



International Journal of Development and Sustainability

ISSN: 2186-8662 – www.isdsnet.com/ijds

Volume 12 Number 7 (2023): Pages 286-302

ISDS Article ID: IJDS23010902



Urban Agriculture and the attainment of Sustainable Development Goal 2 (Zero Hunger) in Zimbabwe

Constance Gunhidzirai *

Centre for Social Development in Africa, University of Johannesburg, P.O Box 524 Auckland Park (2006), South Africa

Abstract

This paper explored the efficacy of urban farming in alleviating hunger in Chitungwiza Municipality, Zimbabwe. This study adopted the Sustainable livelihood approach because heads of households use available resources and assets in their community to embark on urban farming. This study is important because limited studies have researched the effectiveness of urban farming in ending hunger in food-insecure households in Zimbabwe. A qualitative approach was employed, with focus group discussions and interviews as data collection methods. The same consisted of 36 participants (heads of households, social welfare officials, and municipal officials) who were purposively selected for this study. The key findings are that urban farmers are growing crops such as maize, sweet potatoes and vegetables produced and others are engaged in animal husbandry such as keeping chickens, goats, and birds. The above farming outputs are for household consumption, and the surplus is sold to increase household income. Furthermore, the sampled participants revealed that they face economic and social challenges that hinder their sustainable livelihoods. The recommendations drawn from the findings were provided to the Chitungwiza Municipality and Department of Social Development.

Keywords: Urban Farming, Sustainability; Households; Poverty; Food Insecurity

Published by ISDS LLC, Japan | Copyright © 2023 by the Author(s) | This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.



Cite this article as: Gunhidzirai, C. (2023), "Urban Agriculture and the attainment of Sustainable Development Goal 2 (Zero Hunger) in Zimbabwe", *International Journal of Development and Sustainability*, Vol. 12 No. 7, pp. 286-302.

* Corresponding author. *E-mail address:* cgunhidzirai@uj.ac.za

1. Introduction

Migration and rapid urbanization have brought social-economic challenges such as hunger and food insecurity to societies around the globe. The current SDGs make it clear that urbanization is directly linked to declining natural capital, sustainable development, and food insecurity (Abu Hatab et al., 2019). Thus, hunger and food insecurity have been made central concerns in the previous Millennium Development Goals and the current SDGs. Over three billion people live in urban areas worldwide, accounting for 55% of the world's population, with 68% expected to live in urban areas by 2050 (United Nations, 2018). This has led the majority of urban dwellers to experience increased urban poverty and food insecurity.

Many scholars have defined the concept of food security in various ways. The Food and Agriculture Organization (2009:1) states that food security refers to when "all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life." Also, Davies et al. (2020) define food security as a state in which everyone can access safe enough, healthy food to live a healthy life. Despite the holistic view of food security emphasized in the definitions above, staple food availability continues to dominate discussions about food security in developing countries. In support, Battersby and Watson, (2019) reiterate that this excludes other aspects of food security, such as food access, usage, and stability. The above definitions agree that food security is grounded on the following components, accessibility, availability, and affordability. In this study, food security refers to the physical and economic access to get food that meets people's dietary needs.

Many countries' households practice urban agriculture as a livelihood to increase food supply and household income. Demmler et al. (2017) defines urban agriculture as the production of crops and keeping small livestock on property within cities and town in areas such as vacant land, roadsides, home gardens and balconies for domestic consumption or sale in urban markets. Opitz et al. (2016) state that urban agriculture refers to the food production activities in and around cities. Many people in African and Asia urban areas practice urban agriculture (Davies et al., 2020). This shows that urban agriculture has become a social phenomenon in urban cities and towns worldwide.

Many people globally are experiencing hunger, and their households are food insecure. Opitz et al. (2016) reported that, in 2010, it was estimated that 45 million households were experiencing limited food supply. Similar tendencies are observed in developing countries, as many rely on soup kitchens and welfare assistance. Similarly, World Food Programme (2022) reported that 7.7 million households, which constitute half of Zimbabwe's population, are food insecure. They are engaging in various agricultural activities to make ends meet. This is visible in Chitungwiza Municipality, where individuals that have low income, less educated and commonly female-headed households are involved in growing crops such as maize, sweet potatoes and a variety of vegetables plants and fruits and keeping livestock such as chicken, goats, rabbits and bird to improve their dietary (Gunhidzirai and Tanga, 2017). This shows that urban agriculture is helping with food security and dietary diversity by making it easier to get locally-grown food and creating jobs for the unemployed.

Although UA is alleviating hunger, factors such as climate change and poor rainfall are contributing to the decrease in crop production outputs and the collapse of many livelihoods in Zimbabwe (World Food Programme, 2020). The above statement is supported by a recent study that reported that 5,5 million people from rural areas and 2.2 million in urban areas are experiencing chronic food insecurity (Zimbabwe National Vulnerability Assessment Committee study, 2020). This shows that low-income households and children are

in dire poverty. The effects of food insecurity have a negative effect on child growth and development. UNICEF (2020) stated that over 1 million children in developing countries do not have access to nutritious food and are vulnerable and susceptible to diseases such as kwashiorkor, anemia, poor eyesight, and vitamin deficiency. This has driven many urban households to practice diverse urban agricultural activities to alleviate food insecurity.

Despite numerous efforts being made by vulnerable urban households to alleviate hunger, there are no clear government policies to support their agricultural activities. Studies done by Mupindu (2015); Tshuma and Mashoko, (2015) agreed, they are no policies or legislation implemented to promote urban agriculture in Zimbabwe. However, they are only laws such as the Environmental Management Act (Chapter 20:27) and the Regional Town and Country Planning Act (Chapter 29:12) which seeks to prohibit the practice of urban agriculture because affects the ecosystem (Ziga and Karriem, 2021). Only the Protection of Land by -Law Act, states that anyone who wants to practice agricultural activities in municipal areas needs to consult the local authority and must be given council approval (Ziga and Karriem, 2021). However, few individuals managed to obtain the land lease from the municipalities to practice urban agriculture because of too much red tape (Tshuma and Mashoko,2015). This has driven vulnerable households to embark on their agricultural activities on any piece of land which is unoccupied. Drawing from the assertion above, urban agriculture requires enabling legislation to be developed because it's vital is alleviating hunger in households that are food constrained.

Urban agriculture is being widely practised in many cities and towns. A study by Tawodzera et al. (2016) reported that urban agriculture promotes food security and economic well-being in Zimbabwe. Therefore, urban agriculture has a lot of potential for the accessibility and availability of healthy and cheap food. By so doing, urban dwellers are trying to create sustainable urban households and meet Sustainable Development Goal 2, which seeks to “end hunger, achieve food security and improved nutrition and promote sustainable agriculture” (United Nations Development Programmes, 2015). This shows that households are taking part in governing their food systems and allow them to learn about food sovereignty in an urban setting.

Previous studies focused on urban agriculture as a source of employment and household income; however, this study explored whether urban farming is attaining Sustainable Development Goal 2 (Zero Hunger). This is an under-researched area in Zimbabwe. This research was conducted to inform future food security and poverty reduction policies in Zimbabwe and across Sub-Saharan Africa by highlighting the potential contribution of urban agriculture in alleviating hunger amongst the vulnerable. This study adopted the Sustainable livelihood approach (SLA) because households in Chitungwiza Municipality use available resources and assets in their community to embark on urban farming. Therefore, this study investigated the association between UA and alleviating hunger.

The next section will elaborate on a brief literature review summarizing existing scholarly work on urban agriculture and food security, the methodology and findings from this study, which focused on the following research questions: What are the dominant forms of urban farming engaged in by households in Chitungwiza Municipality Zimbabwe?, How effective is urban farming in alleviating hunger in Chitungwiza Municipality? and What role is being played by the Chitungwiza Municipality and Department of Social Development in assisting urban farmers in Chitungwiza Municipality. This study is significant because it explored various agricultural activities being done by poor households to alleviate hunger in Chitungwiza, Municipality, Zimbabwe.

2. Literature review

This section reviewed the empirical literature on urban agriculture and food security.

2.1. Urban agriculture and food security

Despite the growing importance of AU and urban food security in small urban cities and towns, the majority of these studies have concentrated on large metropolitan areas. UA is a familiar sight in expanding cities in developing countries. Fuseini et al. (2019) state that, in sub-Saharan countries, urban agriculture has been widely practised but governments have undervalued it and have yet to adopt the idea of formally incorporating it into urban development agendas. In developed countries such as the United States of America and Britain, it is known as community gardening which is part of community development (Parece and Campbell, 2017). These community gardens are done to provide fresh organic foods.

Furthermore, in developing countries in Africa and Asia, urban agriculture serves to alleviate hunger from resource constraints families and is a source of generating income (Siegener et al., 2018; Waren et al., 2015; Gallaher et al., 2013). Despite the above assertion, (Olivier, 2018:1; Rezai et al., 2016; Sabiiti and Katongole, 2014), state that, although urban agriculture can be a source of income, the “poorest of the poor” are often excluded from its benefits because their solemn purpose is on consumption. This shows that urban agriculture is not likely to benefit individuals at risk of social exclusion.

However, they are research studies that argue otherwise. For instance, studies in Kenya on sack gardens, chicken farmers in Botswana and food gardening in South Africa showed how economically marginalized urban women gained economic and social power through urban agriculture (Olivier, 2018). This discrepancy in findings suggests that an intervention variable has not been considered. Households are practising urban agriculture because of social and economic reasons which are they are food insecure and seek to obtain income from the surplus.

Food insecurity affects all facets of an individual's well-being. Perez-Escamilla (2017:1), noted that food insecurity has a detrimental effect on cognitive, physical, emotional and social development. In 2015 the United Nations General Assembly launched the 17 Sustainable Development Goals (SDG) to address challenges facing people in Society. SDG 2 seeks to alleviate Zero Hunger and incorporates activities across different levels and industries to end global hunger (United Nations Development Programmes, 2015). Furthermore, SDG2 helps people at different levels of government and non-government organizations work to solve the problem of hunger and malnutrition on a national scale (Battersby, 2019). This has led to various social protection programs to assist vulnerable families and communities.

Furthermore, SDG2 (Zero hunger) is linked to SDG 1, which calls for “no poverty, “and SDG 11 for “sustainable cities and communities” (Perez-Escamilla, 2017; United Nations, 2015). This shows that attaining the above SDGs in developing countries is based on how the cities are administered, planned, and controlled by their governments (Padghm et al., 2015:184). In the case of Zimbabwe, the policies implemented to curb hunger have not been successful because of the socio-political and ecological context. Thus, households are embarking on urban agriculture (Tawodzera and Chigumira, 2019). This is supported by Machakaire and Tapela (2016), who note that inadequate food availability contributes to food security, which is also

significantly correlated with high unemployment levels and increased household poverty. The above factors cause food insecurity and drive poor households in urban settings to engage in various agricultural activities.

Urban agriculture needs to be incorporated into the city planning processes. Crush and Riley (2019) believe that there is a need to rethink the decision-making process at various stakeholder levels on urban planning, land use, transportation and allocation of land for agriculture usage. This is an important aspect because urban agriculture alleviates hunger and creates a supplementary income source for vulnerable households. In support of Fuseini et al. (2019), governments should formulate urban security policies and include all stakeholders in the urban planning agenda. This vital food security intervention seeks to reduce hunger and unemployment in urban areas.

2.2. Urban agriculture in Zimbabwe

The constitution of Zimbabwe in Section 15 states that citizens have a right to cultivate and built up sufficient food reserves to guarantee their safety from hunger (Government of Zimbabwe, 2013). Furthermore, in Section 77, state agencies are mandated to implement practical measures to ensure access to adequate food supplies (2013). This shows that food security is vital for the well-being of the citizen. However, the social-economic challenges people in Zimbabwe face affect their households' sustainability as they are food insecure. In support of the above statement, Mambiravana et al. (2022) state that over the past two decades, Zimbabwe is facing an increase in unemployment, corruption, poor delivery, food price and violation of human rights. The above factors have perpetuated household poverty and hunger in the vulnerable population. This shows that the Constitution of Zimbabwe is inadequate because it prioritizes food production rather than other measures of ensuring food safety, as factors such as food pricing are not given enough attention.

2.2.1. Different forms of urban agriculture activities

They are two forms of urban agriculture being practised in Zimbabwe which are crop production and animal husbandry. Crop production refers to the process of growing food crops and industrial crops for domestic consumption and commercial purposes (Chamunika and Makaye, 2015). Animal husbandry is defined as the keeping of animals for domestic use such as meat and milk (Ziga and Karriem, 2021). In Zimbabwe, many vulnerable households are engaging in crop production and animal husbandry to alleviate hunger. A study done by Toriro (2019) reported that households are breeding animals such as rabbits, birds, pigs, chickens and goats in tier backyards. In a similar study conducted in India, many urban residents are rearing pigs, sheep, and goats in major cities to diversify their diet (Pathak et al., 2022). This shows that animal husbandry plays a vital role as a source of protein in many urban households.

They are various crops which are grown by urban farmers. In Zimbabwe, poor households are growing food crops such as maize, vegetables, sweet potatoes, tomatoes and onions (Crush and Riley, 2019). These food crops are important because they constitute their daily diet. Tshuma and Mashoko (2015) noted that the majority of households grow maize crops on wet and unused land because it's their staple food. This led to clashes between the municipal officials and residents as they are cropping crops in prohibited land. This is evidenced by the continuous slashing and burning of crops on the wetlands by municipal officials (Mupindu, 2015). Therefore, the relationship between urban farmers and municipal officials is hostile.

Food insecurity has led to the advent of urban farming in Zimbabwe. Studies in Zimbabwe by Gunhidzirai and Tanga (2017); Machakaire and Tapela (2016) state that most households practice urban agriculture to alleviate hunger and supplement income through the sale of produce. Urban agriculture is practised in community gardens, renting land for farming, backyard gardens and farming on unoccupied municipal land such as wetlands (Tawodzera and Chigumira, 2019). The crops being ploughed, and domestic animals kept are for household consumption and the surplus is for resale to obtain an income. In support, Battersby (2019) denotes that urban agriculture is not a new phenomenon in the urban landscape as residents are involved in crop production and animal husbandry. This shows that urban agriculture is gaining prominence in the study and development of urban food systems to lower household food insecurity. The above-mentioned agricultural activities have increased food supplies in vulnerable households.

2.3. Challenges hindering urban agriculture

Poor households in urban areas are facing various challenges in their agriculture activities. Crush et al. (2011) state that the Urban Council Act in Zimbabwe designated land for residential and industrial economic activities and prohibited practising agriculture. This makes urban agriculture illegal in Metropolitan cities in Zimbabwe. Furthermore, Tanyanyiwa et al. (2022) denote that laws implemented by the Urban Council Act are rooted in outdated colonial land use planning practices and only allow for single-use zoning in cities, ignoring the reality of changing land use patterns, urbanization, migration and rise of informal economic activities. This directly conflicts with international donors who advocate for urban agriculture to be included in urban policy agendas and planning as its contribution to food security in resource-strained households.

Crop production in swamps and unoccupied land is prohibited in urban areas. This has led to municipal officials burning and slashing their crops (Tionei and Holden, 2020). The major reasons are that UA is causing land degradation, pollution, and soil erosion, and the pesticides used by farmers contaminate the water tables (Toriro, 2019). Similarly, in, Zambia, Kenya and Malawi, urban agriculture is not recognized as urban land use because it pollutes the environment (Memon and Smith, 2014; Mkwambisi et al., 2011). This has severe implications for the environment and is a potential risk to the physical well-being of residents.

2.3.1. *The role of governments in supporting urban agriculture*

UA is a global phenomenon which is promoted as a sustainable land use practice in both the global north and global south countries. Due to the increase in population growth, developed countries such as Japan, Belgium, the Netherlands, the USA, and Singapore, have embraced UA as a strategy to increase food production and food access to urban residents (Bousbaine et al., 2020). Their governments have implemented several policies that support urban agriculture (Morena- Peñaranda, 2011). Also, some African countries such as Senegal, Morocco and Algeria have assimilated UA as part of land use in their major cities and town and many residences are growing crops on rooftops and in agriculture parks (Aubry, 2021). This shows that many governments are supporting urban agricultural activities.

In Zimbabwe, UA is permitted to a limited extent. They are no clear policies which support UA; hence the local municipalities have implemented various by-laws which inhibit urban farmers to cultivate on any unused land. In instances where UA is practised, the municipalities have agreed that farming activities must be done

30 meters away from the water sources, and 15 meters from the road junction and domestic animals kept must be in small numbers (Ziga and Karriem, 2021).

They are a few declarations that have been implemented by the government in support of UA in Zimbabwe. The Nyanga Declaration on Urban and Peri-Urban Agriculture in 2001 and the Harare Declaration in 2003 emphasized the significance of UA in alleviating hunger and as an income-generating activity for unemployed individuals (Tshuma and Mashoko, 2015). The above Declarations stated that town planners need to include UA activities on the urban landscape because it's playing a crucial role in social-economic development.

The economy of Zimbabwe is agro-based; therefore, the government has institutions which support farmers in their agricultural activities. Tshuma and Mashoko (2015) state that, the Zimbabwe Farmers Union and the Ministry of Agriculture, Mechanization and Irrigation provide services such as farming inputs, access to finance and urban agriculture business workshops to both rural and urban farmers in Zimbabwe. In contrast, Mambiravana et al. (2021) state that not everyone has access to and can benefit from government support programmes as only politically connected individuals and their supporters are the main recipients. Therefore, the intended beneficiaries in urban areas are excluded because most of them are supporters of the opposition party. This hinders the sustainability of their agricultural activities.

3. Theoretical context

This study is underpinned by the Sustainable Livelihood Approach (SLA). The notion of livelihood was established by Robert Chambers in the mid-1980s, who explained that it consists of skills, assets and activities acquired to make a living (Chambers and Conway, 1992). In support, the Department of International Development (2000) explained that a livelihood is sustainable when it can withstand and recover from stresses and shocks and maintain or improve its capabilities, assets and activities today and in the future without jeopardizing the natural resource base (FAO, 2009). SLA looks at how poor people can keep and increase resources productivity, ownership of capital assets and income-generating activities to ensure they have enough food and income to meet their basic needs (Scoones, 1998). Therefore, sustainable livelihoods explain the connection between poverty and the environment.

Salafsky and Wollenberg (2000) assert that SLA is a participatory strategy based on the premise that everyone possesses abilities and assets that may be developed to improve their quality of life. The SLA stipulates that to initiate development, households and communities must be able to identify assets that people utilize to build their livelihoods, including physical, natural, human and social capital (Farrington et al., 1999). This means a person or household's ability to participate in, gain from, and contribute to society and the ecological environment is enhanced by acquiring the above capital. In this study, food-insecure households engage in various urban agriculture activities by utilizing available land and resources in the communities around Chitungwiza Municipality.

SLA is grounded on the following principles founded on people's strengths, seeks to understand development as holistic, utilization of natural resources and calls for the participation of all stakeholders in poverty alleviation (Chambers and Conway, 1992). This theory fits into this study because urban farming is a livelihood done in vulnerable urban communities to ensure they are food insecure. Furthermore, it shows how urban farmers utilize available resources to make ends meet. Furthermore, the sustainability of a livelihood depends on the political and vulnerability context, including evictions and climate change and the role of

government, the private sector and non-government organizations (Reid and Vogel, 2006). Therefore, in this study, the Department of Social Development and Chitungwiza Municipality are the public institutions responsible for implementing structures, such as policies and legislation, which determine the sustainability of livelihoods and households in Chitungwiza Municipality. Therefore, SLA applies to this study.

4. Methodology

To understand the effectiveness of urban farming in achieving Sustainable Development Goal 2 (Zero hunger), the researcher adopted a constructivist paradigm as people's perceptions and meanings are derived through interaction with the environment. The participant's information was gathered using a qualitative method that included interviews and focus group discussions (FGDs). The key informants were comprised of five Social Welfare Officials from the Department of Social Development and five Municipal officials, who were interviewed using a semi-structured interview guide. An in-depth interview guide was used on four FGDs held with heads of households in Chitungwiza Municipality. The key informants were chosen because of their adequate knowledge of urban farming and the challenges facing households in Chitungwiza Municipality. The interviews were conducted with selected participants from the Department of Social Development and Municipality Head Office in Zengeza in Chitungwiza. The interviews lasted 40 minutes each with the participants. The researcher conducted four FGDs with heads of households with eight participants per group. Many households in Chitungwiza Municipality were engaged in urban farming hence the researcher purposefully selected participants for the FGDs.

Purposive sampling was applied to this study because the researcher wanted to select heads of households who are involved in various agricultural activities in Chitungwiza Municipality. This was important because they have vast information which was going to respond to the research questions of this study since they are involved in various agricultural activities. The FGDs were held in Community halls in Zengeza, Seke Unit L and Chikwanha Market. These discussions lasted for 30 minutes with each group. The researcher sought consent to record the interviews, and the data collected were later transcribed and translated into English since some participants responded in the local Shona language.

The qualitative data gathered from the key informants and heads of households were analysed using thematic analysis. Thematic analysis is a "method used for analyzing and reporting patterns (themes) within the data" (Braun and Clarke, 2006:79). This study followed the stages of thematic analysis which include data familiarization, code generation, theme search, themes revision and theme definition (Braun and Clarke, 2006). The researcher chose this method of analysis because it produces a rigorous analysis in responding to the research questions. The participants who took part in this study were few, therefore manual analysis was used to transcribe the qualitative data. The researcher read all the interview transcripts of the participants and listened attentively to all audio recordings to obtain accurate translations. After this procedure, the researcher translated all interviews into verbatim. The researcher developed two major themes and various sub-themes that were drawn from the research questions of this study. The analysis was driven by the theoretical interest in exploring the efficacy of urban agriculture in alleviating hunger in Chitungwiza Municipality, Zimbabwe.

To identify the participants, a coding system was used as follows: municipal officials- MO, social welfare officers-SW and heads of households in focus group discussions -HH. The coding proved useful for protecting participants' true identities, which is a vital ethical consideration. In addition, the researcher chose thematic

analysis since it produces a rigorous analysis in response to the research questions of this study. The researcher obtained ethical clearance from the University Research Ethics Committee (UREC) at the University of Fort Hare and gatekeeper's permission from Chitungwiza Municipality in Zimbabwe. The researcher observed all the fundamental ethical issues, such as confidentiality, informed consent and seeking an ethical clearance letter before data was collected in this study.

5. Findings

The section reports on the qualitative findings gathered from the Municipal Officials, Heads of households and Social Welfare Officials in Chitungwiza Municipality.

5.1. Profile of the Participants

The participants who took part in this study consisted of both males and females of different age groups. In the FGDs, there are more women, children and grandparents who are engaged in various agriculture activities than men. The following are the views of the participant:

Most Zimbabwean men are patriarchal and believe women are responsible for the household food supply of the entire family. (HH 6)

The economy's collapse has led my husband to search for better opportunities in South Africa while I remain to take care of the children. (HH14)

On the raids we often do in swap areas around Chitungwiza, I have noted that many of my arrests are women and older adults involved in illegal farming. (MO1)

My daughter passed away and left 5 children. Since then, my son-in-law has not been supporting the children since he has been depressed and is now an alcohol addict. The swamps behind the Chibuku stadium have been my source of food. (HH18)

The findings above corroborate Abu Hatab et al. (2019), who reported that the majority of urban farmers are women and children because of the increase in unemployment and food pricing in many African cities. A study done in Zambia also revealed that women are active participants in UA because they have low skills to enter the informal economy (Fuseini et al., 2019). This shows that various social-economic challenges are driving urban residents to engage in urban agriculture.

5.2. Dominant forms of urban agriculture

This study revealed that vulnerable households are involved in forms of urban agricultural activities which are crop production and animal husbandry. These agricultural activities have been done to increase household food supply and the surplus is sold to obtain an income. Some of the participants elaborated that:

I no longer buy sweet potatoes and maize cob because I plough them in my backyard. (HH 12).

Since 2009 I have been practising poultry farming. Although I started this income-generating project because of being retrenched at work. (HH 09)

I have my orchard full of mangoes, bananas and guava just a few meters from my house. My grandchild enjoys helping me out pruning the fruit trees. (HH24)

Contrary to the above view, Municipal officials affirmed that:

In Zengeza and Jambanja areas, households are involved in floriculture for exporting and using the raw material to produce perfumes and body lotion. (MO1)

The findings are consistent with Olivier (2018), who alludes that urban agriculture promotes sustainable households in Cape Town, South Africa. In support of the above, Opitz et al., (2016) denote that urban farmers who are low-income earners are in poverty and growing crops and keeping domestic animals serves a lot of purpose in their households. Scoones (1998) states that livelihoods done by poor people are being done as a mechanism to alleviate poverty. This shows that the SLA applies to this study because households in Chitungwiza Municipality are involved in different agricultural activities to alleviate poverty, food insecurity and hunger.

5.2.1. Nutritional and dietary changes

This study sought to understand the relationship between urban agricultural activities and nutritional and dietary changes amongst households in Chitungwiza Municipality. This is vital because participants of this study noted they are food insecure. Some of the participants lamented that:

My grandchildren no longer suffer from kwashiorkor or are easily attacked by infectious diseases because they get a lot of Vitamin C from my orchard. (HH19)

Another participant added:

Although I try to provide a balanced diet for my children, they are always sick because of land pollution. I do not even know if the water we are using for watering plants is safe because of the sewage flowing down the water streams (HH 5).

My family enjoys the variety of meals every day because we plough all the food they eat on unused municipal land. My poultry project has included meat daily. (HH27)

The findings of this study align with Sabiiti and Katongole (2014), who indicated that families in Kampala, Uganda, who engage in urban agriculture are more likely to have access to a wider selection of fresh vegetables, meats and fruits. Furthermore, children's health and growth have been shown to improve because of access to a variety of organic foods (Crush and Riley, 2019). In support of the arguments above, Chambers and Conway (1992) state that the utilization of natural resources plays a vital role in alleviating poverty. This shows poor people are harnessing the assets in their environment to improve their standard of living.

5.2.2. Household Changes in Food Consumption

The majority of households are experiencing food insecurity and hunger. This drives them to engage in agricultural activities to increase the food supply for consumption. Members of the FGDs who took part in this study narrated that:

Since I started growing maize, butternuts, pumpkins, and sweet potatoes, there has always been plenty of food in my house. However, my children have their preferences. I am happy, at least throughout the year, they have never slept on an empty stomach (HH10).

Although HH 3 indicated that her family has positive changes in food consumption, one of the participants submitted that:

I can only provide my family with two meals per day; the word balanced diet does not exist in this household. The money I get from my poultry farming is diverted to other pressing needs such as school fees, utilities and rental fees (HH 27).

Another participant added:

My children are no longer fighting for food because there is always plenty of fruits to eat in between meals. Furthermore, I now cook pap and rice in abundance because the land I am ploughing these days is very fertile, making me harvest a lot of maize and rice. (HH9)

The above findings align with a study done by Battersby and Watson, (2018), who argue that urban agriculture in Kenya, Zambia and Zimbabwe contributes to changes in food consumption, accessibility and affordability to poverty-stricken families. Abu Hatab et al. (2019) also mentioned that urban agriculture alleviates hunger in developing countries such as Africa, Asia, and Latin America. Therefore, they are a close link between urban farming and the attainment of SDG 2 (Zero hunger).

5.3. Challenges faced by poor households

There are several challenges being faced by poor households in their urban agricultural activities. These social, economic and physical challenges hinder their goals from attaining the required production output. Below are the views of participants who took part in the FGDs.

There has been less rainfall and the harvest has declined for the past five years. Worsening the situation, the heat wave is extremely bad for the crops. The municipal officials slash our crops and constantly arrest us for occupying municipality land illegally. (HH 25)

In Unit L and A, the rise of land barons and housing cooperatives has led to the confiscation of the land which we used to grow crops. This is affecting me because I can only plough a few crops in my backyard and it's insufficient to provide daily meals as I used to in the past. (HH 19)

Extreme hours of load shedding and cable theft have led me to downscale my poultry project because the birds and chicken often get rotten. Furthermore, it is difficult to obtain loans for small projects from the Ministry of Youth Development, Indigenization and Economic Empowerment. (HH 18)

The above findings are supported by Tionei and Holden (2020) who reported that in Malawi they are no actual rules to govern and assist urban agriculture although it's listed under Town and Country Planning. Furthermore, urban land that was once designated for agricultural use has been diverted for other purposes such as construction and residential stands. Tanyanyiwa et al., (2022) state that, the majority of urban residents do not meet the criteria to benefit from the pfumvudza agricultural programme contrary to the rural residents. The disparities in the selection criteria show that government and its stakeholders need to revise the selection criteria so that it is inclusive to urban farmers. This is supported by the SLA, which states that the political context needs to implement policies which are pro-poor and seeks to enhance the sustainability of vulnerable households.

5.4. Social support services

Urbanization has led to an increase in food insecurity and hunger amongst low-income earners in urban areas. In addressing the challenges faced by the Chitungwiza Municipality has embarked on various welfare programmes. The key informant who took part in this study responded:

Those households in Seke village who were allocated land for farming are being provided with fertilizers and pesticides by the Chitungwiza Municipality. Furthermore, they are given market permits to sell their surplus produce at Jambanja, Ziko and Chikwanha marketplace (M01).

We provide referrals to Young Africa Skills Development Organizations and Agritex to teach them sustainable livelihoods and how to conserve the ecosystem. This is a good opportunity for the residents as it allows them to diversify their livelihoods. They are assisted in writing a project proposal for funding (M01).

The findings above are contrary to Waren et al. (2015) who revealed that under-resourced local governments in developing countries are not adequately addressing urban food security and nutrition problems. The above argument is supported by the majority of poor people who seek food relief packages from non-government organizations. This calls for a need to recognize urban farmers as potential stakeholders in the reduction of food insecurity and poverty.

5.5. Limitations of the study

This study's sample size was small as it consisted of 32 participants who took part in 4 FGDs and 10 key informants who were interviewed. The researcher adopted member checking as a strategy to ensure the credibility of these qualitative findings. In this study, 5 participants were allowed to evaluate the findings and the conclusions, to check whether their views, opinions and responses were elaborated correctly. Lastly, two municipal officials refused to be audio recorded for fear that the tape recorder may be lost and end up in the

hands of the journalist which may jeopardize their careers. The researcher then asked permission from the municipal officials and was granted the opportunity to write down in a diary all the interesting points raised they were raised during the interview.

6. Conclusions and policy recommendations

This study contributed to the existing literature in the field of food security and urban agriculture by showing that urban agriculture is alleviating hunger, promoting sustainable households and improving health equity. Furthermore, this study was unique because little information is known about how urban agriculture is playing a vital role in the attainment of Sustainable Goal 2 (Zero hunger) in Zimbabwe. Therefore, it facilitated the transfer of knowledge about how urban agricultural activities are alleviating hunger in food-constrained households.

The conclusions were drawn from the participants who took part in this study. Using the SLA, the findings denoted that vulnerable households are involved in urban agricultural activities such as crop production and animal husbandry in their backyards, wetlands and unoccupied land in Chitungwiza Municipality, Zimbabwe. The main reasons for engaging in this practice are to make sure families have enough food and to augment revenue during a period of progressive degradation in the economy. Furthermore, AU is helping to reduce the number of children who are malnourished. The analysis of the findings reported that the presence and nature of urban agriculture in Chitungwiza Municipality are strikingly like other African cities and towns. Even though UA is common in Chitungwiza Municipality and makes a sizable contribution to household food baskets, the findings noted that its growth is being held back by factors such as poor urban planning models, laws which deem urban agriculture as illegal and climate change.

This study recommended a need for a two-pronged policy approach. The first approach is directed to the Department of Social Development which needs to formulate an indigent policy which can offer social welfare assistance such as food parcels and cash transfers to low-income urban households. This will help in alleviating urban poverty in Zimbabwe. The second approach advocates for the need to revise Urban Council Act Chapter 29:15 and Regional Town Planning Act Chapter 29:12. The municipality officials need to revise the Urban Council Act Chapter 29:15 and abolish the practice of destroying and slashing crops because it's a source of livelihood for the low-income households. Lastly, the town planners need to revise the Regional Town Planning Act Chapter 29:12 and include UA activities as part of urban landscape activities. This is vital because UA is contributing to food security and employment creation. By formalizing UA activities, more low-income households will be able to receive farming input subsidies from the local municipality which will increase their output and help to create sustainable households.

Acknowledgement

This researcher acknowledges the DST/NRF South African Research Chair in Welfare and Social Development and the Centre for Social Development in Africa at the University of Johannesburg for their institutional affiliation and valuable support.

References

- Abu Hatab, A., Cavinato, M.E.R. and Lagerkvist, C.J. (2019), "Urbanization, livestock systems and food security in developing countries: A systematic review of the literature", *Food Security*, Vol.11 No.2, pp. 279-299.
- Aubry, C. (2021), "Urban agriculture: tomorrow's cities will be green", available at <https://ideas4development.org/en/urban-agriculture-cities/> (Accessed 15 May 2023).
- Battersby, J. (2019), "The food desert as a concept and policy tool in African cities: an opportunity and risk", *Sustainability*, Vol. 11 No. 2, pp. 1-15.
- Battersby, J. and Watson, V. (2019), *Urban food systems governance and poverty in African cities*, Routledge, London.
- Bousbaine, A.D., Nguendo-Yongsi, H.B. and Bryant, C. (2020), "Urban Agriculture in and around cities in developed and developing countries: A conceptualization of Urban agriculture and challenges", in: Thornton, A. (Eds), *Urban Food Democracy and Governance in North and South*, Palgrave Macmillan, London, pp. 9-25.
- Braun, V. and Clarke, V. (2006), "Using thematic analysis in psychology", *Qualitative Research in Psychology*, Vol. 3 No. 2, pp. 77-101.
- Chambers, R. and Conway, G. R. (1992), "Sustainable Rural Livelihoods: Practical Concepts for the 21st Century", Institute of Development Studies Discussion Papers 296, Institute of Development Studies, Brighton, 16 June.
- Chaminuka, N. and Makaye, P. (2015), "The resilience of urban agriculture in the face of adversity from city authorities: The case of Mkoba", *Global Journal of Human-Social Science*, Vol. 15 No. 3, pp. 15-22.
- Crush, J. and Riley, L. (2019), "Rural bias and urban food security", in: Battersby, J., Watson, V. (Eds.), *Urban Food Systems Governance and Poverty in African Cities*, Routledge, London, pp. 42-55.
- Crush, J., Hovorka, A. and Tevera, D. (2011), "Food security in Southern African cities: the place of urban agriculture", *Programme Development Studies*, Vol. 11 No. 4, pp. 285-305.
- Davies, J., Hannah, C., Guido, Z., Zimmer, A., Mc Cannon, L., Battersby, J. and Evans, T. (2020), "Barriers to urban agriculture in Sub-Saharan Africa", *Food Policy*, Vol. 103 No. 5, pp. 1-14.
- Demmler, K.M., Klasen, S., Nzuma, J.M. and Qaim, M. (2017), "Supermarket purchase contributes to nutrition-related non-communicable diseases in urban Kenya", *PLoS One*, Vol. 12 No. 9, pp. 1-18.
- Department for International Development, (2000), "Sustainable Livelihoods Guidance Sheets. Department for International Development", available at: http://www.livelihood.org/info/info_guidancesheets.htm (Accessed 13 September 2022).
- Farrington, J., Carney, D., Ashley, C. and Turton, C. (1999), "Sustainable livelihoods in practice: Early applications of concepts in rural areas", Working paper, Overseas Development Institute, London, 15 October.
- Food and Agriculture Organization, (2009), "Food, agriculture and cities: challenges and priorities", available at: http://www.fao.org/fileadmin/templates/FCIT/PDF/food-agriculture-cities_advocacy.pdf (Accessed 28 September 2022).

- Fuseini, I., Battersby, J. and Jain, N. (2019), "The characteristics of the urban food systems in Kitwe, Zambia: A focus on the retail sector", in: Battersby, J. and Watson, V. (Eds.), *Urban Food Systems Governance and Poverty in African Cities*, Routledge, London, pp. 195-207.
- Gallaher, C.M., Kerr, J.M., Njenga, N., Karanja, N.K. and WinklerPrins, A.M. (2013), "Urban agriculture, social capital, and food security in the Kibera slums of Nairobi, Kenya", *Agriculture Human Values*, Vol. 30 No.3, pp. 389-404.
- Government of Zimbabwe (2013), "Constitution of the Republic of Zimbabwe (No, 20) Act, (2013)", Government Printer, Harare.
- Gunhidzirai, C. and Tanga, P.T. (2017), "Fighting poverty from the perspective of informality in Zimbabwe: The case of poor households", *International Journal of Applied Business and Economic Research*, Vol. 15 No.25, pp. 449-462.
- Machakaire, D.G. and Tapela, T.N. (2016), "Urban development planning practices and responses to rapid urbanization in Harare: A case of dirty lenses, blunt frameworks/instruments or both?", Working Paper, South African Council of Shopping Centre, Johannesburg, 20 August.
- Mambiravana, T., Shava. E. and Gunhidzirai, C. (2022), "Currency Collapse and Middle-Class Livelihoods in Zimbabwe: The Case of Msasa Park Suburb in Harare", *Mankind Quarterly*, Vol. 62 No. 3, pp. 1-24.
- Memon, P.A. and Smith, D.L. (2014), "Urban Agriculture in Kenya", *Canadian Journal of African Studies*, Vol. 27 No. 1, pp. 25-42.
- Mkwambisi, D., Fraser, E.D.G. and Dougill, A.J. (2011), "Urban agriculture and poverty reduction: Evaluating how food production in cities contributes to food security, employment and income in Malawi", *Journal of International Development*, Vol. 23, pp. 181-203.
- Mkwambisi, D.D. (2008), "Urban agriculture in Malawi: poverty reduction, waste management and institutional barriers", available at: <http://hdl.handle.net/10625/40094> (Accessed 30 September 2022).
- Morena- Peñaranda, R. (2011), "Japan's Urban Agriculture: Cultivating Sustainability and Well-Being", available at: <https://ourworld.unu.edu/en/japans-urban-agriculture-cultivating-sustainability-and-wellbeing> (Accessed 2 July 2023).
- Mupindu, W. (2016), "The challenges of food security policy and food quality in Zimbabwe: A case study of Operation Maguta in Buhera District", *African Journal of Public Affairs*, Vol. 8 No. 2, pp. 90-103.
- Olivier, D.W. (2018), "Urban agriculture promotes sustainable livelihoods in Cape Town", *Development Southern Africa*, Vol. 36 No. 3, pp. 1-16.
- Opitz, I., Berges, R., Piorr, A. and Krikser, T. (2016), "Contributing to food security in urban areas: differences between urban agriculture and peri-urban agriculture in the Global North", *Agriculture and Human Values*, Vol. 33 No. 4, pp. 341-358.
- Padgham, J., Jabbour, J. and Dietrich, K. (2015), "Managing change and building resilience: A multi-stressor analysis of urban and peri-urban agriculture in Africa and Asia", *Urban Climate*, Vol. 12, pp. 183-204.
- Parece, T. and Campbell, J. (2017), "A Survey of Urban Community Gardeners in the USA", in: Winklerprins, A. (Ed.), *Global urban agriculture: convergence of theory and practice between North and South*, CABI, Boston, MA.

- Pathak, H., Mishra, J.P. and Mohapatra, T. (2022), "Indian Agriculture after Independence", available at: https://www.researchgate.net/publication/362060024_Animal_Husbandry_in_Pre_Independent_India/link/62d403d9d351bd24f51f34ab/download (Accessed 08 May 2023).
- Perez-Escamilla, R. (2017), "Food Security and the 2015–2030 Sustainable Development Goals: From Human to Planetary Health", *Current Development in Nutrition*, Vol. 1 No 7, pp. 1-8.
- Reid, P. and Vogel, C. (2006), "Living and responding to multiple stressors in South Africa—Glimpses from KwaZulu-Natal", *Global Environmental Change*, Vol. 16 No. 2, pp. 195-206.
- Rezai, G., Shamsudin, M.N. and Mohammed, Z. (2016), "Urban Agriculture: A Way Forward to Food and Nutrition Security in Malaysia", *Procedia-Social and Behavioral Science*, Vol. 216, pp. 39-45.
- Sabiiti, E.N. and Katongole, C.B. (2014), "Urban Agriculture: A Response to the Food Supply Crisis in Kampala City, Uganda", in: Maheshwari, B., Purohit, R., Malano, H., Singh, V. and Amerasinghe, P. (Eds), *The Security of Water, Food, Energy and Liveability of Cities*, Springer, Dordrecht, pp. 233-242.
- Salafsky, N. and Wollenberg, E. (2000), "Linking Livelihoods and Conservation: A Conceptual Framework and Scale for Assessing the Integration of Human Needs and Biodiversity", *World Development*, Vol. 28 No. 8, pp. 1421-1438.
- Scoones, I. (1998), "Sustainable Rural Livelihoods: A Framework for Analysis", Discussion Papers, 72, Institute of Development Studies, Brighton.
- Siegner, A., Sowerwine, J. and Acey, C. (2018), "Does Urban Agriculture Improve Food Security? Examining the Nexus of Food Access and Distribution of Urban Produced Foods in the United States: A Systematic Review", *Sustainability*, Vol. 10 No. 9, pp. 1-27.
- Tanyanyiwa, V.I., Kanyepi, T. and Katanha, A. (2022), "Zimbabwe's Pfumvudza Agriculture Programme—Reality or Rhetoric?", in: Leal Filho, W., Kovaleva, M. and Popkova, E. (Eds), *Sustainable Agriculture and Food Security*, Springer, Cham, pp. 327-347.
- Tawodzera, G. and Chigumira, E. (2019), "Household food poverty in Epworth, Zimbabwe. Consuming Urban Poverty Project", Working Paper No. 8, African Centre for Cities, University of Cape Town, Cape Town, 17 October.
- Tawodzera, G., Riley, L. and Crush, J. (2016), "The return of food: Poverty and urban food security in Zimbabwe after the crisis", AFSUN Food Security Series 22, Cape Town. Available at: <http://www.afsun.org/wp-content/uploads/2016/06/AFSUN22.pdf> (accessed 20 June 2017).
- Tionei, S.E. and Holden, S.T. (2020), "Urban proximity, demand for land and land shadow prices in Malawi", *Land use policy*, Vol. 94 No. 3, pp. 1-14.
- Toriro, P. (2019), "Urban food production in Harare, Zimbabwe", in: Battersby, J. and Watson, V. (Eds.), *Urban food systems governance and poverty in African Cities*, Routledge, London, pp.154-166.
- Tshuma, D.T. and Mashoko, D. (2015), "Urban farming, its relevance, sustainability and policy implications: A case study of Gweru and Masvingo urban areas", *Journal of Sustainable Development in Africa*, Vol. 12 No. 3, pp. 361-37.

- UNICEF (2020), "Malnutrition cases rise as drought, economic deterioration hits Zimbabwe", available at <https://www.unicef.org/zimbabwe/stories/malnutrition-cases-rise-drought-economic-deterioration-hits-zimbabwe> (Accessed 12 May 2023).
- United Nations (2018), "68% of the World Population Projected to Live in Urban Areas by 2050, Says UN", available at: <https://www.un.org/development/desa/en/news/population/2018-revision-of-world-urbanization-prospects> (Accessed 25 September 2022).
- United Nations Development Programme, (2015), "What are the Sustainable Development Goals?", available at: <https://www.undp.org/sustainable-development-goals> (accessed 20 September 2022).
- United Nations, (2015), "Transforming our world: the 2030 Agenda for Sustainable Development, available at: <https://www.refworld.org/docid/57b6e3e44.html> (Accessed 17 September 2022).
- Waren, E., Hawkesworth, S. and Knai, C. (2015), "Investigating the association between urban agriculture and food security, dietary diversity, and nutritional status: A systematic literature review", *Food Policy*, Vol. 53 No.1, pp. 54-66.
- World Food Programme (2020), "What the World Food Programme is doing in Zimbabwe?", available at: <https://www.wfp.org/countries/zimbabwe#:~:text=Zimbabwe%20is%20a%20landlocked%2C%20low,crop%20harvests%20and%20livelihood%20prospects> (accessed 10 May 2023).
- World Food Programme (2022), "Global Report on Food Crises-2022", available at: <https://www.wfp.org/publications/global-report-food-crises-2022> (accessed 20 September 2022).
- Ziga, M. and Karriem, A. (2021), "Role of Urban Agriculture Policy in Promoting Food Security in Bulawayo, Zimbabwe", in: Brears, R. (ed.), *The Palgrave Encyclopedia of Urban and Regional Futures*, Palgrave Macmillan, Cham.
- Zimbabwe National Vulnerability Assessment Committee (2020), "Rural livelihoods assessment", available at <https://reliefweb.int/report/zimbabwe/zimbabwe-vulnerability-assessment-committee-zimvac-2020-rural-livelihoods-assessment> (accessed 10 May 2023).