for a long period of time since the area has many open spaces. 33.3% highlighted that, the inherited pieces of land for farming from their relatives. This is whereby a relative is taking over a piece of land which was previously owned by a relative who would no longer continue farming that piece. They might have moved to another town, location, rural area or even died. 26.7% indicated that they were renting land from some people. It was found that those who

were renting were renting the pieces of land from people who had large pieces of land or those who did not want to use the land for a certain year or season.

Table 6 below shows how urban farmers have acquired farming land.

	Frequency	Percent	Valid Percent	Cumulative Percent
Renting	16	26.7	26.7	26.7
Leasing	2	3.3	3.3	30.0
Inherited	20	33.3	33.3	63.3
Other	22	36.7	36.7	100.0
Total	60	100.0	100.0	

4.3.3. Main crops grown

The research sample was asked to name their main crops that they grow. The majority of the 70% (42 households) pointed maize as their main crop. In Zimbabwe, maize is the staple food of the country and this is the possible reason why most of the households grow maize. In most of the households, it is difficult to spend a day without using maize meal, either for sadza (thick porridge) or porridge. This may confirm that urban agriculture is to supplement food shortages. Maize was followed by households that produce vegetables with 15% of the sample. Vegetables are easy to grow and the market is always available throughout the year. 13, 3%

produces other crops such as sweet potatoes which are also used for family consumption and surplus to generate income. The remaining 1.7% is involved in beans production

Table 7 below shows main crops grown.

	Frequency	Percent	Valid Percent	Cumulative Percent
Maize	42	70.0	70.0	70.0
Vegetables	9	15.0	15.0	85.0
Beans	1	1.7	1.7	86.7
Others	8	13.3	13.3	100.0
Total	60	100.0	100.0	

4.3.4. Livestock Keeping

The researcher was also interested in finding out whether the research participants were keeping any livestock as part of the agricultural activities. 60% (36 households) indicated that they were keeping livestock while the remaining 40% (24 households) were not keeping livestock. Livestock kept were broiler chickens by a total of 51.7% and rabbits by 8.3%. Chickens are kept on residential stands, farmers build a room or use the cage to keep their chickens. However, this is against the legal laws of the government which does not allow the keeping of animals on residential stands.

Those who are keeping chickens indicated that they were doing it as a business because some would keep up to 100 chickens per month which they sell to local

supermarkets and individuals in their residential areas. They could get a minimum of US$400 per month which gives an impression that urban agriculture is a viable way of livelihood because some families of those who rely on formal employment cannot raise US$400 a month.

Table 8 below shows percentage of households that keep livestock and those that do not keep.

Do you keep livestock?	Frequency	Percent	Valid Percent	Cumulative Percent
No	24	40.0	40.0	40.0
Yes	36	60.0	60.0	100.0
Total	60	100.0	100.0	

4.4. Reasons for engaging in urban agriculture

Urban agriculture is not a new phenomenon in Zimbabwe it can be traced to the formation of urban are, (Mbiba, 1995). People would grow vegetables and some little maize at the back of their residential stands. However, this has ceased to be the case. Urban agriculture has been growing in the past decades. The economic meltdowns of the country associated with the fast track land reform programme are possible causes of this scenario. The land reform programme made the agricultural sector to suffer and the industrial sector could not be left out since the industrial was an agro-based industry. The closure of industries and retrenchment of many people left them unemployed with no incomes.

In this study finding out the reasons for households to engage in urban agriculture was also crucial because it would enable the researcher to determine whether urban agriculture is important or not. Different push factors were categorized into two groups of supplementing income and survival reasons. From the gathered data a total of 68.3 households indicated that they started urban agriculture to supplement the income they get from different livelihoods activities and the remaining 31.7% indicated they were practicing it for survival. In other words, they practiced urban agriculture as the main source of income for their households. Food shortages, hyperinflation and high unemployment due to industrial closure facing the country could have forced people to engage in urban farming as a way of reducing expenditure on food or food shortage alleviation.

Table 9 below shows reasons for households to participate in UA

Reasons for engaging in urban agriculture	Frequency	Percent
Supplement income	41	68.3
For survival	19	31.7
Total	60	100.0

After the research participants were asked about what they produce and the reasons why they started practicing urban agriculture. There was a question to know whether they had achieved what they wanted to achieve when they ventured into the practice. 86.7% of the respondents highlighted that they had achieved what they wanted to achieve because they were able to provide food for their families this improves their food access and food security in general. They are also able to

generate income from selling their products and they were able to send their children to school and pay rentals from that income.

Some even mentioned that they were able to save their income since they were now able to produce some foodstuffs from their fields and poultry businesses. That is urban farming is helping people to reduce food expenditure. This helps them to have a balanced budget since they are no longer relying on their salaries alone. However, 13.3% of the respondents indicated that they have not yet achieved their goals of starting urban farming. They maintained that they were still spending much on buying food. These could be people who are facing different challenges which hinder production that include the shortage of land and water.

4.5. Utilisation and Consumption of the food produced.

To further ascertain the importance of urban agriculture it was crucial to know how long a household uses their product. The table below shows different periods that they feed on their produce.

Table 10 below shows time taken using products from UA

How long do you use your produce per year	Frequency	Percent		Cumulative Percent
1 - -3months	1	1.7		1.7
4 - 6 months	6	10.0		11.7
7 - 9 months	12	20.0		31.7
10 – 12 months	41	68.3		100.0
Total	60	100.0		

68.3% indicated that they use their products for a period which is between ten to twelve months or even more. 20% responded that they use their products for seven to nine months, 10% for a period which is between four to six months and only 1.3% (one household) uses it for less than four months. Considering a number of households that use their products for a period which is twelve or more month urban agriculture is a viable way for formal employment income.

4.6. Contribution of urban agriculture to food security

To further ascertain the contribution of urban agriculture to food security. The table below shows responds from the sampled households.

Table 11

Level of contribution	Frequency	Percent	Valid Percent	Cumulative Percent
10 - 20%	2	3.3	3.3	3.3
21 - 40%	3	5.0	5.0	8.3
41 - 60%	23	38.3	38.3	46.7
61 - 80%	26	43.3	43.3	90.0
81 - 100%	5	8.3	8.3	98.3
Above 100%	1	1.7	1.7	100.0
Total	60	100.0	100.0	

Respondents were asked to point the level of contribution of urban agriculture to their food security. A single household relied 100% on urban agriculture for their

household food requirements. This household has a poultry business and is also involved in maize production that is the reason why they are able to rely on urban farming. Only 5 households pointed that they get between 81% and 100%, 26 households indicated that urban agriculture is contributing between 61% and 80%, 23 households they gain about 41 and 60%, 3 households get 21 - 40% of their food from urban agriculture and only 2 households get their food requirements from urban farming. From the above statistics, it is clear that urban farming is contributing a significant amount of food in urban household food security.

4.7. Alternative use of outputs

The results of the survey showed that some households were able to produce a surplus. Although they have small pieces of land as compared to their rural counterparts, some urban farmers are able to produce some surplus. This is mainly due to use of fertilizers, certified seeds, fertile soils and being in the region that receives high rainfalls which are adequate for the crops grown. This allowed them to sell some and get income which they used to purchase other foodstuffs, such as bread, sugar, salt, drinks which help the household to be more food secure. Some go as far as paying rentals and school fees for their kids. This is in line literature Katsaruware et al 2014) which concluded that urban crop production allows those involved in it to generate income which is in turn used to purchase other foodstuffs. The remaining money is either used to pay school fees, purchase farming inputs or paying rentals. According to these findings, the major objective of urban agriculture remains household food security.

However, as the literature reviewed Nugent (2000) confirms urban crop production has a lot of benefits- income realized from the activity assist those engaged in the

activity to save money they would have used to buy other household needs. From this study, 50% of the respondents confirmed that they sell some of the produce.

This 50% highlighted that, besides buying other households requirements, they procure farm inputs such as seeds and fertilizer for the following season. 13% of the respondents indicated that they share with their relatives some of the produce and the other 10% showed that they produce for family consumption and selling or giving relatives. The final 20 percent (shown as missing in the table) only produce for family consumption without surplus. Those who said they were selling some of their produce from maize, livestock keeping and vegetables said they were only selling to the hawkers and neighbours who were not producing on their own. The table below shows the alternative use of agricultural outputs by urban households.

Table 12 below shows other uses of urban farming outputs

Use of outputs		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Sell it	30	50.0	62.5	62.5
	Give it to relatives	8	13.3	16.7	79.2
	Other	10	16.7	20.8	100.0
	Total	48	80.0	100.0	
	Missing	12	20.0		
Total		60	100.0		

4.8. Over the past five years has your family run out of food

Respondents were asked if they had any food shortages in their households in the past five years. 90% responded they have never faced food shortage in the previous five years and 10% indicated they have faced food shortages. There were three follow up questions with the intention of ascertaining if urban agriculture has a significant role in ensuring food security. The first one was on the monthly cereal (maize-meal) requirements of a household and the second one was on yearly cereal production. On the first question, 95% of the indicated they need an average of 25 kgs which means for a year a household needs a total of 300 kgs of maize-meal. On the second follow up question which needed respondents to point the amount of cereal they produce. 50% indicated they produce above 300 kgs and about 27% produce more than half a tonne of maize.

Nevertheless, it is imperative to note that not all households rely on maize production as their main crop. Some in this study pointed out that they grow vegetables as their main crop. Some also rely on poultry business. Therefore, there are a variety of crops and activities farmers rely on. Maize was used in this study because almost every household in Zimbabwe produce maize since it is the main staple food.

4.9. Employment of other people in fields

To determine the extent of urban agriculture, the researcher included a question of whether urban farmers employ other people to help them carry their farming activities or not. 45% of the households indicated that they employ other people and 55% do not employ other people. Although the number of households that do not

employ is higher than that of those who employ having a high figure of households who employ other people in their farming activities denotes that urban agriculture is also creating employment in urban areas. This is in line with (Jongwe 2014) who noted that urban agriculture is creating seasonal employment in Gweru high-density suburbs.

Unemployed youth are given jobs to prepare land, plant, wedding, and harvesting of crops. However, this should not be overemphasized since urban agriculture in Harare is mainly seasonal therefore the jobs are short-term. It might be because they do not have enough family labour to carry out the jobs and some are employed and they might not have enough time to work in their fields.

4.10. Alternative sources of income

Since urban agriculture is considered as an informal sector, urban inhabitants have some income generating sources to supplement their income. In this study, respondents were asked to indicate their alternative sources for income and results were as follows. 50% of the respondents indicated that they are formally employed but they still consider urban agriculture as an important alternative source of income.

The fact that people who are formally employed still consider urban farming an important livelihood strategy of ensuring food security shows the importance of the sector. A livelihood is a way used by an individual in securing necessities of life. For Chambers (1983) livelihood comprises "capabilities, assets, and activities for a means of living

This was followed by 28.3% of respondents who indicated that they supplement urban agriculture with casual jobs in the industries or locations. 20% indicated that they are also in petty trading which include street vending. The remaining 1.7% indicated that they augment urban farming with gifts from friends' church members and relatives. This may also suggest that one of the reasons why people participating in urban agriculture are not willing to relocate to communal areas where they can access larger land sizes is because they still believe that formal employment is the only way to have a good lifestyle in towns.

Table 13 below shows alternative sources of income

Alternative sources of income		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Formal employment	30	50.0	50.0	50.0
	Casual jobs	17	28.3	28.3	78.3
	Petty trading	12	20.0	20.0	98.3
	Gifts	1	1.7	1.7	100.0
	Total	60	100.0	100.0	

4.11. Assistance received from government

The study also enquired the role of the government in urban agriculture. This was done through asking research participants if they were getting any help from government or not. The results indicate that 100% (all households) did not get any help from the government. However, they wanted the government to help them. Some indicated that they wanted the proper land allocation to be done in urban areas, they also expected the government to demarcate were urban agriculture should take place considering they are a lot of open spaces in the city jurisdiction area. Almost all households wanted the revisit of government policies which consider urban agriculture to be illegal since it has become an alternative source of survival for many households. Some even pointed that; government should assist urban farmers with inputs such as seeds and fertilizers.

4.12. Perspectives on whether urban agriculture is viable way of livelihood or not

Table 14 below shows perspectives on urban agriculture

Is UA viable way of livelihood?	Frequency	Percent	Valid Percent	Cumulative Percent
No	3	5.0	5.0	5.0
Yes	57	95.0	95.0	100.0
Total	60	100.0	100.0	

Views on whether urban agriculture would be still practiced if the economy of Zimbabwe was stable were crucial in determining how it has helped households. 95% of the sampled households considered urban farming a viable way of livelihood

under a stable economy. 5% considered agriculture as a traditional field that should not exist in urban areas. They noted that it would be a waste of money and energy to engage in urban farming since people would be employed and get salaries that meet their requirements.

95% who supported urban agriculture cited that it reduces expenditure and allows families to save for other requirements. Jongwe (2014) expounded that, urban agriculture is an important source of income for a substantial number of urban households. He went on to say in addition to income generated from sales of surpluses, farming households save on household expenditure by growing their own food. They also noted the importance of fresh vegetables from the fields which they say are crucial for their diet and also reduce costs.

4.13. Challenges faced in urban farming

In this study, it was crucial to know the challenges faced by urban farmers. There are different challenges faced by urban farmers which include Urban farmers indicated that they do not have enough capital to hire a security guard to guard their fields. They also mentioned that it could be costly to hire a security guard since thieves are stealing day and night and this means they needed a security guard all the time and paying him/her would need much money.

Furthermore, some indicated that they had not enough inputs for their fields. This disadvantages them since they would plant their crops without necessary inputs such as fertilizer and this has a great impact on their outputs. More so, due to lack of

inputs, some end up using uncertified seeds and this also has an impact on the quality and quantity of the outputs.

Lack of expertise is also one of the challenges faced by urban farmers. This was mostly on issues such as when to plant, which variety to plant, when to apply different fertilizers and which type of fertilizer to use. These factors determine the success or failure of one farmer. There are different varieties for example of maize and they require a different amount of rainfall or their times for maturity are different. And if one does not know all these factors he/she is doomed to fail. Application of fertilizer is also crucial since it's needed by almost every crop. However, there are certain stages where it should be applied and failure to apply it would automatically reduce its effectiveness. This is in line with Mbiba (2000) study which revealed that there are no loans, subsidies, credit facilities or extension services for urban farmers in Zimbabwe since urban agriculture is considered illegal. Furthermore, urban farmers also highlighted lack of inputs as a challenge. They do not have enough inputs to enhance their farming activities. For example, almost every sampled household indicated that they do not have irrigation therefore, they rely on rainfall. This means in times of drought, farmers would suffer low outputs. Farmers pointed that, their reliance on rainfall is a challenge since it is forcing them to practice urban farming on a seasonal basis. Some complained about the type of tools and labour they use. Those who use picks and hoes for digging as a way of land preparation described the process as laborious. Relying on family labour was also described as a challenge because in some cause you would find that there are only three people who can work in the fields and sometimes one or two of them were employed which gives time constraint to work in the fields.

Some farmers indicated that they have faced ruthless crop slashing (crop destruction) from the city authorities. Urban agriculture is regarded as an illegal activity hence destruction of crops by city council when it wants. (Mbiba 2000) noted that, with respect to urban farming, the ambiguity of land tenure and the associated irregularity of crop and livestock production prevent productive investments. This is additionally compromised by challenges of institutional apathy and inconsistency that hamper complete improvement of the sector. This has been the main challenge of urban farming since there is a lot of uncertainty on what will happen to the land or the crops.

Theft of crops is also another challenge urban farmers are facing. Many farmers were disgruntled with thieves. They mentioned that thieves are a problem in their fields mostly when crops are ready to harvest. Some steal green maize which the farmers' suspects are being sold in the marketplaces. This challenge emanates from lack of security since farming activities are being carried out in open space.

CHAPTER 5: CONCLUSION AND RECOMMENDATIONS

5.1. Introduction

The previous chapter highlighted the findings from the survey. It dealt with interpretation and analysis of the data from the research respondents. This chapter will now focus on the summary and general conclusions drawn from the findings of the analysed data. This will be followed by recommendations from the researcher on how to make urban agriculture an integral part of the urban area as well as a development reservoir for the urban residents and the city itself.

5.2. Conclusion

It has been revealed that urban agriculture is an approach employed by urban dwellers in Zimbabwe in response to different trends and shocks in the country. The study found that urban farmers are engaging in farming activities for survival, income supplementing and income generation. This is mainly due to the economic meltdown in the country that has left many industries closed down. Since industrial employment is the main source of income the closure of industries has left many urban residents millions of employable people unemployed and underemployed. This has reduced the buying power of the majority of the people in the town and left them in the danger of hunger and starvation. Consequently, they have resorted to urban farming as a safety valve for food security and income generation.

Furthermore, the fall of agricultural production has also caused food shortage in Zimbabwe. This has had bad repercussions on the general welfare of those in town that were previously relying on rural food production. Food production in the rural areas was enough to feed those in rural and urban areas. Food would infiltrate into urban areas as gifts or for marketing purposes from rural and communal. The fall of

agricultural production meant that there was a food shortage in the urban area and the demand-supply effect took its course. Prices for basic needs went up as the supply was failing to match demand. The majority of urban people who are underemployed or unemployed failed to meet their basic needs and this pushed them to practice urban agriculture as a survival strategy.

The study revealed that urban agriculture is an activity carried out by different age groups but mostly those who are economically active. It was also clear that those who practiced it were those with a household size which is between five and seven people. This suggested that people who have a bigger household size are likely to engage in other food or income production activity as a way of supplementing what they earn from formal or informal employment. This is mainly due to high dependency ratio.

From the sample, it was also clear that people with different educational qualifications are actively involved in urban agriculture. This defies the commonly held option that, urban agriculture is mostly practiced by those with low educational qualifications while those with higher educational qualifications focus on formal employment only. Urban agriculture is generally perceived as a laborious form of livelihood and it's generally perceived as a livelihood for those with low educational qualifications and unemployed only. It also implies that in unstable economy people they adopt different survival strategies including those that might be seen as fit for those who are uneducated.

It was clear that urban agriculture is being practiced by people with different economic activities. That is those who are formally and informally employed, unemployed and self-employed. This is supported by (Mbiba 2000) who purports

that, urban agriculture at present is practiced by both the poorest and the rich. However, the group that is the poor which are in critical need for basic needs are facing ever-growing competition from those in upper classes of the social system who have been also forced to practice urban agriculture as their incomes have been falling so as their standards of living

People engaged in both crop production and livestock production. Maize, vegetable, beans and sweet potatoes are some of the crops that produced. Livestock kept are chickens and rabbits. However, it is perceptible that majority of people are involved in maize and chicken production respectively. The study divulged that, urban agriculture is helping most of those practicing it as per their expectations. They are getting notable benefits from it which includes improved food security. This is realized through accessing maize and vegetables from their fields without using salaries. Food security is also improved through selling some of their products and the money gained would be used to acquire other foodstuffs such as sugar, bread, and salt which could not be produced from their pieces of land.

Urban agriculture was also found to be a crucial source of income. The study revealed that, besides enabling families to acquire some food. Urban agriculture also enabled them to generate some income. The respondents revealed that they earn some money from selling some of their produce. This was mainly those involved in poultry, vegetable and maize production. Most of those involved in poultry production was doing it as a business and they generate income that helps them to pay school fees, electricity bills, water and rentals among other things. This implies that urban agriculture has a positive implication on households' economic well-being.

In addition to that, urban agriculture is also creating employment. The study showed that there are some households that employ other people to help them to carry out their farming activities. This could be land preparation, planting, weeding, and harvest. However, this form of employment should not be over-emphasized because it is part-time only and remuneration is very low. Farmers always take advantage of high unemployment. Urban dwellers are stranded and they accept even as little as five dollars per day.

Therefore, the study showed that urban agriculture is crucial for urban food security and healthy nutrition. Majority of sampled households survive from urban farming and it has been revealed that urban food production has been a response to insufficient, unpredictable and unbalanced access to food and the lack of purchasing power. In town and cities lack income directly translate to lack of food than in rural areas because money is needed to buy food.

The dwindling of rural food production together with uneven food distribution in the urban areas exacerbates urban food insecurity. Consequently, urban dwellers turn to urban agriculture as a safety valve. Besides improving food security, urban agriculture also makes fresh food available to urban farmers and neighbours who can access it as gifts and from the market. Urban agriculture is also a crucial source of income for a significant number of households. They get income from selling surpluses and this enables them to reduce household expenditure.

Nevertheless, there are still some concerns in urban agriculture that are still hindering realization of full benefits. This includes access to land, shortage of land, shortage of water, underdeveloped pieces of land and shortage of inputs such as

fertilizer and seeds. All these shortcomings emanate from the uncertainty of land tenure and illegality of urban agriculture in Zimbabwe, particularly in Harare.

Access to land for urban agriculture has been through informal means such as self-allocation, invasion, inheritance and a few rented from the people who might not want to plant crops for a certain season. Farmers are always anxious and afraid of the city authority that they may one day come and destroy their crops. Consequently, farmers cannot develop their pieces of land since they know their activities are regarded as illegal. Urban agriculture is always facing competition from built development and land for urban agriculture continue to dwindle which also affect land access for urban farmers.

Crop theft is also one of the problems being faced by many farmers in the urban area. This is a problem for almost every farmer. There is crop theft when crops are ready for harvesting. Maize farmers complain about the theft of maize when they are still fresh in the fields. Green maize has a ready market and thieves can also save them with their families. There is no security personnel to guard over the fields Some farmers are located far away from their farms that they cannot check them every day.

The unofficial land acquisition has also caused conflicts among urban farmers. Politics of exclusion, different access to land and water have led to deeply entrenched struggles and conflicts among actors. There is increased competition among farmers themselves and also with other residents who perceive the same resources differently. Urban farmers are using different ways to gain access to the land, some access land through self-allocation (invading and first claim), inheritance

and gifts. There are also disputes between city council and farmers which occurs due to differences in interests and perceptions.

Urban farmers are also facing input challenge. This to a larger extent is a critical challenge that results in poor yields. Despite, of having good soils and being located in a region that receives good rains during the rainy season. Some farmers end up using uncertified seeds and this together with the failure to use fertilizers results in poor yields. This is in line with some studies which holds that, there are no loans, subsidies, credit facilities or extension services since urban farming remains an "ad hoc" activity masked in illegality and ambiguity (Kutiwa et al, 2010)

More so, there is also lack of proper farming skills among urban farmers. A notable percentage pointed out that they lack expertise in their farming activities. This is a limiting factor for expansion and growth of urban agriculture. There is need to establish some training and skills imparting programmes on urban agriculture to interested farmers.

Therefore, city councils and national government should come up with agro-zones within urban areas which can be lawfully allocated to urban farmers. Failure of the national and local government to recognize urban agriculture creates a lot of challenges that also hinder the attainment of full benefits that would have been realized if it had been recognized and given policy attention.

5.3. Recommendations

Urban farming has proved to be a viable way of living and if well- planned it can have a great impact on human life. Therefore urban planners should review urban policies

and statutory frameworks on urban agriculture. There should be clear legal laws that permit farmers to practice urban agriculture. These laws will encourage farmers to practice their farming activities without fear of the city authorities. Currently, in Zimbabwe, there are no legal laws that promote urban agriculture. All policies and laws are prohibitive to urban agriculture.

Thus, land tenure of open spaces becomes uncertain and this precludes productive investments in those areas since urban agriculture is considered to be illegal. Services such as extension services, inputs support and loans cannot be accessed by urban farmers. Farmers should have legal ownership of pieces of land and this will assist them to access loans and credit facilities from banks and agro-companies. This will enable the sector to grow and become more productive than now.

Permission to practice urban farming will allow farmers to adopt new technology in urban agriculture. There is no hesitation that the embracing of modern technology in urban farming will enhance urban food production and this will automatically result in the improved livelihood of urban dwellers. Urban food production will remain low until the modern technology is embraced in urban agriculture.

This type of technology will allow dry season farming and may increase food quantity which will allow food supply throughout the year. Farming during the rainy season was noted as one of the challenges being faced by urban farmers so the adoption of the new technological system would allow urban farmers to overcome this challenge.

Dry season farming through the use of irrigation systems would be a feasible way of fighting urban household food insecurity and this can only be achieved when urban farming is considered part of urban development and livelihood strategies. The

inclusion of urban agriculture in national and local economic and social development programmes is the key supportive initiatives for urban agriculture then followed by some coordinated policies strategies that advocate for urban food production advancement.

Such policies should be given special attention and support for various reasons which include but not limited to health promotion and environmental conservation. Women, children, and other vulnerable groups should be encouraged to participate in urban farming as it promotes better living standards. High-value urban agriculture systems like dairying, beekeeping, aquaculture and stall feeding need to be adapted to small-scale operations so that low-income residents can enter into the practice to improve their livelihoods. Marketing strategies for products produced should be in place.

Government and other interested stakeholders should encourage researchers that explore the possibility of urban agriculture in achieving a poverty-free country or society. This can be done through investigating how developed and developing countries have managed to use urban farming as one of the livelihood strategy used by both rich and poor. Benefits accrued from such activities such also be explored and see how the local environment can be used to emulate those who have used it as a living strategy. It has been shown that urban agriculture has several advantages with income generation, improved food availability and income generation among them. Their government and other development agents should then come in and help expand those benefits through different initiatives.

In recognition of the important role urban agriculture plays in the lives of urban residents, it should not be excluded from urban development planning. Rather, an attempt should be made to understand and optimize its role in urban systems. Development specialists and policymakers should quantify the actual output and monetary value of urban agriculture. This should be done with a view to addressing problems faced by the urban farmers. Legal and institutional support should be afforded to the sector so that it can be systematically integrated into the urban ecological system.

In general, in order to promote urban agriculture, the first step would be to accept it as an integral part of urban areas which increase urban beautification, urban greening, and food security and improves ecosystems. Then give it policy attention and policies should on where and how urban agriculture should be carried. Follow up policies should be crafted and aid the government and other stakeholders in form of inputs should be rendered to urban farmers. Monitoring of activities carried is also crucial so as to keep the environment safe.

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Appendixes

1. Household Survey Questionnaire

1. Personal and Household Information

a. What is your gender?

1. Male ( )
2. Female ( )

b. What is your age?

1. 18 – 25 ( )
2. 26 – 35 ( )
3. 36 – 45 ( )
4. 46 – 55 ( )
5. 56 and above ( )

c. Economic activity of the breadwinner in the household

1. Formally employed ( )
2. Informally employed ( )
3. Self-employed ( )
4. Unemployed ( )

d. What is the size of your household?

1. 1 – 4 people ( )
2. 5 – 7 people ( )
3. 8 – 10 people ( )
4. 10 and above ( )

e. Level of education

1. Primary ( )
2. Secondary ( )
3. Tertiary ( )

2. Involvement in urban agriculture

a Does your household practice urban agriculture?

1. Yes ( )
2. No ( )

b If yes, what are the reasons for your household to start practising it?

.....

.....

.....

c How long have you been practicing urban agriculture?

1. Between 1 – 3 years ( )
2. Between 4 – 6 years ( )
3. Between 5 – 10 years ( )
4. Above 10 years ( )

d How did you get the land for urban agriculture?

1. Renting ( )
2. leasing ( )
3. Inherited ( )
4. Other (specify).....

e What is your main crop that you grow?

1. Maize ( )
2. Vegetables ( )
3. Beans ( )
4. Sweet potatoes ( )
5. Others (specify).....

f Do you keep any livestock?

1. Yes ( )
2. No ( )

g Which livestock do you keep?

1. Chickens ( )
2. Rabbits ( )
3. Other (specify).....

h What made you start practising urban agriculture?

1. Supplement income ( )
2. For livelihood ( )

i Has your goal to engage in crop production been met so far as per your expectations?

1. Yes ( )
2. No ( )

j If yes, can you elaborate the benefits?

.....

.....

.....

.....

k Do you employ other people to help you carry out your farming activities?

1. Yes ( )
2. No ( )

l If yes, please explain the assistance

.....

.....

.....

.....

3. Inputs used.

a Do you use certified seeds?

1) Yes ( )
2) No ( )

b If no, please explain kind of seeds you use.....

.....

.....

c Do you use fertilizer in your fields?

1) Yes ( )
2) No ( )

d Do you use irrigation for watering your crops?

1) Yes ( )
2) No ( )

e What kind of labour do you rely on?

1) Family ( )
2) Hired ( )
3) Both ( )

f Do you receive any form of external assistance?

1) Yes ( )
2) No ( )

g If yes, from which agent?

1) Government ( )
2) Private sector ( )
3) Community based organisations
4) NGOs
5) Others (specify).....

4. Use of agricultural outputs

a Do you produce enough food to feed your family?

1) Yes ( )
2) No ( )

b How do you use your agricultural outputs?

1) Home consumption ( )
2) Sharing with others ( )
3) Exchange for other items with neighbours ( )
4) Sell for cash ( )

c If you sell some of the produce, how do you spend the money? Please explain.....

.....

.....

.....

5. Contribution To Household Food Security

a Over the past five years has your household run out food?

1. Yes ( )
2. No ( )

b What is the total monthly cereal requirement for your household in kilograms?

1. 20 kg ( )
2. 30 kg ( )
3. 40 kg ( )
4. 50 kg and above ( )
5. More (specify).....

c When do you consider your family to be food secure?

1. When it has one meal per day ( )
2. When it has two meals per day ( )
3. When it has 3 meals per day ( )

d How many kilograms (kgs) of cereals do you produce per year?

1. 100 - 200 kgs ( )
2. 201 - 300 kgs ( )
3. 301 - 500 kgs ( )
4. 501 and above kilograms ( )

e How long do you use your produce for food per year?

1. 1 – 3 months
2. 4 – 6 months
3. 7 – 9 months
4. 10 – 12 months

f What percentage does urban agriculture contribute to your households' food security?

1. 10 – 20% ( )
2. 21 – 40 % ( )
3. 41 – 60 % ( )
4. 61 – 80 % ( )

5. 81 – 100 % ( )
6. Above % ( )

g If food from your farming activities contributes less than 100%, how do you supplement it?

1. Formal employment ( )
2. Casual jobs ( )
3. Petty trading ( )
4. Gifts ( )
5. Others (specify).....

h Do you consider the food that you produce to be enough for your household?

1. Yes ( )
2. No ( )

i If no, please give reasons.....

.....

.....

6. Challenges faced by urban farmers.

a. What are the challenges that you face in practising urban agriculture?

.....

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b. How can government support you to overcome the challenges you are facing?

1. Assist with inputs ( )
2. Assist with urban agriculture policies ( )
3. Proper land allocation ( )
4. Other (specify).....

7. General views about urban agriculture.

a. Do you consider urban agriculture a worthwhile livelihood in addressing household food security?

1. Yes ( )

2. No ( )

b. If yes, in what way?

.....

.....

.....

c. If no, why does your household continue to engage in the activity?

.....

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.....

d. Suppose the Zimbabwe economy was, would you still urban agriculture a worthwhile activity in addressing household food security?

.....

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.....

.....

Thank You!!!!! Ndatenda!!!!! Siyabonga!!!!!

6. Confidentiality Form

I, Prosper Obvious Chikondowa I am asking you to answer some questions, which I hope will benefit your community and possibly other communities in the future.

I, Prosper Obvious Chikondowa I am conducting research regarding urban agriculture and food security. I am interested in finding out more about the role of urban agriculture in household food security. I am carrying out this research academic purpose and to help communities understand the role of urban agriculture in food security. The study also seeks to give a light to policymakers on the role of urban agriculture in household food security. By establishing the findings on the role of urban agriculture on food security policymakers can be encouraged to enshrine urban agriculture in their policies of urban development.

Please understand that you are not being forced to take part in this study and the choice whether to participate or not are yours alone. However, we would really appreciate it if you do share your thoughts with us. If you choose not take part in answering these questions, you will not be affected in any way. If you agree to participate, you may stop me at any time and tell me that you don't want to go on with the interview. If you do this there will also be no penalties and you will NOT be prejudiced in ANY way. Confidentiality will be observed professionally.

I will not be recording your name anywhere on the questionnaire and no one will be able to link you to the answers you give. Only the researchers will have access to the unlinked information. The information will remain confidential and there will be no "come-backs" from the answers you give.

The interview will last around 15 minutes. I will be asking you questions and ask that you are as open and honest as possible in answering these questions. Some

questions may be a personal and/or sensitive nature. I will be asking some questions that you may not have thought about before, and which also involve thinking about the past or the future. I know that you cannot be absolutely certain about the answers to these questions but I ask that you try to think about these questions. When it comes to answering questions there are no right and wrong answers. When we ask questions about the future we are not interested in what you think the best thing would be to do, but what you think would actually happen.

If possible, I would like to come back to this area once I have completed our study to inform you and your community of what the results are and discuss our findings and proposals around the research and what this means for people in this area.

Thank You!!!!!!!!!!

Prosper O Chikondowa

Student No" 201207356

7. Informed consent form

INFORMED CONSENT

I..... hereby agree to participate in research regarding urban agriculture and food security in Zimbabwe. I understand that I am participating freely and without being forced in any way to do so. I also understand that I can stop this interview at any point should I not want to continue and that this decision will not in any way affect me negatively.

I understand that this is a research project whose purpose is not necessarily to benefit me personally.

I have received the telephone number of a person to contact should I need to speak about any issues which may arise in this interview.

I understand that this consent form will not be linked to the questionnaire and that my answers will remain confidential.

I understand that if at all possible, feedback will be given to my community on the results of the completed research.

I hereby agree to the tape recording of my participation in the study

Signature..... Date.....