

Enhancing Food Security and Economic Welfare through Urban Agriculture in Zimbabwe

Ezra Pedzisai^{1*}, Pedzisai Kowe², Caxton H. Matarira¹, Anyway Katanha³, Ronald Rutsvara¹

¹Geography Department, Bindura University of Science Education, Bindura, Zimbabwe

²Geo-information and Remote Sensing Institute, Scientific and Industrial Research and Development Centre, Harare, Zimbabwe

³Mashonaland Central Region, Zimbabwe Open University, Bindura, Zimbabwe

*Corresponding author: ezpedzisai@yahoo.com

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Abstract Despite the perceived white-collar and industry-based formal employment gravity of urban areas of developing countries, poverty and food insecurity persists. Therefore, urban agriculture, a predominantly rural economic activity, emerges as a lucrative livelihood strategy used to curb urban food insecurity. We assessed the contributions of urban agriculture to household food security and income in Cold Stream, a low income residential area in Chinhoyi town in Zimbabwe. We administered 20 questionnaires to a convenient sample of urban farmers, interviewed five purposively sampled informants from key institutions and carried out three temporally spaced fieldworks. The results clearly show that urban agriculture is a prominent livelihood of the poor unemployed majority (53%) who dominate the economic category. Key informants interviews indicated that although local non-governmental organisations boost urban agriculture by providing farm inputs and technical advice free of charge, there is no government support this activity. Furthermore, results from questionnaires show that yields as well as income from their sales is used primarily for acquiring basic necessities rather than for luxury thereby confirming that the farmers are poor. All urban farmers (100%) consume their farm produce indicating that urban agriculture enhances food security. Moreover, a majority (80%) overwhelmingly concurred that urban farming makes food cheaper hence improves food accessibility, which is an important pillar of food security. Additionally, a majority (60%) earn significant income from selling farm produce, of which 84% sale to informal markets while remaining minority 16% to the formal markets. Notably, about half the sample (48%) also concurred that urban agriculture reduce food insecurity even in their rural homes where they also remit some of their farm produce. However, there are challenges negatively affecting urban agriculture. Some of the challenges include lack of credit lines for inputs and unfavourable policy arrangements that classifies urban agriculture as illegal activity.

Keywords: *Chinhoyi, food security, income, urban agriculture, Zimbabwe*

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1. Introduction

1.1. Background to the Study

Historically, farming is a rural economic activity. However, in developing countries there has been rapid urbanisation which is associated with increase in urban poverty, growing food insecurity and increasing malnutrition. Food insecurity refers to limited or uncertain availability of nutritionally adequate and safe foods, or limited or uncertain ability to acquire food in socially acceptable ways [1]. On the contrary, food security is defined as the consistent availability, accessibility and affordably priced safe and nutritious food [2]. Urban agriculture clearly seeks to improve food security through providing the urban poor with alternatives for purchased food. Committee on World Food Security described food security as a situation when all persons 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 all the time [3]. Zezza and Tasciotti simply define urban agriculture as the production of crops and animal goods within cities and towns [4]. Agreeably, Rauf Foundation defines urban agriculture as growing of plants and rearing of animals within and around cities [5]. Beach defines urban agriculture as either growing crops or raising livestock in backyards or on undeveloped plots of land [2]. Livestock including poultry, dairy cattle and pigs are reared in cities like Kampla (Uganda) and Yaounde (Cameroon) by many households [2]. Broadly, urban agriculture is also defined as cultivation of cash and food crops, rearing of animals, forestry and horticulture and garden plants [6]. Agricultural activities take place in various parts of cities, both in the built-up area as backyards farming, along streams and railway reservations and on vacant public or private land [7]. This is also true for the sub- and peri-urban areas. More specifically, urban agriculture refers to

food production activities for either subsistence or commercial purposes [6] in and around cities to meet basic needs. The livelihoods of a large proportion of people in urban area in developing countries dependents to a greater extent on urban agriculture. The incorporation of both physical and economic access in food security clearly links it to income status [3]. However, Capone et al noted four pillars, adding food use and stability in place of affordability [3]. Access is an essential food security pillar [3].

Food security can be viewed as to having three dimensions with elements in each. These dimensions of food security include food availability, access and utilisation [8]. Capone et al elaborate three elements of each dimension as production, distribution and exchange (food availability), affordability, allocation, and preference (food accessibility) and nutritional, social and food safety values (utilisation). Clearly, food security has a relationship with food supply although the direction of the relationship was not defined by Nisar et al [9]. In some developing countries there has been a rise in the proportion of poverty within the urban populations [10]. In Sub-Saharan Africa, the annual urban growth rate was 3.6 percent by 2011 [2]. Rapid urbanisation gives rise to increased poverty due to high unemployment rates, low incomes below minimum poverty datum line and the deterioration in the quality of life in urban areas thereby prompting urban dwellers to engage in urban agriculture. It was estimated that in the mid-1990s as much as 40% of the urban population in Africa was involved in urban agriculture [11]. Urban agriculture is widespread in African towns because of economic crises that prevailed in most African countries [11]. This activity is associated with three socio-economic aspects namely gender, income and food security [11]. In Nairobi, Kenya, urban agriculture is evident in all kinds of open spaces ranging from roadsides, along railways lines, within roundabouts, in parks, near rivers, under power lines and in backyards [6]. In view of the above, this study therefore assessed income and food security of urban agriculture in a small town.

Urban agriculture is a widespread phenomenon globally.

1.2. The Benefits of Urban Agriculture

There are several apparent benefits of urban agriculture. Some of the benefits of urban agriculture include food security, poverty reduction, survival of women and children, social inclusion, economic development, efficient and cost effective waste management. Food security exists when all people at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life [12]. Food security has extensively been used as a measure of welfare of the rural households in many developing countries [13]. A household is considered food secure if it has physical and economic access to sufficient, safe and nutritious food to meet its dietary needs and food preferences for a healthy and active life [13]. Beach notes the following benefits from urban agriculture [2]. These include reducing transport problems as food would otherwise have to be moved from both from local and international sources outside urban areas. It supplies most of urban perishable foodstuff hence

reduces decomposition of perishable external foods [2]. Citing an example of Cameroon largely leafy vegetables consumed by poor urban in Yaounde are grown in the valleys surrounding the city [2]. Furthermore, animal farming produces at least 20,000 tons of manure per year, approximately two thirds is used as fertiliser, thereby reducing cost of buying expensive farm inputs [2]. Urban agriculture contributes significantly to food security.

Notably, urban agriculture is an important farming method utilising small spaces in between other land uses in the urban space. A large proportion of urban farmers have no access to draught power for land tillage. Food and Agriculture Organisation (FAO) defines conservation farming as a way of farming that conserves, improves and makes more efficient use of natural resources through integrated management of available resources combined with external inputs [12]. The best practices attributed to conservation farming are bringing benefits to the urban farmers. FAO listed the key components of conservation farming including; i) minimum mechanical disturbance which reduces soil erosion due to improved soil structure, ii) increase in the quantity of organic matter in the soil acting as a carbon sink, iii) use of organic materials to maintain a permanent soil cover and iv) encouraging crop rotation as one of its major functions [12]. It was not yet clear whether urban agriculture in the study area is conservative in character.

Additionally, urban agriculture is an important subsistence and income generating activity. Arguably that the contribution of urban agriculture as a source of income should not be under-estimated. [7,10] which is qualified by Zezza and Tascotti posit that urban agriculture is both for the urban poor and the food insecure [4]. Addo concurs noting that urban agriculture sustained livelihoods of urban and low income dwellers in developing countries for many years [14]. Urban agriculture can be even more lucrative in some areas, for example, during the dry season farmers in Yaounde, (Cameroon) that use wastewater irrigation can sell vegetables at more than double the wet-season price, and urban agriculture incomes were estimated to be 50% above minimum wage [2]. Furthermore, urban agriculture is popular among the poor to complement their meagre household incomes. Beach notes that urban agriculture is often practised by the poorest [2]. It is apparent that the urban agriculture is important livelihood for the urban poor as it helps them cope up with food scarcity and hunger [2]. Addo also highlights that urban agriculture contributes significantly to food security for approximately 50% of the world's city dwelling population [14]. The increasing urban poverty leads to food insecurity and undernourishment in African urban areas. Urban agriculture opens access to a wider variety of nutritious foods [2]. In Kampala, (Uganda) children's improved nutritional status was due to urban agriculture [2]. In the bigger cities, the urban poor households find it increasingly difficult to access food which forms a substantial part of urban household expenditures (60-80%) [15]. Lack of cash income translates more directly to food shortages and malnutrition [15]. Urban agriculture is a common livelihood strategy that helps subsistence even very economic crisis like low and meagre disposable incomes. In Africa, urban agriculture is widespread but largely at subsistence scale with limited capital operations [15,16]. Mbiba posits that

urban agriculture is a transfer of rural subsistence agriculture to urban areas [16]. Urban agriculture is an important livelihood option and income generating activity for the urban poor [4,11]. However, its contribution to the food security for the urban poor in a small town is not yet revealed in Zimbabwe.

Urban agriculture is a significant economic activity. The Rauf Foundation asserts that urban agriculture complements rural agriculture, improves urban food supply, stabilises market and saves economic resources through readily provision of food instead of expensive supplies from outside the towns [5]. This clearly shows that despite the reasons for just survival urban agricultural activities are a significant economic activity. Mbiba asserts that for policy makers, urban agriculture is an integral part of the urban economy for both the poor and rich rather than dismissing it as an illegal activity [16].

Addo views urban agriculture as contributing to local economic development in many ways [14]. It provides a reliable and alternative source of livelihood for many unemployed youths and retirees as well as improves the family budgets of the farmers. Urban agriculture also significantly contributes to food security by making food available in the households more accessible and affordable. Urban farming practices enhance price stability and helps lower the cost of similar agricultural produce imports. In this way it contributes to poverty reduction. In the same light, Cabannes contends that policies on or related to urban agriculture should be aimed or related to the following issues, namely, pro-poor for poverty reduction, local economic development; environmental management; integration of disadvantaged groups and the promotion of participatory governance and democratic cities [17]. Apparently, urban agriculture has distinctive benefits rewarding both authorities and practicing farmers [17].

Cabannes notes further benefits that urban agriculture provides, promises of commitment to promote urban agriculture in the cities of the countries represented with the objectives to design and improve municipal policies and actions on urban agriculture to strengthen food security, eradicate poverty, improve environment and human health, and develop participatory government [17]. In a nutshell, the benefits of practising urban agriculture are varied accruing to both urban farmers and urban authorities.

Furthermore, urban agriculture emerges as an important response to the increase in demand for food and market proximity in cities. In addition to enhanced food security and nutrition of the urban producers themselves, urban agriculture produces large amounts of food for other categories of the population [17]. In Zimbabwe, urban agriculture dates back to the 1950s [16] yet remains not well understood.

Urban agriculture has sustained livelihood of urban and peri-urban dwellers in developing countries for many years [4,14]. It is popular amongst urban low income earners is largely due to lack of formal jobs and as a means of adding up to household income [8]. The findings from these above studies confirm that the majority of the urban farmers are unemployed and those with formal jobs appreciate that urban agriculture contributes to household income.

1.3. The Challenges Associated with Urban Agriculture

Although urban agriculture is beneficial to the poor. Furthermore, urban agriculture has several negative environmental impacts [11]. Noise, pungent smells, diseases and causing traffic accidents in the streets are associated with urban livestock farming [2]. Crop farming causes soil erosion [2]. Use of polluted water for irrigation and the road side crops lead to environmental pollution. Use of agrochemicals pollutes the urban environment [2]. However, it is important to note that sewage recycling and composting though least applied is environmentally friendly [2]. Furthermore, Foeken and Mwangi note that chemical pollution is less likely due to lack of money to buy chemical fertilisers while negatively soil erosion and waste are promoted [6].

Urban agriculture is illegal in terms of urban land use policy [2]. In Dares Salaam farmers do not have an incentive to improve their fields such as installing expensive irrigation infrastructure thereby using polluted and risky wastewater as they lack legal rights [2]. In Kenya, 1961 Nairobi City Council By-laws prohibits riverside, roadside and sewage-line farming [6]. Some studies view urban agriculture a menace with ecological impacts (including pollution, erosion, noise and smell) which should therefore be forbidden while others view it as a source of livelihood for urban food supply and assists in waste management to improve the environment and aesthetic attraction [11]. In Dar es Salaam, the government was worried about transmission of tetanus from livestock waste, improper disposal of animal corpses, and chemical contamination from the overuse of antibiotics and pesticides [2]. To address these issues, policies must specify the permissible numbers of livestock in specific locations based on human population density and animal type [2]. Urban agriculture is not legally recognised in many towns.

Additionally, Mbiba noted that in Zimbabwe, one study attempted to place urban agriculture within the context of urban economy, urban management and urban development [16]. Where crops were grown along roadsides and rivers farmers are evicted [2]. Urban agriculture is clearly important for food security, yet remains illegal.

With a food insecure population, the Zimbabwe government turned a blind eye to the uncontrolled growth of urban agriculture in Harare and other cities [17]. Furthermore, Kisner argues that without education on safe farming techniques and protection against eviction, producers in Harare have little incentives to take responsibility for the sustainable utilisation of the land they cultivate [17]. A study of the impact of urban agriculture in Harare revealed an overwhelming majority (90%) of farmers use chemical fertilisers and nearly a third of off-plot cultivation takes place near stream, swamps or vleis leading to water pollution through run off and leaching [18]. In the absence of appropriate conservation measures, urban agriculture will pose a serious threat to the urban environment [18]. This position is maintained to suppress urban agriculture.

Urban agriculture varies in scale. Addo notes that urban agriculture is a world-wide phenomenon with a long history [14]. Cabannes contends that although some forms of urban and peri-urban area are based on temporary use of vacant lands, urban agriculture as such is a permanent feature of many cities in both developing and developed countries [17]. These views suggest that urban agriculture is a global phenomenon.

The Rauf Foundation noted the prevalence of urban agriculture which is receiving increasing recognition as an important strategy for climate change adaptation and to a lesser extent reduces greenhouse gases emission [5]. Also UN-Habitat identified urban potential for climate change adaptation [7]. Del Rio reports that the Asian Cities Climate Change Resilience Network earmarked urban agriculture as an important strategy to building resilient cities, which can respond to, resist and recover from global warming [11]. In Zimbabwe, Harare urban cultivation area increased by 68% between 1950 and 1980 [1]. Using air photo analysis Mbiba found out that the area under cultivation in 1993-94 season was double that of 1990 [16].

Addo urban agriculture engages about 800 million people globally and utilises available urban/peri-urban spaces with about 200 million being considered to be market producers employing approximately 150 million people on full-time basis [14]. In Zimbabwe, the

widespread practicing of urban agriculture is linked to economic hardships that led to competition for land among farmers [20].

1.4. Theoretical Conceptualisation of Urban Agriculture

The researchers conceptualised the functionality of urban agriculture as portrayed by Mbiba entitled a framework based on issues and dimensions as shown on Figure 1 [16].

Figure 1 illustrates that urban agriculture caters for diverse fraternities and scales it shows the wide scope of urban agricultural activities, benefits and implications. It is evidently at the core of the livelihood options of the urban poor and food insecure. Besides these highlighted studies, food security role of urban agriculture in Zimbabwe is shallowly understood.

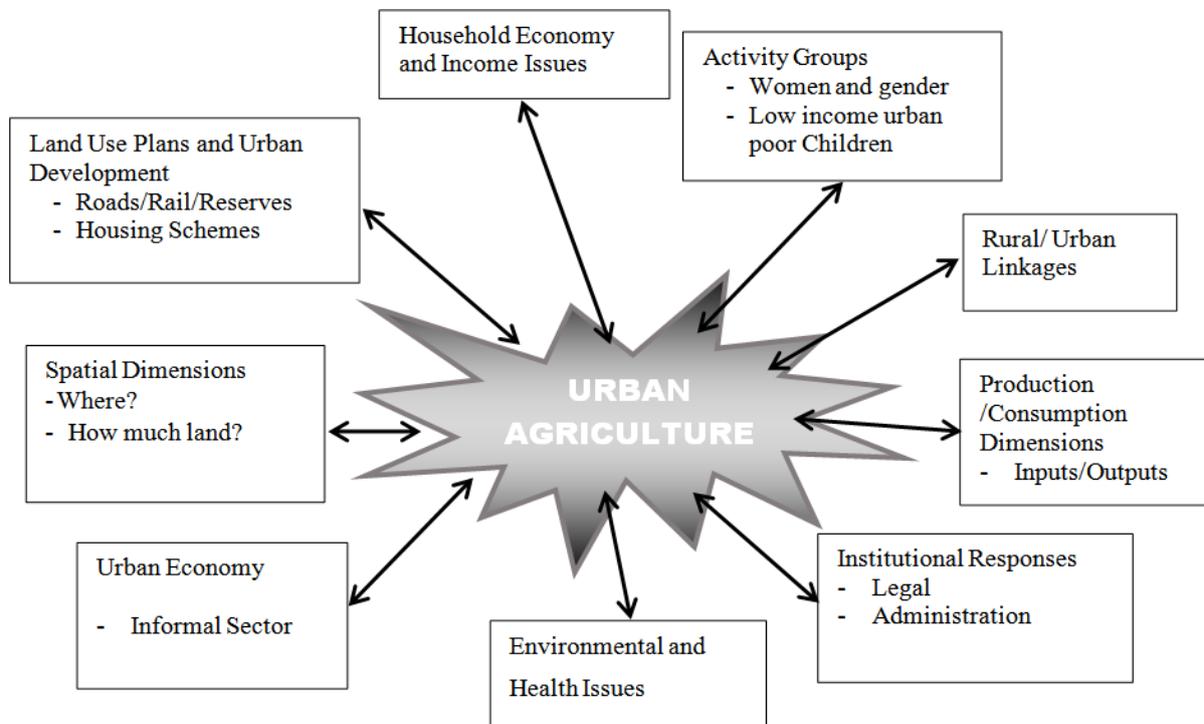


Figure 1. Conceptual framework for urban agriculture (modified after [16pp22])

The contribution of urban agriculture to household income in Zimbabwe's small towns including Chinhoyi was not understood. While several other livelihood options are evident in the country, urban agriculture remains prominent and is increasing. In this view, the research aimed at assessing the contribution of urban agriculture to food security and household income in Zimbabwe using Chinhoyi. Cold Stream constitutes the area with high density and poverty characteristics in Chinhoyi in the area while other areas have less of urban agriculture.

2. Materials and Methods

2.1. The Study Area

Cold Stream is high density residential suburb in Chinhoyi town (30°12 E; 17°21 S) characterised by a high prevalence of urban agriculture hence food and poverty

become important concerns. Chinhoyi, alongside Banket, Bindura, Chegutu, Karoi, Mhangura and Norton are located in the northern bread basket region of Zimbabwe. This region is characterised by high average temperature (above 25°C) and high annual rainfall total (over 800mm). Chinhoyi urban, has 77 929 people [21]. This town is located almost in the middle of this important region and therefore is representative of these towns in the bread basket region. In Zimbabwe, urban agriculture was studied in other towns except Chinhoyi.

2.2. Research Design and Methods

The research was a descriptive survey. It focused on systematic description salient aspects of the urban agriculture in Chinhoyi. In the research study the methods used comprised the questionnaire and interview surveys supplemented by field observations. Five interviews with purposively sampled respondents in key institutions were

done. Three field observations campaigns, before, during and after the season. The study targeted a population of 65 urban farmers in Cold Stream suburb of Chinhoyi Municipality.

Twenty households (31%) from the total number of practicing households were selected using convenience sampling of respondents from the 65 households. Adult members of the visited households found in a field were questions based on a structured questionnaire. The structured questionnaire was administered to the urban farmers. Ethical considerations including permissions from superior bodies whose institutions were involved in interviews were catered for. This instrument was pre-tested before the main data collection campaign to ensure clarity of the questions.

Purposive sampling of five key interviewees from institutions was used in the interview method. A structured questionnaire for farmers, interview guide for key informants and an observation checklist for field observations were the instruments used.

An interview guide was used to contact interviews with key informants from important institutions. The researchers carried out interviews with five key informants from Chinhoyi Municipality, District Officials of Agritex and officials from a local HIV Relief NGO - Batsirai Group, Agritex Headquarters officials and Municipal Development Partnership of Eastern and Southern Africa. Ten questions were asked and further probing whenever relevant. The researchers recorded the responses that emerged from the interviews conducted.

An observation checklist was also used to guide the researchers during fieldwork. The researchers used the participant observation method to observe aspects that were identified and some which cropped up during observations. The researcher employed an observation checklist. Notes were taken on the important observations.

3. Results and Discussion

3.1. Results

3.1.1. Socio-economic Status

In Cold Stream area, women (75%) dominate urban agriculture. Males were pre-occupied by other economic activities. Figure 2 shows the marital status of the respondents involved in urban agriculture in Chinhoyi.

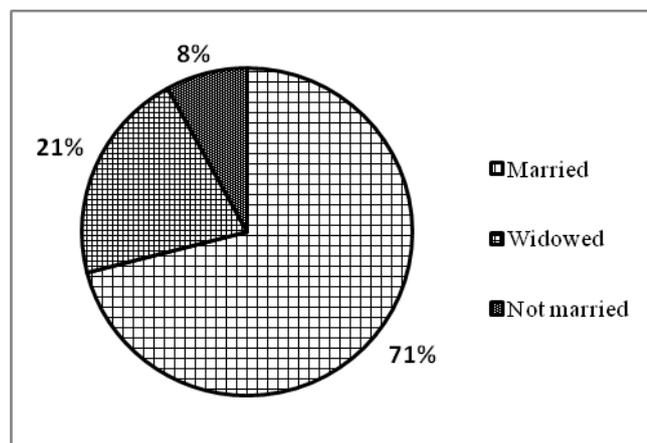


Figure 2. Marital status of the sampled urban farmers

It is clear that the dominant group constitutes farmers who are married while widowed and not married constitute the rest. In the sample there were no separated or divorced respondents. Figure 3 shows the age groups of the urban farmers. The modal age group ranges from 36 to 45 years.

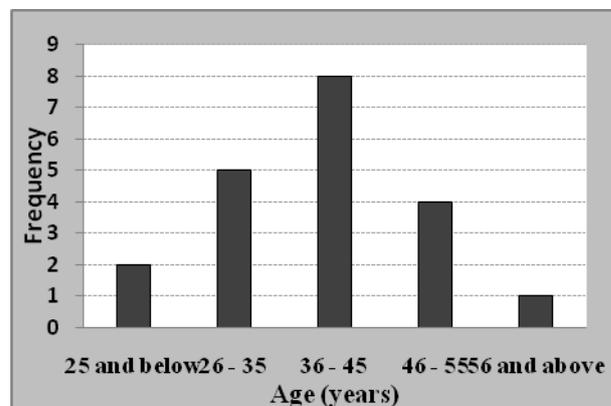


Figure 3. Age of urban farmers in Cold Stream Area of Chinhoyi

This means that these dominate urban farming in Chinhoyi. These are adults with obligations to fend for the family. Half of the urban agriculture farmers practice urban agriculture on land that is less than one hectare while the other half use larger land with 35% (between one and two ha) and 15% (more than two hectares). The average output per farmer was half a ton with a minimum of 250kg of grain and a maximum of six tons. The range is wide due to huge differences in field sizes as alluded to.

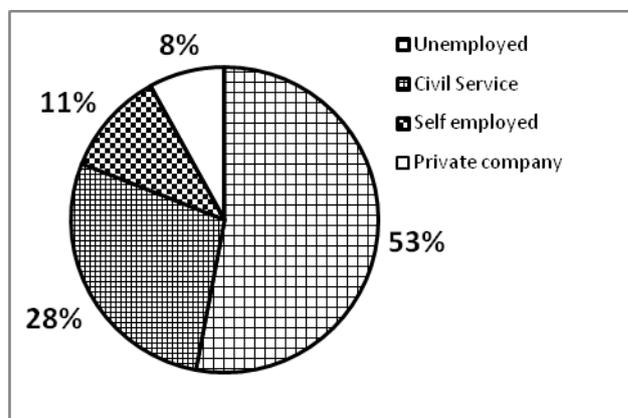


Figure 4. Employment Status of urban farmers in Chinhoyi

Figure 4 shows that urban farming in Chinhoyi is dominated by unemployed persons. Civil service is second in the list while self-employed and private company persons are less involved in urban farming. This places urban agriculture as an important economic activity for the urban unemployed. This result agrees with Beach that urban agriculture improves food supply whilst offering viable income for the urban poor [2]. Foeken and Mwangi also noted that lack of employment opportunities force, with relatively small proportion being employed in formal sector forces people into practising urban agriculture in Nairobi [6].

Legal occupation of land for urban agriculture is an important concern. A minority (30%) respondents indicated that they have legal occupation (since they farm on their backyards), while the majority (70%) have no

legal right to the open spaces. Many urban dwellers tend home-based gardens primarily for household food [2]. This shows that urban agriculture is still regarded as an illegal economic activity in Chinhoyi. The same is true for other urban areas in Zimbabwe.

Education level of farmers does not vary significantly. The education status of urban farmers was 20%, 25%, 35% and 20% for not educated, primary, secondary and tertiary levels respectively. Education is not a significant discriminator on the involvement in urban farming.

3.1.2. Poverty Perceptions

Respondents have different definitions of poverty. Depending on the area of need but generally their perceptions of poverty indicate that it is a situation of need and being vulnerable to consequences of such lack. There are different types of lack associated with poverty as perceived by the respondents. Table 1 shows poverty perception definition.

Table 1. Poverty as Defined by Lack of Selected Basic Needs

Need	Food	Clothes	finance	housing	education	health	Transport
(%)	100	80	60	85	45	65	30

Food is the most popular defining parameter of poverty (Table 1). Lack of food therefore is an anonymous indicator of poverty as perceived by urban farmers. Housing is second highest frequency followed by clothing. Clothing has the third highest indicator which appears useful in defining poverty in Chinhoyi. Transport and education are less considered as defining indicators of poverty. Results on Table 1 show that yields or income from their sales is primarily used for to meet basic necessities rather than for luxury thereby indicating that the farmers are poor.

3.1.3. Poverty Indicators for Urban Farmers

Economic situation of urban farmers vary. On the question of households meeting household needs from their usual income, the responses show that 90% of the households cannot meet their needs through their usual income sources, and only 10% of the households can safely depend on their income without resorting to other livelihood options such as urban agriculture. The other responses also indicate that most households use the income they get on basics such as food, school fees, clothing and health. Ninety-percent of the farmers indicated that they view urban agriculture as a very important source of income while only 10% indicated that it is not very significant. A total of 60% earned significant income from the proceeds either by selling at their homesteads (85%) or to the Grain Marketing Board (15%). Overwhelmingly (90%) urban agriculture affords households with food security, income earnings and improvement on nutrition while 10% indicated that it depends on income from other household jobs.

Health situation of urban farmers is an important indicator of the poverty situation. Zezza and Tascotti found an important positive statistical association between engagement in urban agriculture and dietary adequacy indicators [4]. On access to treatment, all sampled farmers reported that they can access treatment very well and 90% reported they can pay medical bills for their families because of their being aided by urban agriculture.

Vulnerability of urban farmers to social and physical abuses was also an important indicator of poverty. The majority of farmers reported either encountering or being victims to abuse due to their growing of crops on open spaces. All farmers said that their situation was quite stable as the city council is tolerant to these survival efforts. About 85% of the farmers grow crops on illegal open spaces and only 15% are doing on legal portions.

Access to food situation was noted as an important poverty indicator. Overwhelmingly (90%), respondents concur that urban agriculture avails food for the households, making it an important food security activity. All farmers responded that they consume their produce, with 80% agreeing also that urban farming made food cheaper. Seventy percent indicated that they afford food lasting for over one year while 30% alluded to the fact that their food stores last less than a year. The food referred to was produced from urban farming activities. In recent extremes about half (50%) indicated they remit produce to their rural home areas affected by crop failure.

To confirm food insecurity of the farmers, subsistence food crops dominate the urban farming activity. Fig. 5 shows that amongst the crops, maize, as the staple food crop, is predominantly grown by all the farmers in the sample.

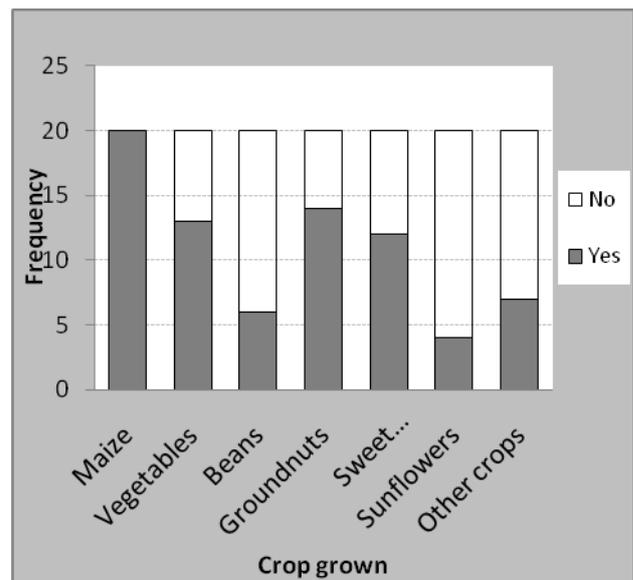


Figure 5. Crops grown by the urban farmers in Chinhoyi

Second in dominance after the staple food crop is groundnuts followed by vegetable crops, sweet potatoes (for bread substitute) and then sweet potatoes. Sunflowers are the least popular crop grown by the urban farmers in Cold Stream for their basic food needs. Urban agriculture is therefore an important food security measure.

4. Discussion

The research findings concur with the World Bank whose report found that in some countries there has been a rise in the proportion of the poor within the urban population [10]. The above was concept termed urbanisation of poverty by Zezza and Tascotti [4]. In this view the prevalence of urban agriculture is as a result of economic hardships and people have discovered that it is a

significant livelihood option in urban areas. This study also found that urban agriculture is also undertaken by households with formal jobs. The reason for households engagement in urban agriculture is that their earned income from formal jobs cannot meet all the household needs and hence the need to supplement their household food provisions.

Urban agriculture helps farmers to meet their basic needs such as food, clothing, improved nutrition and saving of cash income [Table 1]. Amongst the benefits of urban agriculture at household level include improvements in food security, diet, stabilised food consumption [4]. Cabannes commends that in addition to enhanced food security, dietary improvements, and nutrition of the producers themselves, urban agriculture also produces food for non-farming population [18]. However, this study found out that the majority of urban farmers do their urban farming mainly for subsistence. Some of the definite benefits of urban agriculture as shown in the study include food security, poverty reduction, survival of women and children, social inclusion (marketing), economic development and efficient cost effective waste management.

Despite the benefits accruing from urban agriculture, there are some challenges that tend to discourage this practice. Urban agriculture related challenges include less important moderate 'natural' (extreme weather, pests, diseases) high 'urban' (theft of crops, lack of inputs, farm pollution and eviction potential and threats and the less important other urban problems [6,11]. Consistent with Kisner, without education about safe farming techniques and without protection against eviction, producers have little incentive to take responsibility for the long term health of the land they cultivate [18]. ENDA- Zimbabwe argue that in the absence of appropriate conservation measures, urban agriculture poses a serious threat to the urban environment [18]. This view concurs with the observations made in the field that showed no management measures by farmers except to put field boundaries against encroachment by fellow farmers. There is no provision of agricultural extension services for the urban agriculture in Chinhoyi as was also the case as revealed in literature reviewed (eg see [6]).

Urban agriculture is a multi-functional activity which makes an integral part of urban life. The practising farmers have ready evidence of how urban agriculture contributes to household income and meeting of their basic needs against abject poverty. Because of the scarcity of space to do urban agriculture any opportunity that avails itself to urban farmers is seized with minimum of delay and the practice is not coupled with sustainable utilisation of land. This technical knowledge should be obtained from government agencies such as the Ministry of Agriculture's Department of Technical and Extension Services. Only NGOs seem to be helping out the urban farmers in Chinhoyi. The perception of poverty (Table 1) indicates that the most immediate needs must be met first for most farmers if Maslow's hierarchy of needs could be useful in the analysis of the farmers' needs and definition of poverty. Urban farming is practiced in order to meet basic needs. Urban agriculture can also provide people with either primary or supplemental income. This is also the case in many African cities such as Bamako, (Mali), and Dar es Salaam, (Tanzania) where economic return to

urban farmers was estimated to be comparable to the income of unskilled construction workers as revealed by Beach [2]. Urban agriculture is important for food security and income generation.

However, in view of its importance, urban agriculture needs to be a planned activity incorporated in urban development. The Rauf Foundation suggests that it is useful to distinguish between three main policy-perspectives (social, economic and ecological) which are helpful in designing alternative policy scenarios for the development of sustainable agriculture [5]. Furthermore, these perspectives are related to the vision of municipal governments expectations regarding the role urban agriculture plays and its contribution towards certain policy goals, namely to increase cities' food security and social inclusion, poverty reduction and enhancement of local economic development or making the city environmentally sustainable [5].

5. Conclusions and Recommendations

5.1. Conclusions

The study found that urban agriculture is dominated by women, who seem to shoulder the responsibility of providing food in most urban households. It is an essential food security and livelihood measure by most low income households. The research found out that the income generated from the sale of produce is also useful in addressing other household basic needs. Ministry of Agriculture and Chinhoyi Municipality officials also confirmed that urban agriculture avails food and income for many urban households.

5.2. Recommendations

Urban agriculture should be planned and practised in an orderly manner that makes it easy to manage and regulate. The future of urban agriculture is not obvious. It is apparent that urban agriculture is an important activity from which social, economic and environmental benefits can be gained. Urban agriculture should be incorporated into the mainstream urban land use planning to enable sustainable management. The study also recommends a need for financial support (lines of credit) and inputs schemes. New agricultural interventions for urban agriculture which helps in improve socio-economic status of the farmers need to be considered. Since urban agriculture has many noted benefits, urban planning policies should provide favourable land tenure arrangements for urban farmers. Clean and safe water for irrigation also need to be availed. The local governments need to educate urban farmers on pollution emanating from their activities while providing incentives to sustainable agriculture. Urban agriculture needs to be legally recognised.

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