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URBAN AGRICULTURE AND FOOD SECURITY: A CASE STUDY OF OLD PUMULA SUBURB OF BULAWAYO IN ZIMBABWE.

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ABSTRACT

This study is an investigation on how urban agriculture enhances food security in Old Pumula suburb of Bulawayo. The study sought to establish the nature and extent of urban agriculture in Old Pumula identify challenges faced by urban farmers and suggest recommendations for improved urban agriculture. A descriptive survey research design was used and the mixed method used for data collection and analysis. Data were collected through the questionnaire for Old Pumula residents (respondents) and through an interview with the Agricultural Research and Extension (AREX) officer. The results of the study confirm that urban agriculture contributes significantly to food security in Old Pumula. The research also revealed that urban farmers are faced with severe land shortage and are restricted by by-laws from free practise of urban agriculture. The study recommended that government could amend its by-laws and include urban agriculture in urban land use zones. It also recommended that government should avail more land for urban agriculture.

Key words: Urban agriculture, food security

1. INTRODUCTION AND BACKGROUND TO THE STUDY

Studies in Zimbabwe and elsewhere in the world have shown that urban agriculture plays a very important role in alleviating poverty in urban areas. FAO (2012) states that urban agriculture employs about two million people in the world and in sub Saharan Africa 40 % of urban residents are involved in urban agriculture and in Latin America urban agriculture is a source of food to about 50% of urban population. This is evidence that although urban populations are viewed as surviving on earned income ,a good number of them still need to do market gardening and other forms of agriculture in order to supplement their meagre earnings.

Tefere (2010) gives an example of Nairobi in Kenya where almost 300 000 households translating to 1, 8 million people depend on urban agriculture for food and income. In the same vein Prain (2011) states that half of the vegetables consumed in Havana, Cuba are grown in city farms and gardens. In Tanzania it is estimated that 28% of urban households get their income from agricultural activities.



In the same vein Basure and Taru (2010) state that urban agriculture is a survival strategy to cope with difficult conditions in urban areas.

Most people in urban centres have resorted to urban agriculture as a strategy to enhance food security. Studies have shown that urban agriculture is not only practised by the urban poor but even by middle class households such as civil servants and other professionals who need to augment their low salaries. This is a similar scenario in Zimbabwe where urban dwellers are heavily engaged in urban agriculture. Old Pumula suburb in Bulawayo is one of the oldest residential places for the natives established during the colonial era in Zimbabwe. Pumula originally means a resting place; hence Old Pumula was built mainly for those people who have retired from their jobs. The trend still exists today as many residents of Old Pumula are mainly pensioners. As such it is mainly populated with pensioners and a few unemployed able bodied men and women who survive through odd jobs. There are also middle class citizens who reside in Old Pumula, such as teachers and nurses among others. Their incomes are low and cannot meet all their basic needs, hence urban agriculture becomes the only major activity in enhancing food security in old Pumula. Zimstat (2015) states that a poverty assessment survey carried out in 2013 revealed that about 34, 5% of urban workers have incomes that fall below the poverty datum line. Those employed formally spend most of their incomes on food. This is confirmed Mashoko (2010)'s findings which indicate that people practise urban agriculture to enhance food security and incomes.

This study therefore sought to assess the extent to which urban agriculture enhances food security to vulnerable Old Pumula residents whom the majority are not gainfully employed against the background of rising food costs and other challenges associated with developing countries like Zimbabwe.

1.1 Statement of the problem

Urban households have been affected by rising cost of food and high unemployment in Zimbabwe. The closure of industries and the economic meltdown from year 2000 to date has left many people jobless and with less disposable incomes in most parts of Zimbabwe. The residents of Old Pumula in Bulawayo in Zimbabwe have not been spared from these challenges of unemployment and food insecurity. As a result, achieving food security has become a problem for urban dwellers like Old Pumula households. During the rain season maize is grown in open spaces around Old Pumula while vegetables are grown in almost every household and there are two community gardens in Pumula. This study therefore sought to assess the extent to which urban agriculture enhances food security in Old Pumula against the challenges encountered by urban farmers in order to propose strategies for improved urban agriculture.

1.2 Research questions

The study was executed through the following research questions

- What is the nature and extent of agricultural activities in Old Pumula?
- To what extent does urban agriculture supplement household food and income in Old Pumula?
- What are the challenges affecting urban agriculture in Old Pumula?
- Which classes of people are involved in urban agriculture in Old Pumula?
- What strategies can be used to improve urban agriculture in Old Pumula?

1.3 Significance of the study

This study highlights the extent to which urban agriculture enhances food security in Old Pumula suburb of Bulawayo in Zimbabwe against the challenges faced by these farmers where no such study has been documented before. The findings are used to make recommendations to government of Zimbabwe and to the Bulawayo City Council to formulate and implement policies that promote urban agriculture to enhance food security. The local community (Old Pumula residents) may also benefit from the study if strategies for improved urban agriculture are implemented. Last but not least 'O' and 'A' level students studying geography at school may also benefit from the findings of this study since urban agriculture is included in the geography syllabus. Other researchers aspiring to conduct similar studies may also benefit from the findings of this study.

1.4 Assumptions

The study assumed that:

- most households in Old Pumula practise some form of urban agriculture
- cultivation in open spaces surrounding Old Pumula is mainly conducted by Pumula residents
- urban agriculture in Old Pumula is faced with a number of challenges
- residents of Old Pumula will be found wanting to freely participate in the study



1.5 Scope (delimitation) of the study

The study focused on urban agriculture practised by residents of Pumula Suburb in Bulawayo -Zimbabwe. It was confined to Old Pumula households only excluding other zones in Pumula such as Pumula East, North and South. The focus of the study is on assessing the extent to which urban agriculture enhances food security in Old Pumula. Furthermore it examined the challenges faced by urban farmers in order to recommend strategies for improved urban agriculture.

2. REVIEW OF RELATED LITERATURE

Literature reviewed in this study show that urban agriculture enhances food security but is compounded by a host of challenges as detailed below.

2.1 Extent of food security

Studies have shown that achieving food security is a challenge for urban areas in sub Saharan Africa and the World Bank cited in USAID (2010) estimates that 50% of the urban poor live in urban areas. USAID (2010) further states that 33% of people in sub Saharan Africa are undernourished. Therefore food insecurity is a pressing problem for urban areas in sub Saharan Africa. Food security is defined by FAO (2008:7) as

‘A situation which exists where all people at all times have physical ,social and economic access to sufficient ,safe and nutritious food that meets their daily dietary needs and food preferences for an active and healthy life’

According to this definition, food security has four dimensions which include availability, accessibility, stability and utilisation. Food security means provision of safe and nutritious food that is constantly available, accessible and reasonable priced. (FAO: 2008)

In Zimbabwe, achieving food security is a challenge for the urban poor. The high unemployment, economic and political instability, recurrent drought and poor harvests have contributed to food insecurity since 2000 (Moyo: 2013). USAID (2010) states that this has resulted in NGOs providing humanitarian food relief in the country including urban dwellers in order to offset food deficit.

2.2 Urban agriculture and food security

Studies have shown that urban agriculture enhances food security in urban areas. Mougeot (2000:5) defines urban agriculture as,

‘An industry located within (intra urban) or on the fringe (peri - urban) of a town , city or megalopolis which grows , processes and distributes a diversity of food and non food products using largely human and material resources , products and services largely to that urban area’

In the same vein Mbiba (2000) defines urban agriculture as any agricultural activity that is carried out within the confines of areas designated or classified to be urban areas by the urban council of Zimbabwe. Urban agriculture is practised on vacant land along roads, railway lines and between power lines. The activities practices include mostly vegetables growing, as maize, round and ground nuts and livestock production such as poultry and rabbits. These crops, vegetables and small livestock are a means of achieving food security in urban areas.

2.3 Who practises urban agriculture and why?

Ruwanza (2007) posit that urban agriculture is practised by people of different levels of income. It is practised by the urban poor in order to have access to food and as a source of income. Low income workers practise urban agriculture so as to have a source of food and acquire high quality food at low cost. For middle class families, it offers the possibility of savings

2.4 Global overview of urban agriculture

Chadyiwanembwa (2012) states that in recent years urban agriculture has gained importance because of its role in alleviating poverty in urban areas. FAO (2012) estimates that 15-20% of the world’s food is grown in urban areas. About 200 million urban residents provide food for the market and 800 million urban dwellers are actively engaged in urban agriculture in one way or another. Urban



agriculture has a long tradition in Asia and Europe. It takes place on roof tops, backyards, community, vegetable and fruit gardens and unused public spaces. In Asia the percentage of families engaged in urban agriculture is estimated to be as high as 80 %.

Lee (2011) further estimates that in Singapore 10,000 urban farmers produce 80% of poultry and vegetables consumed in the city. In London 14% of urban residents grow vegetables and produce up to 232,000 tonnes of fruits. Koont (2011) states that in Cuba there is a well developed urban agricultural system in 80000 acres of land used for urban agriculture in Havana, gardens are the most common and produce 25 000 tonnes of food each year.

2.5 A Continental overview of Urban Agriculture

In Africa urban agriculture is a common sight in almost every city. FAO (2012) states that 35 million of urban residents are expected to practise urban agriculture by 2020. In Zimbabwe urban off plot agriculture is more pronounced during the rainy season when maize is grown. Mashoko (2010) states that cultivation takes place in almost every vacant place and maize fields become part of the cities' landscape. In Lusaka, Zambia over half of residents practise urban agriculture in other regions such as Kampala in Uganda and Yaoundé in Cameroon many urban residents raise livestock such as poultry, dairy cattle and pigs (Tefere: 2010). This is meant to achieve food security.

2.6 How urban agriculture enhances food security and income

Urban agriculture has gained popularity because it contributes to better livelihoods of urban poor by providing food, incomes and jobs. Tefere (2010) indicates that it is the main source of supply of fresh products such as vegetables; fruits and fresh vegetables. Studies have shown that in Mexico City, the production of swine brings 10-40% of household earnings, urban based milk can supply up to 100% of household income and maize production provides 10-30% of income. Cuba has become a centre for urban agriculture in the world. The number of jobs created by urban agriculture in Cuba is estimated to be at 100,000. Half of the vegetables consumed in Havana, Cuba are grown in city's farms and gardens (Prain: 2011)

In Sub Saharan Africa where food security is a challenge, urban agriculture has enhanced food security to a greater extent. Cofie (2003) states that urban agriculture in Kenya, Nairobi produces 20-30% of food requirements whereas in Harare and Kampala up to 60% of food consumed by low income groups is self produced.

In Tanzania it is estimated that about 28% of urban households get their incomes from agricultural production. Tefere (2010) states that in Kenya, Nairobi almost three hundred thousand households translating to 1, 8 million people depend partly on urban agriculture for food and income. Mashoko (2010) states that in Zimbabwe urban agriculture provides families with up to four months of staple maize.

2.7 Challenges faced by urban farmers

Although urban agriculture has the potential to alleviate poverty, it faces a lot of challenges. One of the constraints to urban agriculture is the land tenure insecurity for off plot agriculture. Urban farmers do not own the land they cultivate on thus they risk losing it for other purposes. Land in urban areas is owned by city council authorities and there are by laws that restrict free use of land. Moyo (2013) states that due to land tenure insecurity, farmers do not invest on farms hence there is low production.

Off plot urban agriculture is also considered illegal in most countries and by-laws have been put in place to restrict its practise. In Zimbabwe off plot agriculture is considered illegal and council authorities have used legislation such as the protection of lands and natural resources to slash maize before harvest (Basure and Taru: 2010). According to Tefere (2010) the illegal status of urban agriculture makes it difficult for urban farmers to access support services such as extension officers and credit facilities.

Another problem affecting urban agriculture farmers is shortage of land. There is competition for land as more households practise urban agriculture to enhance food security. This leads to farmers cultivating on small pieces of land and as a result they get low yields (Moyo: 2013). Off plot is also affected by theft as produce is stolen before harvest. Urban farmers also face challenges of lack of inputs hence they use basic subsistence tools such as hoes, shovels, spades, forks and harrows which leads to low agricultural production (Moyo: 2013).



2.8 Strategies to overcome challenges in urban agriculture

A number of strategies have been employed to promote urban agriculture by some countries. One of the strategies is to amend public land use policies in urban areas in order to promote urban agriculture by giving title deeds to urban farmers to enable them to invest in the land that they own and acquire inputs such as irrigation equipment. George (2013) explains that developed countries have amended their public land use policies to promote urban agriculture. An example is that of Chicago, USA which offers a program where residents living next to vacant land can buy that land and use it for urban agriculture.

Another example is Tanzania which has clear policies and legislation that regulate and support urban agriculture such as the Agricultural and livestock policy of 1997 and urban farming regulations of 1992 (Prain: 2011). Tanzania has also developed an environmental management programme where agriculture is recognised as one of the major land uses in urban centres as well.

Government can also promote urban agriculture through use of agricultural extension officers who should equip urban farmers with farming skills and this can help urban farmers to produce better yields. Kroont (2011) gives an example of Havana, Cuba where the government has strongly supported urban agriculture by deploying extension workers in the city to assist urban farmers in crop production. The urban agricultural department in Cuba has worked with research institutes to determine how best they can serve the needs of urban farmers.

Urban agriculture can also be promoted through use of geographic information system to map vacant land which can be used for urban agriculture. Land best suited for urban agriculture can then be leased to urban farmers. OCA (2008) cites examples of Cuba, Tanzania and Philippines which have identified land that can be used for urban agriculture on a permanent or temporary basis.

3. THEORETICAL FRAMEWORK

This study used the sustainable livelihood approach. Sustainable livelihoods approach is based on the idea that poor households use a portfolio of assets that are made up of both tangible resources such as land, cash or stores of food, as well as intangible assets like skills and social networks (Korir, Rotich and Mining 2015).

4. RESEARCH METHODOLOGY

This study used a descriptive survey design as articulated below

4.1 Research design

A research design is a plan which ensures the validity and reliability of research findings. Collis (2003:9) defines a research design as 'a plan for selecting subjects, research sites and data collection procedures to answer research questions.' The descriptive survey research design was used in this study. Shuttle (2008) states that a descriptive survey study involves acquiring information about one or more groups of people about their characteristics, opinions and attitudes by asking them questions and tabulating their answers. It involves sampling a group of people from a large population with similar characteristics of the given population (Shuttle: 2008).

4.2 The target Population and the sample

Old Pumula is a high density area in Bulawayo that consists of 950 households with an approximate population of 4750 people. Old Pumula was chosen because of its high density of households practising urban agriculture. It was from the population of 950 households that a sample of 50 households was chosen using the simple random sampling. Patton (2009) describes sampling as a means of selecting a given number of subjects from a defined population as a representative of the whole population.

4.3 Data collection presentation and analysis

Data were collected through a questionnaire and an interview technique. Urban farmers completed a questionnaire while and agricultural extension officer was interviewed. Data were presented in both qualitative and quantitative means. Tallying was used to collate the results of the collected data and presentation, was done in frequency distribution tables, pie charts, bar graphs and summaries were used.



5. RESEARCH FINDINGS AND DISCUSSION

This section presents and analyses the major findings of the study. Basically the findings are based on the data collected from households engaging in urban agriculture on how urban agriculture enhances food security, challenges faced and on strategies to promote urban agriculture.

5.1 Biodata of the respondents

The Biodata of respondents are given in sections below.

5.1.1 Age and sex distribution of respondents

The age and sex distribution of respondents are shown on table 1 below.

Table 1. 1 Distribution of respondents by Age and sex

AGE (Years)	% Males	% Females	% Total
Below 18	0	7.5	7.5
19 – 30	0	7.5	7.5
31 – 50	15	47.5	62.5
51 & Above	10	12.5	22.5
Total	25	75	100

Most of sampled respondents were aged between 31-50years. (62,5%). Those age 51 years and above totalled 22,5% while those aged below 18 and 18 -30 years had a total of 7.5% apiece. This shows that urban agriculture is mainly practiced by those who are mature. The findings also indicated that it is mostly females who practise urban agriculture (75%) while males were 25% of the sampled population.

Table 2. Distribution of respondents by Employment status and by income.

Employment Status	Freq	%	Monthly income	Freq	%
Employed	15	33	Below \$500	19	42
Unemployed	21	47	Above \$500	5	11
Self – employed	9	20	No Income	21	47
Total	45	100	Total	45	100

The data on table 2 above shows that forty seven percent (47%) of the sampled households indicated that they were unemployed while twenty percent (20%) were self employed. Urban agriculture plays a very important role in enhancing their food security. Thirty three percent (33%) of the households practising urban agriculture were employed. Most people indicated that they earn salaries which are below the poverty datum line which is currently pegged at \$584 in Zimbabwe (ZIMSTAT: 2015) Fifty six percent (42%) of the respondents earn below \$500, eleven (11%) earn above \$500 while forty two (42%) stated that they had no income at all. This shows that urban agriculture is mostly practised by the urban poor who cannot afford their food requirements and have resorted to urban agriculture to enhance their food security. This point compares well with USAID (2010) who estimates that 33% of the urban poor in sub Saharan Africa are undernourished and food insecurity is a pressing problem. Moyo (2013) further concurs with this view when he states that the disposable income for urban households is low due to low wages and people have resorted to urban agriculture to achieve food security.



5.2 Nature and extent of urban agriculture

The nature and extent of urban agriculture is detailed below.

5.2.1 Respondents engaged in urban agriculture

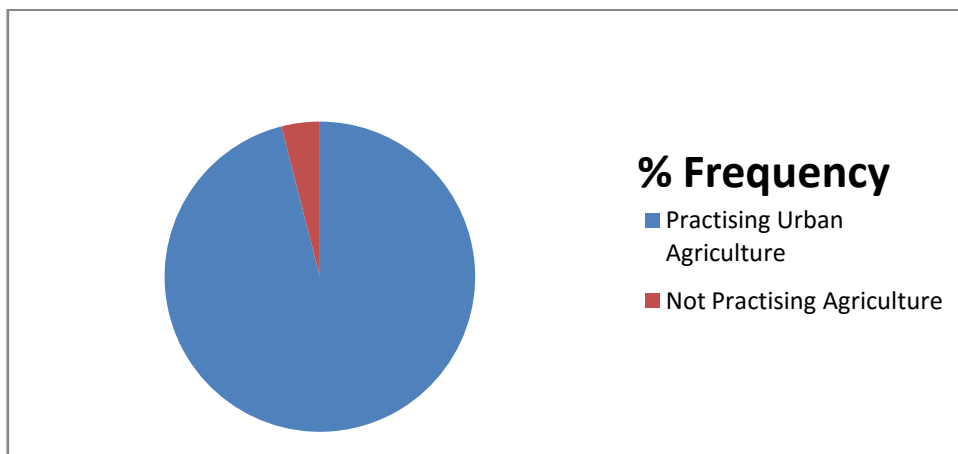


Figure 1: Respondents engaged in urban agriculture

Ninety six percent of the respondents indicated that that they practise urban agriculture while four (4%) indicated that they do not practise urban agriculture .This shows that most people practise some form of urban agriculture. This may vary from cultivation of a small area within their yards to quite large areas outside the parameters of their houses.

5.3 Size of cultivated land

The size of cultivated land is discussed and shown on table 3 below.

Table 3. Size of land cultivated.

Size of Cultivated Land (m ²)	Frequency	Percentage Frequency
25-49 m ²	5	11
50-99 m ²	8	18
100-149 m ²	13	30
150-199 m ²	2	5
200-249 m ²	5	11
250-300 m ²	11	25
Total	44	100

Thirty percent(30%) of the respondents indicated that they cultivate on land that is between one hundred to one hundred and forty nine (100-149) square metres while twenty nine(29%) percent cultivate on land that is less than one hundred square metres. This shows that urban agriculture is practised on small pieces of land due to shortage of land and this affects their production. Only eleven (25%) people stated that they cultivate on land that is between two hundred and fifty to three hundred square metres. Those that cultivate on smaller areas of land are likely to cultivate mostly within the confines of their yards while those who cultivate large areas do it outside the parameters of their yards.



5.4 Types of crops grown

A variety of crops and vegetables are grown in Old Pumula as shown on table 4 and figure 2 below

Table 4. Types of Crops Grown

Crop	Frequency (n=44)	Percents
Maize	38	86
Vegetables	29	66
Groundnuts	18	41
Sweet potatoes	19	43
Sorghum	2	5
Green beans	1	2
Round nuts	5	11
Carrots	4	9
Beans	3	7
Beetroot	2	5
Water melon	3	7
Pumpkin	3	7
Sweet reeds	5	11
Peas	1	2
Tomatoes	3	7
Onion	4	9

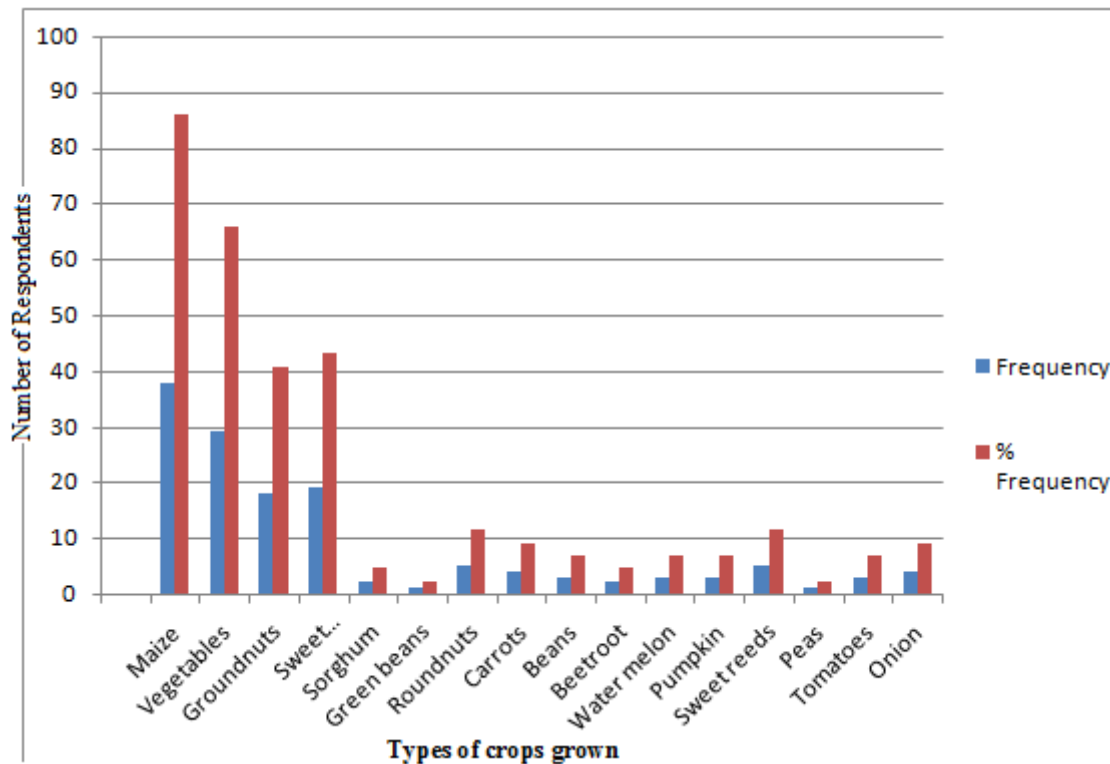


Figure 2 Types of crops grown



The data on both table 4 and fig 2 show that 86% the respondents grow maize as a major crop in vacant bush outside their yards (off plots). This is supported by studies done by Mashoko (2010) who states that during the rainy season maize crop is seen in every open space along roads, railway lines and in between power lines.

On the other hand sixty six (66%) percent of the respondents indicated that they grow vegetables in their yards (on plot), while forty-one (41%) percent grow groundnuts and 43% grow sweet potatoes. Other crops grown by respondents include green beans, round nuts, carrots, onions, beetroot, watermelons, pumpkins, sweet reeds, cow peas and tomatoes. This shows that a wide variety of crops are grown in Old Pumula either on plot or off plot and this enhances their food security.

The above view is shared by an Agricultural Research Extension (AREX) officer for Bulawayo and uMguza who stated that “almost every household practices some form of urban agriculture, a wide variety of vegetables are grown such as carrots, chomoulier, rape, cabbages, beetroot, green beans, sugar beans, lentils, peas and egg plant”. “Crops such as groundnuts, pumpkins, butternut, round nuts with maize being the main crop are also grown” she continued.

5.5 Reasons of engaging in urban agriculture

There are many reasons why urban dwellers practice urban agriculture, these are shown below.

Table 5: Reasons for practising urban agriculture

Reason	Frequency	% of Population
For Food	33	73
Both (Food & Selling)	12	27
Total	43	100

The data on table 5 show that seventy four (73%) percent of the respondents indicated that they practise urban agriculture for food consumption. This fact is supported by the Agricultural Research and External (AREX) officer who said “urban agriculture is useful in enhancing food security because it ensures availability of food at all times, it is also good source of fresh food and enhances nutrition”. In the same vein (2003) posit that in Harare and Kampala up to 60% of food consumed by low income earners is self produced. Similarly Tefere (2010) states that in Kenya around 300 000 households partly depend on urban agriculture for food and income. This shows that urban agriculture plays a very important role in enhancing food security in urban areas.

5.6 Challenges faced by urban farmers in Old Pumula

Urban farmers in Old Pumula encounter a number of challenges which are discussed below.

Table 6: challenges faced by Old Pumula residents

Challenge	Less Severe		Severe		Extremely Severe	
	F	%	F	%	F	%
Lack of Inputs	14	31	13	29	18	40
Theft	10	22	15	33	20	44
Shortage of land	5	11	15	33	25	56
Lack of Agri Tools	12	27	18	40	15	33
Drought	15	33	19	42	11	24
By Laws	15	33	18	40	12	27
Land Insecurity	12	27	15	33	18	40



Data on table 6 show that fifty two(56%) percent of the respondents felt that shortage of land was the most severe challenge as urban farmers cultivate on small pieces of land which are below 200 square metres. This point is collaborated by the Agricultural Research and Extension (AREX) officer who said “land ownership insecurity was noted as a challenge and it resulted in urban farmers cultivating on small pieces of land”. Some of the challenges include theft of the produce (44%), lack of inputs (40%) while (40%) felt that land insecurity was the most severe one. Similarly twenty six(24%) percent of the respondents indicated that drought was the most severe,(33%)indicated that lack of agricultural tools was most severe while (27%)felt that by laws were a severe challenge to urban farmers. In the same vein, Moyo (2013) states that there is competition for land in urban agriculture and this results in urban farmers cultivating on small pieces of land. Furthermore Moyo (2013) opines that land tenure insecurity, lack of inputs as farmers use subsistence tools such as hoes, shovels, spades and axes are problems that result in farmers not investing on farms and this result in low production.

5.7 Ways to overcome challenges faced by Old Pumula urban farmers

In order for Old Pumula farmers to be productive there is need to find strategies to overcome the aforementioned challenges. The strategies are outlined below

Table 7: Ways to Overcome Challenges faced by Old Pumula urban farmers.

Ways	% of Population
Erect Security Fence	30
Drill Borehole	16
Mobilize inputs / Donations	28
Land Allocation	47
Bank loan	5
Relaxation/Change of Bylaws	12
Educate Farmers	2

The data on table 7 show that the majority of the respondents 47% mentioned that to overcome the acute land shortage faced by urban farmers, local authorities should allocate land for farming and 28% felt that they should be given inputs by the government. Sixteen percent (16%) of the respondents indicated that boreholes should be drilled so that urban farmers can practise irrigation while 30% felt that security fences should be erected around the cultivated land to protect crops from theft and wild animals. Twelve(12%) percent indicated that by laws should be relaxed to allow urban farmers to use more land for crop production, twelve(12%) felt that bank loans should be given to urban farmers to purchase agricultural inputs such as seeds ,fertilizer and tools while two(2%) percent indicated that urban farmers should be educated by Agricultural Research and Extension officers on the best ways of undertaking farming in urban areas. A study by Kroont (2011) shows that in Cuba, Havana Extension officers have been deployed in the city to assist farmers with crop production. This has helped to promote urban agriculture in Cuba. In the same vein George (2013) posit that in developed countries such as USA have amended their land use policies to promote urban agriculture. Last but not least Prain (2011) gives an example of Tanzania where policies have been implemented to support urban agriculture and recognize it as one of its land use zones in urban areas. The above measures can solve the challenges faced by urban farmers in Old Pumula if implemented and supported by all key stakeholders.

6. 1.17 RECOMMENDATIONS

In light of the above findings the study recommends that:

- The Bulawayo city council should allocate more land for urban agriculture by expanding the 20km radius currently pegged for urban agriculture to a further 40km to enable farmers to have enough land for farming.
- The government of Zimbabwe and non-governmental organisations assist urban farmers with agricultural inputs such as seeds, fertilizers and tools.



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- The government of Zimbabwe deploys more Agricultural Research and Extension (AREX) officers in urban centres so that they educate and equip urban farmers with modern farming skills.
- The government of Zimbabwe, environmental management agency and AREX officers spearhead awareness campaigns on stream bank cultivation and its effects on sustainable urban agriculture in order to promote urban agriculture.
- The government of Zimbabwe include urban agriculture in urban land use planning to enable town planners to identify land that is suitable for sustainable urban agriculture.
- The Bulawayo City Council amends its policies and by laws to allows urban farmers to use vacant land on a lease basis until such a time when that land is required for development purposes. This will encourage farmers to invest on land that they own and it will also solve problems of land insecurity.
- The local leaders should mobilise their communities to spearhead security system that is community driven to solve the problem of premature harvest by thieves.
- The Zimbabwe Republic Police should hold awareness campaigns to deter thieves from stealing produce from farms and to impose heavy fines for those caught stealing.

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