

**An investigation into the socio-economic factors that promote urban agriculture in Zimbabwe: The case of residents of Sakubva Chisamba Singles in Mutare City.**

**By**

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## **Abstract**

This study aimed at investigating the socio-economic factors that promote urban agriculture. As such, the study sought to establish the prevalence of urban agriculture, explore the socio-economic factors that promote urban agriculture, and identify and suggest ways to strengthen urban agricultural activities of urban residents. This information was gathered from a simple random sample of fifty residents of Sakubva Chisamba Singles in Mutare City engaging in urban agriculture, using a interview schedule. Additional information came from purposively selected key informants namely, Councillor of Sakubva ward four (4), Caritas Mutare field officer, AGRITEX officer, EMA officer, and City Council Official who were interviewed using interview guides. The study discovered that urban agriculture is an idea whose time has come. It was found out that the nature of urban agriculture as a household livelihood strategy makes it imperative to have middle-aged, mature, Christ-like, fatherly and motherly figures to engage in urban agriculture. In a sense, the study revealed that urban agriculture is a female dominated livelihood activity. More often than not, residents had stayed more than five years in the area, had originated from both rural areas and other urban locations, were poorly educated and unemployed, and had various informal livelihood strategies in the form of urban agriculture, petty trade, and 'piece jobs' where they were assured of both subsistence and a cash income. Urban agriculture was being conducted for food, income, employment, and to make use of readily available resources. It came out from the study that urban agriculture requires a complete input package, council permission as well as training and extension services. Urban agriculture involves crop and livestock production on-plot or off-plot throughout the year, and there is no security of produce. Availability of land, official support for urban agriculture, affordability of urban agriculture, vitality of urban agriculture in providing food and income as well as accessibility of extension services explained the prominence of urban agriculture. Be it as it may be, the study unveiled that urban agricultural activities of residents could be strengthened by knowledge of guidelines on urban agriculture, the positive attitude of residents, and active participation of stakeholders. To this end, the study recommended that efforts should be made to enhance access of urban residents to land, legalise urban agriculture, improve technology, increase extension services coverage, improve market linkages for produce, and to ensure collective responsibility to strengthening urban agriculture. It was highlighted that social work could contribute to urban agriculture in the area of advocacy, policy formulation, social analysis, and resource mobilisation. In the future, it was urged that research studies should focus on the implication of urban agriculture remaining illegal, and strengthening capacity of residents to engage effectively in urban agriculture.

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## Dedication

To the Orphans and other Vulnerable Children in Sakubva Chisamba Singles of Mutare City who have to dearly depend on urban agriculture for sustenance.

&

In memory of my late parents, John (1941 to 2008) and Juliet (1953 to 2002), whose words of wisdom have brought me this far. Glory to God

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## **List of Acronyms**

AGRITEX	Agricultural, Technical, Research and Extension Department
EMA	Environmental Management Agency
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
NGO	Non-governmental Organisation
CIDA	Canadian International Development Agency
ESAP	Economic Structural Adjustment Programme
FAO	Food and Agriculture Organisation
NRI	Natural Resources Institute
MDGs	Millennium Development Goals

## **CHAPTER 1**

### **INTRODUCTION TO THE STUDY**

#### **1.0. Introduction**

As an introduction this chapter gives a background to the study, statement of the problem, justification of the study, an outline of aim and objectives, and definitions of some key terms used in this study.

#### **1.1. Background to the study**

To some people, urban farming might sound like a contradiction in terms. History has it that since time immemorial, farming has been seen as a rural occupation and cities as consumers of rural foodstuffs (Mbiba, 2000; Kisner, 2008; Sedze, 2006). But the truth can be rather different. Many urban residents simply could not feed themselves without the produce of their backyards, roadside verges, riverbanks, parks and allotments. Hectare for hectare, urban farming is often among the most efficient and intensive forms of agriculture anywhere. As it were, it can be a vital source of vegetables and grains for many poor and even middle-income households, the world over (Rees, 1997).

According to Mougeot (2000) urban agriculture is an industry located within (intra-urban) or on the fringe (peri-urban) of a town, city or metropolis, which grows or raises, processes, and distributes a diversity of food and non-food products, (re-) using largely human and material resources, products and services found in and around that urban area, and in turn supplying human and material resources, products and services largely to that urban area. The most striking features of urban agriculture are that: it is integrated into the urban economy and

ecology; the largest part of the people involved are the urban poor; activities may take place at the homestead, land away from the residence, on private land, on public land; mainly food crops are grown and animals are kept for self-consumption with surpluses being traded; women and children to provide the bulk of labour; uses micro-and small farms; low technological level (Mougeot, 2000).

Strictly speaking, it is the flexibility of some officials that has made urban agriculture to thrive as a concept. Most cities, motivated by health and hygiene concerns, aesthetic considerations, and the belief that a modern city should exclude the rural and “messy” appearance of crops (Rogerson, 1997), initially took a much harsher view of urban agriculture that was considered unsuitable for African cities. This perspective makes urban agriculture illegal, leaving urban cultivators with an array of problems from slashing and theft to gate keeping and exploitation of land, as in Accra, Cairo and Nairobi, Kenya (Foeken and Mwangi, 2000; Armar-Klemesu and Maxwell, 2000). Whilst this approach is most held by city planners, other authorities tend to have a more laissez-faire position which view urban agriculture as an idea whose time has come, that is, it is not a relict of the past that will fade away nor brought to the city by rural immigrants who will lose their habits over time. For example, in Mutare, Zimbabwe urban agriculture is permitted on public lands and open spaces as long as the land is not needed for other purposes, is not on illegal zones like stream banks and residents renew their land tenure by paying an agreed annual fee.

While the municipal provisions accommodate urban food production, they give local authorities the discretion to determine the desirability and extend of the activity at any point in time (Mbiba, 2000). Consequently, institutional responses to urban agriculture have varied from extremely prohibitive measures to supportive programmes. The nature of the response

depends very much on the personalities holding various positions in the city council, and the city mayor in particular (Mbiba 2000). For example in Mutare of Zimbabwe, officials generally tolerate on-plot crop production, but livestock rearing is strictly controlled (Mbiba, 2000).

It is noteworthy that unlike other concepts, urban agriculture has never had an international declaration. The renewed interest in urban agriculture is either as a matter of necessity in developing countries or general interest in city farming in developed countries (Rees, 1997). In Africa, for instance, the primary driving force behind this continuous increase in urban agriculture is an increase in migration from rural to urban areas as well as the worsening economic situation of the urban population as a consequence of the Breton Woods Institutions' Structural Adjustment Programs. Hence, urban agriculture is more or less a crisis management tool among urban residents. Contrary to Africa, in developed countries urban agriculture is growing because residents could envisage its potential benefits as a serious activity (Girardet and Deelstra, 2000).

The Millennium Development Goals (MDGs) born out of the Millennium Declaration of 2000 can also give basis to urban agriculture (Zimbabwe MDGs Report, 2005). Basically the aim of the MDGs, to be achieved by 2015, is to encourage development by improving social and economic conditions in the World's poorest countries in a bid to realise the right to dignity, freedom, basic standards of living, and tolerance and solidarity. Goal number one of the eight MDGs is to eradicate extreme poverty and hunger. As such, its targets are to halve the proportion of people who live with less than \$1 per day, achieve decent employment for women, men and young people, and halve the percentage of people who suffer from hunger. In a sense, the tolerance or accommodation of urban agriculture in many cities could be



subtly motivated by the need to contribute towards achievement of the aforementioned MDG one.

In essence, urban agriculture is rooted in the concept of urban development. According to Kekana (2006), in spite of other perspectives, urban agriculture is regarded as a rational economic and socially useful activity within urban development, that is, scope should be provided for urban agriculture to grow in the modern urban environment. The basic model of Von Thunen adapted to city development by Burgess and by Von Rooyen (1995) provides a theoretical framework for this study with the socio-economic rationale for urban agriculture.

Of great importance in urban agriculture is land ownership and land availability. This often depends on whether the officials recognise the role of urban agriculture in contributing to food security and livelihoods. Since urban agriculture is largely viewed as unofficial most authorities within the urban areas feel that they are not obliged to facilitate or promote agricultural activities (Nunan, 2000). As a result land tenure titles are often unclear. In spite of that, urban residents grow crops on vacant land (undeveloped land), riversides, roadsides, at school yards, backyards of homesteads (Mutare, Zimbabwe; Havana, Cuba; Nairobi, Kenya), community gardens (London, United Kingdom), recreational grounds, and rooftops. It is common for residents to have more than one plot of land on different areas to maximize access to critical inputs (stream water and manure) and to niche markets as well as to ensure stability against eviction from any particular site or against crop losses because of theft (Mougeot, 2000).

Urban agriculture production is often organic with low inputs of capital, fossil energy, fertilisers and chemical pesticides which residents could afford with limited external support

(Smit, et al, 1996). Residents often use basic technology in the form of hoes, buckets for irrigation and manual labour except in rare cases where high-tec technology is used as in the case of 'Shanghai, China where ploughing, irrigation, weeding and harvesting have been highly mechanized, and computers are increasingly being used to monitor the production processes' (Yi-Zhang and Zhang, 2000).

In response to the water crisis some urban residents use boreholes (Hubli-Dhaward of India), portable public water supply (La Paz of Bolivia; Mutare of Zimbabwe), streams or rivers, and sewage water for irrigation (Mexico City) (Mouget, 2000; Lima, et al, 2000; Kreinecker, 2000). Lack of attention to other serious factors of production like security of produce and requisite skills might mean that urban agriculture is a residual activity within imperfect markets and is often conducted opportunistically and with relatively little investment (Nugent, 2000).

Furthermore, urban agriculture produce is either for the market or household subsistence. Some urban high-income residents use agriculture as a strategy of further accumulation through the production of high yields crops close to the market, while some middle and low income households use urban cultivation as means of consolidation, securing the family well-being (Bryld, 20023. The majority of urban residents are, however, engaged in cultivation as a means of survival (Rigg, 1998). Having the opportunity of growing food or keeping poultry, therefore, becomes a critical component in the ability of staying alive in the urban environment, despite the fact that it is illegal in most African countries (Nugent, 2000; Bryld, 2003).

With a suffering population unable to feed their families, Zimbabwe's government has turned a blind eye to the uncontrolled growth of urban agriculture in urban centres. For instance, in 1990, gardens covered 8% of land in the city; by 1994, 16% of land, and by 2001, urban agriculture pervaded 25% of urban area (Sedze, 2006). According to ENDA-Zimbabwe (1996), a local non-governmental organization, the primary explanation for this extraordinary growth is the government's 1993 decision to relax by-laws concerning urban agriculture in an attempt to alleviate poverty. Although this is an improvement over policies that prohibited urban agriculture, Zimbabwe's government should continue to modify their approach and adopt policies that legitimize urban agriculture.

It were the delegates to the Urban Councils Association of Zimbabwe's 61<sup>st</sup> Annual Conference comprising the Minister of Local Government, Public Works and National Housing, representatives of Urban Councils, Councillors, and regional, international and local development partners that strongly urged local authorities to promote urban agriculture in their cities, develop appropriate incentives and other policies necessary for its growth (Mushayavanhu, 2002) (see also details Nyanga and Harare Declarations on Urban Agriculture in Appendix 4 (a) and 4(b)). As it were, Mutare city was not spared in implementing these recommendations. For example, the department of Housing and Community services under Council has set aside officers to facilitate the payment of an annual \$10 levy for urban cultivation and the inspection of the whole process (Minutes of Full Council Meeting 110 of 13 June 2003). As if that is not enough, AGRITEX of Mutare has deployed extension officers specifically for urban agricultural activities. Non-governmental organisations like Caritas Internationalis, Practical Action and Environment Africa have chipped in to complement government effort in the area of inputs,

implements, levies, irrigation, trainings and marketing of produces (Minutes of Full Council Meeting 142 of 9 November 2009).

One can safely say, urban agriculture has become a worldwide phenomenon. The United Nations Development Programme (1996) observes that one in three of the world's urban residents grow some food, and urban areas provide around 15% of global food production. On a similar note, Mbiba (1995) posits that the nature, increase and prevalence of urban agriculture have been seen to depend on national and urban economic collapse, land ownership and land availability in the cities in the form of 'public' open spaces or home space, urban management regimes, climatic conditions and the food security situation. The decaying national and urban economies seem to be the umbrella factor while drought and food availability or access to food seems to have acted as trigger factors in the rise of urban agriculture in cities of Zimbabwe and many other cities in Africa.

## **1.2. Brief Socio-economic situation and History of Sakubva Chisamba Singles.**

The study cannot be understood in isolation. As such, it is imperative that the socio-economic and historical perspective of the area of study be given as this is a crucial determinant of the survival strategies of residents.

As it is, Sakubva Chisamba Singles is an old high density suburb which was constructed by Mutare City Council in the 1960s for black urban employees who would have got employment in any company in Mutare City. This section has 67 core houses with four rooms each to make a total of 268 rooms. The ideal situation was to have two bachelors sharing one single room since by then women were not allowed to stay with their spouses in cities. In this case, those bachelors who would have married would then apply to Mutare City Council for

an apartment for married people in nearby sections of the same Sakubva high density suburb like Sakubva Old Chisamba and Zororo. It would then be the prerogative of City Council to give the applicant accommodation for the married.

Once a roommate moves to another apartment the remaining resident would stay alone in the previously shared room. This arrangement continued for quite a long time with Mutare City Council being responsible for the allocation of apartments since the houses are still owned by Mutare City Council. However, the aforesaid arrangement has since been overtaken by events.

The untold rural-urban migration and increasingly urbanisation of most cities worldwide resulted in the foregoing arrangement being a thing of the past. Massive housing shortages overwhelmed Mutare City Council. An increased demand for houses left council with no option, but to ignore the upcoming trend of families living together in Sakubva Chisamba Singles. It is common to have a household of six people (parents and children) sharing a single room. Generally speaking, there is high population density and overcrowdings in the area of study.

Most people in the area are aged and unemployed. They depend strongly on informal activities for sustenance and these include urban agriculture, petty trading, market sales, and piece jobs. Through such activities they can afford to send children to school, to eat and to pay rentals to Council. However, their incomes are well below the national poverty datum line currently at plus or minus \$540 for a family of five (The Daily News, 2 February 2012), and they rarely eat more than two meals a day considering their dependency ratio of above three people, in most cases.

Every household in Sakubva Chisamba Singles has a backyard garden of plus or minus hundred square metres. With readily available portable, tape water which is on a fixed rate of \$6 per month, each household can afford to grow vegetables throughout the year. More often than not the vegetables are for household consumption, although some are able to sale. Again, Sakubva Chisamba Singles is at the edge of Sakubva near Natvest industrial site(undeveloped) and Chikanga high density Suburb of Mutare. There is vast idle land between Sakubva Chisamba Singles and Chikanga. This area is often referred to as the 'Pit' and it is where most people from Sakubva Chisamba Singles had either grabbed land or were given portions of land by relatives. This land belongs to Council and the other parts are for private owners. At those plots one would find seasonal crops like maize and beans which are rain-fed. Since these plots are away from homesteads and unsecured, most crops are harvested whilst they are still green for fear of theft hence it is so difficult to estimate the harvest.

The socio-economic conditions of Sakubva Chisamba Singles make urban agriculture inevitable. Coupled with socio-economic conditions are physical conditions of an average temperature of 24 degrees celcius, fertile brown loomy soils, and flat terrain as well as vleis in some parts. Besides, there is readily available family labour and a local market for agriculture products. However, it should be clear that urban agriculture is tolerated and not legalised in Sakubva Chisamba Singles. Mutare City Council gives land usage permits at \$10 per year for those who would have find some open spaces to use in the City. Mutare City Council reserves the right to slash crops for those who would grow crops without paying the usage fee and to those who go against set procedures like not growing within 100metres from

wetlands. Also, Council discourages the growing of other crops (maize, beans) not vegetables on backyards.

### **1.3. Statement of the Problem**

Urban agriculture is an increasingly popular practice and is widely perceived to be a panacea to a plethora of urban livelihood challenges. It contributes significantly to the production of grains, vegetables, and small livestock for both subsistence and the market. The persistent rural-urban migration coupled with the Zimbabwe's record high economic melting down, and government cuts on social spending due to fiscal challenges has compromised urban residents' sources of livelihoods leaving them with no option, but to adopt survival strategies previously viewed as both rural and primitive like urban agriculture. Hence, under the present socio-economic circumstances urban agriculture has ceased to be a relict of the past that will not fade away nor brought to the city by rural immigrants who will lose those habits over time. Therefore, this study seeks to find out and proffer an explanation on the socio-economic factors that promote urban agriculture.

### **1.4. Justification of the Study**

Information on urban agriculture and its benefit as well as its environmental impact is well documented. Whilst research on socio-economic factors that promote urban agriculture in general might have been carried out in Zimbabwe and the world over, none so far has been found by this author which was carried out specifically on the socio-economic factors that promote urban agriculture in Mutare City. Meaning to say, this area is little explored and hence, this study sought to bridge that literature gap.

The blind eye paid by governments on urban agriculture and the lack of clear laws regulating urban agriculture viz-a-viz its booming, call for the dire need to find out the factors that promote urban agriculture. In addition, the higher food prices, low incomes, and the general economic meltdown in most states, Zimbabwe included, make it unlikely that urban residents would not continue in the area of urban agriculture.

As it were, since it is only through the knowledge of the socio-economic factors that promote urban agriculture that this activity can be improved and strengthened, the study sought to bridge the information gap on what should be done to maintain the viability of this venture. In this regard, research findings were shared with the Mutare City local authority, in particular the Director of Housing and Community Services for use in urban agriculture programming. In essence, this study could also assist to contribute to the formulation of appropriate national response and to strengthening existing mechanisms of improving urban agriculture.

It is sincerely hoped that this study would contribute significantly to scarce information on urban agricultural practices in general. Again, it does not take a Harvard university student to comprehend that urban agriculture is a somewhat novel and yet topical subject that need to be explored in detail so as to motivate urban residents to take up this practice and enterprise. Realisation by the target population, through information sharing by the local authority, that they have critical factors to look into in relation to urban agriculture might propel them to improve on production. In a sense, the study might help urban farmers to appreciate what they should consider when engaging in agricultural food production.



## **1.5. Aim and Objectives**

The aim and objectives of this study are outlined below.

### **1.5.1. Aim**

The broad aim of the study was to investigate the socio-economic factors that promote urban agriculture.

### **1.5.2. Objectives of the Study**

The objectives of the study were as follows:

- (i) To establish the prevalence of urban agriculture.
- (ii) To explore the socio-economic factors that promote urban agriculture.
- (iii) To identify and suggest ways to strengthen urban agricultural activities of urban residents.

## **1.6. Key Research Questions**

The key research questions for this study were as follows:

- i. How prevalent is urban agriculture as a socio-economic phenomenon?
- ii. Who is involved in urban agriculture?
- iii. What is the motive behind urban agriculture?
- iv. How is urban agriculture being regulated?
- v. What are the socio-economic factors that promote urban agriculture?
- vi. How do the socio-economic factors promote urban agriculture?
- vii. What can be done to strengthen urban agricultural activities?

## **1.7. Definition of Terms**

### **1.7.1. Socio-economic Factors**

This refers to those factors which touches on both social and economic issues and cannot be treated as either social or economic in terms of their nature.

### **1.7.2. Urban Agriculture**

It is the production of crops and/or livestock within the administrative boundaries of the city (Mbiba, 1995).

### **1.7.3. Residents**

These are urban dwellers engaging in urban agriculture. They can also be referred to as urban farmers.

### **1.7.4. On-plot**

Land around houses commonly known as backyard(s) or home space.

### **1.7.5. Off-plot**

Land away from houses in the form of public and private open spaces such as roadsides, river banks and along railway lines.

### **1.7.6. City Council**

Refers to the local authority for a city or urban centre and is the authority responsible for urban management.

#### **1.7.7. Urban Management**

Urban agriculture management involves deciding which types of products and what scales of operation should be allowed in different parts of the city (Mougeot, 2000).

#### **1.7.8. Land**

Refers to land used for crop cultivation in urban agriculture and is in the form of on-plot or off-plot land.

#### **1.7.9. Children**

Those people in a household still dependant on their guardians or parents for upkeep irrespective of whether they are below or above 18years.

#### **1.7.10. Complete Package of Inputs**

It refers to a full kit of basic urban agriculture inputs like fertilisers, seeds, implements, extension services and trainings.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.0. Introduction**

A review of the factors that promote urban agriculture from a global, African and Zimbabwean perspective makes up the bulk of this chapter. Particular attention is given to the prevalence of urban agriculture, stakeholders in urban agriculture, motive behind urban agriculture, the nature of socio-economic factors, measures to strengthen urban agricultural activities and the various responses to urban agriculture made globally, regionally and locally in Zimbabwe. Also, the theoretical framework shall be discussed in this chapter.

#### **2.1. Theoretical Framework**

The modified version of Von Thunen theory of spatial location (Barlowe, 1978), represents a particular viable framework of the socio-economic analysis of urban agriculture in this study. The Von Thunen model gives the economic rationale for land use around a central marketing place. According to this model, the value of land determines its use and distance from the central market point determines its value (Barlowe, 1978). Urban agriculture's land use patterns still follow Von Thunen's model. Perishable products such as vegetables and milk are produced closest to the city centre as predicted by the model. The model also envisages intensive land uses closest to the market point and this was confirmed by a recent study by Lee-Smith (1998). Following Von Thunen reasoning, the area closest to city market will be used for production of high value perishable products such as vegetables. The second zone will be used for heavy products such as cereal products. These are produced nearer the market to reduce transport costs. The third zone will be used for livestock grazing.

In reality some ideas of the Von Thunen model do not apply. Institutionally, it is not only the value of the land and its distance from central market that determines its use and value, respectively. Political and social motives as well as the physical nature of the land and transaction costs considerations also influence land use patterns (Kekana, 2006). Therefore, urban agriculture policy cannot be based on the economic theory of optimal land allocation alone because current economic growth is unable to cater for rapidly increasing urban population with employment and public investment to provide economic rationale for social and physical infrastructure (Lee-Smith, 1998). It must however, account for socio-economic development realities. Hence, urban residents should be afforded the opportunity to access land and water to produce food.

To this end, the basic model of Von Thunen adapted to city development by Burgess and by Von Rooyen et al (1995), provides a theoretical framework for this study with the socio-economic rationale for urban agriculture. It regards urban agriculture as a rational economic and socially useful activity within urban development, that is, scope should be provided for urban agriculture to grow in the modern urban environment (Kekana, 2006). As it is, urban agriculture is derived from the rational resource allocation of urban dwellers that are not in a position to earn sufficient income from non-farming to provide a sustainable urban family livelihood. With urban agriculture there is cost saving and reduction in transaction costs from a consumer viewpoint (point of consumption to point of food acquisition). In this framework, urban agriculture can be explained by the initial comparative advantage of newly urbanized groups with well-established rural food production skills.

In addition, the framework views urban agriculture as a contemporary survival strategy to allow a fallback position if sufficient urban income is not generated. As such, it is practiced

mainly to address household food security with surpluses sold in the market. Also, urban agriculture occurs because of the possibility of free riding on resource use, that is, urban residents can utilize land and water without paying (the full price) for these resources. Urban agriculture is viewed as a rational response to existing opportunities in terms of the market for produce and could be scaled up according to the available resources (land and other inputs) and the market.

In support of the theoretical framework aforementioned, Kekana (2006) notes that to view agriculture as backward and exploitative activity only when it is practiced in urban environments is restricting development strategies and options. Urban agriculture is not always subsistence focused or an exclusive activity for new and low-income migrants from rural areas. Many who derive benefits are involved. With urban agriculture, households rationally allocate labour to allow household food security and income generation through production close to urban consumer points. Large numbers of urban households have survived the negative impacts of economic crisis and final unemployment through engagement in informal sector activities with urban agriculture providing many with the opportunity to survive and improve livelihood (Mbiba, 2000). Based on these facts, Mbiba (2000) argues that the rejection of urban agriculture is unrealistic.

## **2.2. Factors Promoting Urban Agriculture: Global Overview**

The world over there is renewed interest in urban agriculture. While more common in cities of the developing world as a matter of necessity, interest in city farming, and the need for it is increasing in the cities of the developed countries (Rees, 1997). Urban agriculture has become irresistible in the light of an increasingly urban world where about seventy-five percent of the people in so called industrialized countries already live in towns and with

urbanization becoming a global phenomenon in the last half-century (Rees, 1997). In fact, the mass movement of people from farms and rural villages everywhere constitutes the greatest human migration in history.

For long a time, most developed country urban residents viewed urban agriculture in the sense of the back-yard gardens of a few people who like to grow tomatoes and other table vegetables as a hobby (Rees, 1997). Very few were able to envisage either the need for, or the potential benefits of, urban agriculture as a serious activity. This neglect is rapidly changing as agriculture generally enters a new phase in the turn of the twenty-first century. Contrary to the norm Girardet and Deelstra (2000) vehemently state that “at the end of the 20<sup>th</sup> century, humanity is involved in an unprecedented experiment: we are turning ourselves into an urban species.”

It is unlikely that the planet will be able to accommodate an urbanized humanity that continues to draw upon resources from ever more distant hinterlands or which uses the biosphere, the oceans and the atmosphere as a sink for its wastes at the current accelerating rates. As it were, cities do have enormous potential for food growing. For example, Smit et al, (1996) asserts that there are eighty thousand community gardeners on municipal land in Berlin with a waiting list of sixteen thousand, and also sixty five percent of Moscow families are involved in food production compared with twenty percent in 1970.

According to Mougeot (2000), the official view on urban agriculture the world view is now biased towards urban agriculture management, and not its ban. Urban agriculture management involves deciding which types of products and what scales of operation should be allowed in different parts of the city (Mougeot, 2000). As an example, in areas where

public open spaces are in short supply, tenure agreements are being sought between urban residents and owners of private or public estates with idle areas (schoolyard in Santiago, Chile and ocean port grounds in Lome)(Mougeot, 2000).

There has been rampant official promotion or management of urban agriculture in a variety of forms. As it is, by laws have been revised, statements have been publicised, ordinances declared, ministerial resolutions passed, master plans reviewed and resources availed all in the spirit of tolerating urban agriculture as either an interim or permanent land use in cities. For instance, in cities of Cuba, Philippines, and Indonesia presidents and mayors have called on urban citizens to become self reliant in food (Mougeot, 2000); Sofia in Bulgaria and Shanghai in China have designed master plans to accommodate urban agriculture (Yoveva et al, 2000; Yi-Zhang an Zhangen, 2000); in Sofia of Bulgaria by laws have been revised to allow for specific production systems in specific zones and state agencies have been authorized to promote appropriate practices in such areas (Yoveva et al, 2000); legally organized groups of urban farmers are entitled to credit and technical assistance in Cuba (Altieri et al, 1999). The Cuban Ministry of Agriculture has created an Urban Agriculture office for Havana (Altieri et al, 1999) and the Philippino legislation enabled the Cagayan de Oro City government to establish the City Agriculture office, now responsible for all urban agriculture matters (Potutan et al, 2000). Also, organised groups have been using undeveloped public arable land for fixed periods of time in Lima of Peru and Calcutta of India, and urban agriculture has been tolerated as an interim or permanent land use in public housing schemes in Havana where some 19 ministerial resolutions now protect urban areas under agricultural production. Similarly, in Cagayan de Oro, the City Council has issued an initial ordinance allowing urban farmers to use parts of idle land and open spaces (Potutan et al, 2000).



Since the 1970s non-governmental organizations have been actively taking part in urban agricultural activities (Mougeot, 2000). In many urban areas non-governmental organizations have been seeking the collaboration of governmental actors to upscale local urban agriculture interventions as in the case of CEARAH-Periferia in metro Fortaleza of Brazil, CARE Haiti in Port-au-Prince of Haiti, Funat in Havana of Cuba, REDE in Lima of Peru. In addition, bi- and multilateral organizations are playing a pivotal role in shaping urban agriculture activities. In this case, Swedish International Development Agency (SIDA) funded an East African workshop to inform policy research into rural-urban food production and is currently considering urban agriculture as a part of a new urban environmental management programme in South East Asia; United Nations Development Programme (UNDP) and the United Nations Food and Agriculture Organisation (FAO) have been providing technical training and feasibility studies on several production systems.

On a similar note, UNCHS has supported formal consultations of urban agriculture as part of multi-stakeholder action plans for urban management; UNICEF and related humanitarian non-governmental organisations such as CARE, OXFAM, AND CEBEMO (Dutch Catholic Co-financing organization) have supported urban agriculture projects; the World Bank supported projects recommending inclusion of urban agriculture as legitimate land use in new city master plans, such as in Uganda, and it also commissioned an assessment for comprehensive World Bank support to urban agriculture in South Asia (Smit et al, 1996). Again, FAO has formalized an inter-departmental group and will lead, with ETC Netherlands and UMP (Urban Management Programme of the UNDP), a series of electronic conference aimed at national and local countries to identify policy assistance needs of particular urban agriculture issues (Mougeot, 2000). Few evaluations of non-governmental organisations

initiatives in urban agriculture however are available and more are needed to orient future interventions in collaboration with other actors (Mougeot, 2000).

Of great importance in urban agriculture is access to land. Residents gain access to urban land from a variety of urban actors, through diverse modalities of tenure and usufruct, and arrangements are very often informal and sometimes based on customary law (Mougeot, 2000). Given the constraints on access to, and on the size of land plots available for urban agriculture at any location, production systems are very diverse in order to make the most and the best use of particular locations within the urban fabric. Areas used are of all sizes, from tiny home spaces (windowsills, containers, fences, rooftops, basements, walls) to recreational grounds, utility and transportation rights-of-way (stream or roadsides), to suburban public or private estates (Girardet and Deelstra, 2000 ). For example, in Havana the city of Cuba ‘popular garden’ managed by cultivators emerged in yards and on balconies, parties and rooftops and in response to the problems of food (Novo and Murphy, 2000); in Sofia of Bulgaria farming in backyards and private gardens adjacent to family houses is common, and in most cases poultry raising and the keeping of other small livestock is combined (Yoveva, et al, 2000).

Following unclear land titles, urban residents may use different spaces in a complementary way over a period of time (Mougeot, 2000). For instance, year round home gardens often serve as nurseries for rainfed off-plot fields, as in London of United Kingdom ; the same streamside field may carry vegetables in the dry season and grain crops in the wet season, as in La Paz of Bolivia (Kreinecker, 2000). Working several fields at different locations maximizes access to critical inputs (stream water and effluents) and to niche markets (ornamentals at crossroad intersections, herbs across from catering facility); ensures stability

against eviction from any particular site or against crop losses because of theft (Mougeot, 2000).

The need to complement urban subsistence strategies through the generation of income and/or the consumption of self-produced products is imminent in urban agriculture. Urban agriculture is viewed as an alternative to face the economic crisis. Predictions are that because of the economic crisis, some urban dwellers will eat more vegetables since they can no longer afford to buy meat, fish or eggs. Hence, vegetables like morning glory, spinach, lettuce, green mustard, basil and cassava, chilli pepper, caisim, tomatoes, cabbage, onions, cassava, and sweet potatoes are being preferred in Mexico, Jakarta of Indonesia, London of United Kingdom, and Washington of United States of America as well as in several other cities. For instance in central Jakarta of Indonesia vegetables were grown by 340 persons under 29 hectares and produced four tonnes (Purnomohadi, 2000) and this contributed to urban farming spreading quickly with people invading land near Pulo Mas horseracing track to grow vegetables and three hundred farmers invaded a cattle ranch owned by ex-president Suharto, all this in 1998. After failing to stop the land grabbing exercise the governor of Jakarta had to give the city's poor permission to use idle land to grow food, "urging them to obtain permission first instead of just grabbing it" (Purnomohadi, 2000).

In the same vein, there are still small-scale household plots with mixed production of cereals, vegetables and animals. As such, most of the cities that engage in urban agriculture are largely self-sufficient in food. Shanghai of China is the case in point. Vegetable production covers 10 000 hectares under continuous intensive production, cereal covers 2 700 hectares, and livestock production is on the increase with pigs, broiler chickens, egg chickens, and dairy cattle being kept (Yi-Zhang, and Zhangen, 2000). In La Paz, agricultural production

takes place on open fields and in private home gardens (on average 8-30m<sup>2</sup>), communal gardens (huertos comunitarios), greenhouses and beds covered with plastic hoods (carpas solares) where native crops like potatoes, beans and maize, which are adapted to the local conditions are grown and a large variety of animals are kept: chickens, ducks, guinea pigs, rabbits, pigs, “even sheep and here and there the odd cow or two” (Kreinecker, 2000).

More often than not urban cereals, vegetables and animals are for both home consumption and sale. Self-produced food in cities provides nutritious food otherwise unaffordable, replaces purchased food staples or supplements these with more nutritious foodstuff, affords saving (as much as 20% of income) which can be spent on non-produced foodstuff or other needs (school fees, transportation), and/or generates supplemental or principal income which can be invested in other business (Kitchen appliance, sewing machine) (Mougeot, 2000). In Havana, urban gardens have significantly increased the quality and quantity of food available to the residents' households and their neighbourhood, and improved the financial welfare of the households (Altieri et al, 1999). This then means that, urban agriculture contributes to urban community welfare

It is difficult to generalize income from urban farming since farming conditions vary enormously from season to season and city to city. However, examples can be given. Farmers in Accra earned very little cash, but produced eighteen months supply of staple food for their families and used their farm output as a consumption-smoothing and income-diversification strategy. Especially for vegetable growers income from farming could represent significant amounts and proportions of total income. In Sofia, about 28% of households earn at least 1-2, 6% income from urban agriculture (Nugent, 2000). Nevertheless, the net income from urban agriculture depends on farming effort; availability

and costs of basic inputs, yields as determined by technology, access to market or other buyers; ability to store, transport, process and preserve products; prices as determined by supplies and demand related products (Nugent, 2000).

Urban agriculture production is often organic with low inputs of capital, fossil energy, fertilisers and chemical pesticides. Residents often use basic technology in the form of hoes, buckets for irrigation and manual labour except in rare cases where high-tec technology is used as in the case of Shanghai, China where ploughing, irrigation, weeding and harvesting have been highly mechanized, and computers are increasingly being used to monitor the production processes (Yi-Zhang and Zhangen, 2000). Also, households that can obtain credit are less likely to sacrifice their agricultural needs for other expenditures, and instead will develop a sophisticated cash-flow behaviour in which they invest during planting season with borrowed funds, and repay from sales after harvest. Moreso, access to and costs of other inputs, such as seed, implements and chemicals is not frequently mentioned as a critical issue - although pest control and lack of water are known to be serious problems in many cities (Mougeot, 2000). In response to the water crisis some urban residents use boreholes, portable public water supply (La Paz of Bolivia), streams or rivers and sewage water for irrigation (Mexico City) ( Lima, et al, 2000; Kreinecker, 2000). However, lack of attention to other serious factors might mean that urban agriculture is a residual activity within imperfect markets and is often conducted opportunistically and with relatively little investment (Nugent, 2000). One common assumption about urban agriculture is that yields are quite low-largely because of poor quality inputs, low technology farm practices and high losses from a variety of sources (Smit, et al, 1996). Nevertheless, this does not rule out high-yields that have have been documented on urban residents in some cases (Nugent, 1999) and clearly are potentially available to many residents.

Effort devoted to urban agriculture fluctuates in response to potential earnings from other endeavours. For example agricultural work is used as a buffer for low-income families who flee periods of unemployment from other seasonal employment such as in construction or agricultural activities are reduced during periods of high expenses such as just before school opens or holidays (Nugent, 2000). In Russia, the average level of effort applied to urban gardening is about four days per month (Nugent, 2000). The effort applied declines significantly with an increase in wages or travel time to the farm (greater opportunity cost of farming).

On his writings on urban agriculture, Mougeot (2000) succinctly states that the importance and diversity of urban agriculture systems in any given city seems to depend on multiple factors at levels ranging from: global (international trade) to; national (level of development, financial/fiscal structural adjustment, disasters, agricultural policies); regional (urban food supply system, prevailing agro-climate strength of agricultural and food traditions); urban (population growth and densities, physical layout, employment levels, consumers tastes and market niches, legislation); district within the city (urban vs peri-urban, low vs high income, low vs high densities, residential vs other uses), household (size, dependency ratios, income levels, gendered responsibilities); to individual (educational level, particular mix of most occupations, farming skills, access to resources, contacts with suppliers/clients).

It is the factors at the household and individual levels that then determine the labour for urban agricultural activities. As a result, it is common to have adult men, and adult women taking on different roles in urban agriculture. For instance, an absent or incomplete market for women in general has motivated them to participate in urban agriculture. In India women make up a disproportionate share of unpaid helpers in household enterprises, and are

concentrated more than men in the agricultural sector. In general, Africa has the largest proportion of women involved in urban agriculture, except in Dakar and Accra, where men make up the majority of urban farmers. Explaining the latter, Armar-Klemesu and Maxwell (2000) point to traditional cultural behaviour, intra-household income behaviours, and other female responsibilities. The majority of market vendors are women. Proximity to the home and neighbourhood make this a more logical enterprise for women (Nugent, 2000). Conversely, in Cagayan de Oro city, men do most of the farming while women attend to all other household tasks (Potutan, et al, 2000). If the primary gardener is a man often his wife serves as back-up labour whereas this is not always true in the reverse. Children's labour is used in urban farming, especially when a woman is head of the household. Women are more represented among vegetable gardeners (Nugent, 2000).

It suffices to note that regardless of whether the policy environment is either prohibitive or restrictive to its existence and development, the world over urban agriculture has to be seen as a permanent component of the urban system. Meanwhile, there is dire need to keep up the pace of implementing urban agriculture activities. Advocating for policy change in those areas without sufficient support is worth the effort, for small changes in policy can mean big changes for urban residents. Local governments need to awaken to the fact that, for relatively small investment in personnel, capital, and legislative and regulatory change, they can catalyse communities to help solve so many of their immediate needs. Zeeuw (2000) summarized the policy issues that need to be pursued with regard to urban agriculture as follows:

- i. To facilitate the improvement of subsistence oriented urban agriculture with the main objective of achieving food security of the urban residents, the main policy issues are: access of residents to public and private land and water and enhanced security

in land tenure (like usufruct medium-term arrangements in the form of leasing schemes), human capacity building, development of farmer networks and organizations, gender sensitive approaches.

- ii. To improve the economic efficiency of commercially oriented urban agriculture the following main policy issues were identified: the productive use of recycled organic waste and water, access to factor and product markets, participation of stakeholders in urban land use planning and improved access to public and private land.

Having considered that urban agriculture does not have an institutional home, something that leaves stakeholders lacking channels to wire their needs and lacking the power to participate in policy preparation and city planning processes, participants of the Havana workshop made the following practical recommendations (Zeeuw, 2000):

- i. The organization of onsite meetings and policy seminars in order to raise awareness among national and city administrators, planners and non-governmental organisations and to provide them with reliable data and positive examples (best practices), and to develop a broad, systems oriented perspective on urban agriculture.
- ii. The selection of a national agency on urban agriculture and the establishment of an interdepartmental working group at national levels to stimulate development of legal framework for urban agriculture and support local initiatives for the integration of urban agriculture in city planning and urban development policies.
- iii. The establishment of a database on urban agriculture with information on successful policies and projects, appropriate technologies for urban agriculture, effective and participatory planning and research methodologies, plus available expertise.



- iv. The setting up of city inter-agency committees on urban agriculture and the establishment of stakeholder platforms for dialogue and consensus building at city and neighbourhood levels.
- v. Promotion of participatory, site specific and interdisciplinary field research on urban agriculture with a strong policy and action orientation.
- vi. Stimulation of documentation and exchange of experiences at local, national level through network, workshops, exchange visits and newsletters.
- vii. Providing assistance to process of self-organisation of urban farmers (such as producers' organizations, marketing co-operatives and machinery pools).
- viii. Facilitating networking and dialogue between groups and organizations of urban farmers and with consumer organizations, community-based organizations (CBOs), non-governmental organisations, environmentally conscious firms and Local Agenda 21 groups.

### **2.3. Factors that promote urban agriculture: The African Experience.**

The role urban agriculture can play in improving livelihoods has been well documented, and many researchers have suggested that such intensive cultivation may indeed be the panacea for the urban food supply deficit associated with many burgeoning African cities (Baumgartner and Belevi, 2001). Since the 1960, a dramatic acceleration in urban growth, combined with surging levels of grinding poverty, have heightened concern for the 'urban crisis' that has unfolded in sub-Saharan Africa. In the last twenty years, urban populations have continued to escalate, and it is likely that half of Africa's people will soon be living in cities (HABITAT, 1996). As urbanization takes place, another important trend is revealed, namely, the locus of poverty in Africa is slowly shifting from rural to urban areas together with the accompanying livelihood strategies of which agriculture is key.

As a response to the economic crisis exacerbated by the structural adjustment programs and increasing migration, in Africa urban cultivation has become a permanent part of the landscape as in the case of Nairobi, Kenya (Foeken, and Mwangi, 2000) and Dakar, Senegal (Moustier and Mbaye, 2000). It is a fact that the Breton Woods Institutions' Economic Structural Adjustment Programs (ESAPs) which focus on growth aiming at increasing the income level through management of resources and a liberalization of the food trade wreaked havoc in African economies. The programs resulted in a removal of subsidies to food production in the developing countries seeking loans from the World Bank and International Monetary Fund. Consequently, prices rose significantly, and salaries and real wages were devaluated up to ten times, leaving the citizens with limited resources for food provision (Ratta and Nasr, 1996) .

This double burden has increased the intra-urban poverty and pushed urban citizens to become engaged in urban agriculture in order to feed the household (Mbiba, 1995; Maxwell, 1999). For instance, in the beginning of the 1980s, a mere 10-25% of the urban population in Africa was engaged in urban agriculture while up to 70% of the urban population have become cultivators in the 1990s ; in 2002 about 70% of the poultry food consumed in Kampala was produced within the city boundaries; in Dar es Salaam, the number of families engaged in agricultural production has increased from 18 to 67% from 1967 to 1991, making urban agriculture the second largest employer after petty trade (United Nations Development Programme, 1996; Bryld, 2003).

Urban agriculture in Africa is only tolerated and not legalized. As Rogerson (1997:360) rightfully puts it, "Despite its widespread occurrence for subsistence consumption, urban food and livestock production is usually not appreciated by urban authorities and certainly

not planned for and supported”. Even though countries like Zambia and Uganda have taken steps towards legalizing urban agriculture, in many African countries, urban agriculture is however, still illegal, leaving urban cultivators with an array of problems from slashing and theft to gate keeping and exploitation of land, as in Accra, Cairo and Nairobi)(Foeken and Mwangi, 2000; Armar-Klemesu and Maxwell, 2000). If the practice was legalized, this would reduce the fear of slashing and theft and motivate high yield cultivation, reducing food shortages in the city. Furthermore, policies should be implemented that would take into consideration the security of lands of the urban residents, and thus deal with the insecure tenure. As long as there are not sufficient resources available to provide secure livelihoods for the urban poor there is no other viable solution, that is to legitimize urban agriculture. If legalized, steps could be taken to improve the cultivation techniques and assist in creating the right environment for food generation, which is so essential to cities in Africa.

While city planners in some areas have taken a very restrictive approach to itinerant farming on public land, others have a more laissez-faire position (Neergard et al, 2009). Generally speaking, most cities motivated by health and hygiene concerns, aesthetic considerations, and the belief that a modern city should exclude the rural and “messy” appearance of crops initially took a much harsher view of urban agriculture that was considered unsuitable for African cities (Rogerson, 1997). Recent developments saw some cities, such as eThekweni Municipality (Durban), permitting farming activities alongside the airport and highways, as well as on other public lands as long as the land is not needed for other purposes (Kekana, 2006). On that score, the city municipality tries to assist, together with the Department of Agriculture, in providing inputs, and fences upon requests from community projects and under the condition that the urban gardens must be abandoned once the space is needed for other uses.

The increase in urban agriculture has brought with it new spaces where cultivation is exercised. Most common is cultivation in the backyard and around buildings (Bryld, 2003) as in Nairobi, Kenya and Dar es Salaam. However, community and public lands and parks, have also been invaded by urban residents within the last decades. Among these are areas allocated to other uses, such as roadsides and airport buffers as well as areas not suitable for building such as streamside, floodplains, drainage way-leaves, wetlands, and steep slopes (Freeman, 1991; UNDP, 1996).

In addition to the above, the choice of crops is also influenced by the land tenure and, particularly tenure security. A study in Cotonou (Benin) showed that high-value labour-demanding vegetables were predominantly cropped on land with secure tenure (backyards and land adjacent to homesteads), or at least security of occupation, whereas more extensive production of staple crops such as cassava and maize took place on plots with lower tenure security (open spaces awaiting construction or in corners of land owned by industries or large companies, well out of sight of the main entrance) (Neergard et al, 2009). Lack of tenure makes farmers more reluctant to invest in permanent structures (Ezedinmma and Chukuezi, 1999). Again, farmers with no ownership rights cannot use their land as collateral for credit and might face problems when they need to raise money for investments in their farming.

Some urban residents opt for community gardening (Neergaard et al, 2009). Community gardens ranges from close-knit communities to more loosely organized co-operatives that mainly share access to the same resources, have common land tenure, or are supported by external agencies such as NGOs or government officials. Community gardens in most cases have common fences, storage facilities, extension service support, input such as seeds or

fertilizers and, security or recognition of site as a farming area. They are in many cases supported by public bodies, non-governmental organisations or private foundations based on the notion that supporting a community project may be more sustainable than supporting individuals, as well as being an efficient way of distributing support to communities (Neergard et al, 2009). Access to water resources is very often shared in community gardens. The nature of sharing may vary from the individual wells on each plot in the community gardens, as in Bamako (Mali) to elaborate and highly regulated channel or pipe irrigation systems, which in some cases supply numerous extensive community gardens, as in Arusha (Tanzania) (Neergaad et al, 2009).

Neergard et, al ( 2009) notes that the production system of urban agriculture in Africa may be a low-or-zero-input system of haphazard nature, ranging over more or less consciously designed urban agro-ecosystems with recycling of organic wastes or manures, to input-intensive horticultural systems with large inputs of fertilizers and agrochemicals. Finally, the choice of crops will reflect local preferences, commercial opportunities, bioclimatic conditions and availability of seed or germplasm. Hence staple crops such as maize, plantain and tubers can easily be found growing in the centre of many African cities. Nonetheless, it is common practice that in response to the lack of space and in order to optimize outputs, farmers tend to engage in horticulture-like production systems with high-value crops (sweet potato, pumpkin, spinach, cabbage, covo, rape, onions, tomatoes, cowpea, green beans, carrots and lettuce) (Ambrose-Oii, 2009), where the individual plant is managed rather than the field as a whole.

Furthermore, the proximity to the market allows for cultivation of perishable vegetables, with short storage time after harvest, particularly in cities with poor infrastructure where

vegetables grown outside town cannot reach the market on time. For example, 90% of all vegetables and 60% of milk supply in Dar es Salaam (Tanzania) is produced from urban production, 90% of maize and 80% of leafy vegetables in urban supply of Yaounde (Cameroon) are from urban production; 65% of marketed vegetables in Brazzaville (Congo) are from urban gardens (Neergard et al, 2009). Also, urban residents can easily monitor prices on the markets and optimize when to produce and sell their produce (Ratta and Nasr, 1996). One would see that for the seasonal products, prices are much higher for the first batches to reach the market, and are strongly influenced by supply and demand. Urban residents have an advantage in being able to closely monitor market fluctuations and to sell their crops at a premium, as seen, for instance, with strawberries in Bamako (Mali) (Neergard et al, 2009).

Even though the majority of the produce grown in urban areas in the developing countries of Africa goes to subsistence, there are also other incentives for going into urban agriculture. Some urban high-income residents use agriculture as a strategy of further accumulation through the production of high yields crops close to the market, while some middle-income households use urban cultivation as means of consolidation, securing the family well-being. The majority of urban residents are, however, engaged in cultivation as a means of survival (Freeman, 1991; Atukunda and Maxwell 1996; Rigg, 1998). As Maxwell (1999:150) puts it: “Under circumstances where low income urban populations are spending up to three-quarters of their total income on food, the issues of income and livelihood are directly linked to food security. People are not passive victims within the constraints they face, people do their best to cope, to make ends meet, to protect their livelihoods, and meet their basic requirements.” Having the opportunity of growing food or keeping poultry therefore, becomes a critical

component in the ability of staying alive in the urban environment, despite the fact that it is illegal in most African countries (Nugent, 2000; Bryld, 2003).

It is point blank that in Africa, the urban low-income households rarely have access to farming plots of such a magnitude that they can support the whole family with food. Consequently, urban agriculture generally serves as a vital side earning for most households. The poorest families often have to sell some of their produce in order to pay rentals, school, or medical expenses, even if this means that the family will not receive sufficient food (Bryld, 2003). In a study by Freeman (1991) in Nairobi, the most commonly expressed prime motivation for urban cultivation is the need to avert hunger for the cultivators and their families by producing staple crops. Urban agriculture then becomes a form of semi-proletarianism where the producers rely on both subsistence and cash income (Maxwell, 1995). As it were, low-income households will focus production on staples such as maize, sweet potatoes and cassava, whereas better-off households can supplement their diet or income with higher-value products and livestock (Bryld, 2003). However, examples of low-income households who were forced to sell some of their produce to generate money, even when they are not able to supply the household, have been reported (Bryld, 2003).

A study in South Africa revealed that urban agriculture was most pronounced among middle- and higher-income groups, and less in the marginalized households (Rogerson, 1997). Also, Egziabher et al (1994) notes that urban farmers are rarely new immigrants to the city as these individual typically have poor access to land – both own and common. To the degree that farmers do migrate to cities, their integration within farming communities is hindered by poor links to agricultural service providers, extension services and local governance structures, making knowledge transfer difficult (Neergard et al, 2009).

Labour is an essential ingredient in urban agriculture. The production pattern in Africa generally means that it is the women who are in charge of cultivation (Mbiba, 1995; Maxwell, 1995). Bryld (2002) offers two reasons for this. First, urban cultivation is relatively easily fitted into women's daily work pattern. With the plots situated relatively close to the residence, the female household members are easily attending to the produce if and when they have a break from other duties. Second, different research from African countries show that men generally do not regard urban agriculture as a business, but only as a marginal activity (Maxwell, 1995; Dennery, 1996). Furthermore, it is usually women rather than men who forgo food in order to feed their children. Thus, urban agriculture can become a low-income trap that imprisons unskilled women (Potts, 1997; UNDP, 1996).

On the other hand, different research shows that women are generally very pleased with being engaged in urban agriculture (Dennery, 1996; Maxwell, 1995). It is Hovorka and Lee-Smith (2006) who found that women dominated all parts of their urban production cycle, including farmers, middlepersons and traders at markets. Sawio (1994) came to the same conclusion about Dar es Salaam that urban agriculture was general dominated by women. With South Africa and Senegal as notable exception, the farmers were mainly men whereas women were responsible for trading (Neergard et al, 2009).

A study in Nigeria revealed that commercial vegetable production sector was dominated by poorly educated migrant farmers during the dry season (Ezedinma and Chukuezi, 1999). In contrast, the large horticultural sector of ornamental plants was dominated by well-educated urban residents. Still on educational level, in Dar es Salaam (Tanzania) urban farmers are spread over all education levels (Sawio, 1994) where as in Mekelle (Ethiopia), farmers



generally have low educational status. This then means that, there is an enormous variation across Africa in terms of the social status, and background of those involved in urban farming.

Water is another important factor for plant growth in many African cities. Most crops require 0.1 to 1 litres of water per square metre per day (Neergard et al, 2009). In the growing cities of Africa, water for irrigation is available from the household taps, public taps, streams and sewage water. Admittedly, provision of clean and adequate water to residents is already a challenge that is not likely to diminish. As a result, competition for this water by an agricultural sector is likely to be problematic. Therefore some residents are adopting drip irrigation system which typically save 20% and up to 50% of the water requirements, and may also reduce labour costs depending upon the design (Neergard et al, 2009). Many local extension services from Senegal to South Africa have given economic support to farming groups using drip irrigation facilities.

Adding to the above, soil fertility is of concern to urban farmers. In Cotonou (Benin), due to the low quality of soils (white sands), the establishment of new gardening activities occurs on waste dumpsites where some soil fertility building has occurred before the initiation of farming activities. Further building of soil fertility is ensured by continued applications of organic matter in the form of urban wastes and animal manures (Neergard et al, 2009). In Jos (Nigeria), urban farmers have for years been building soil fertility for intensified urban crop production through the conscious application of household ashes to the soil (Ezedinma and Chukuezi, 1999).

Income generation from selling produce is difficult to quantify due to its ad hoc nature, payment in kind and the reluctance of farmers to reveal income (Bryld, 2003). For instance in Cameroon, it was estimated that urban farmers could potentially earn the same as the local minimum and Lusaka (Zambia), urban traders doubled their income compared to farmers who did not sell their own produce (Bryld, 2003) .

It is crystal clear that urban agriculture in Africa is booming irrespective of the mixed feelings of authorities who according to the Mayor of Lusaka “are hesitant to be more proactive on urban agriculture because it is largely seen as resulting from a failure to address rural development adequately. It is creating havoc in urban land-use planning and management. It is holding up city development and redevelopment” (Nugent, 2000). There is general agreement, nevertheless, that legalizing urban agriculture would go a long way in unleashing the potential of urban agriculture in Africa.

#### **2.4. Factors that promote urban agriculture: The Zimbabwean experience**

It is believed that urban agriculture in Zimbabwe dates back to the formation of the first colonial cities. Urban agriculture is practiced by people in various socio-economic groups and for a variety of reasons including subsistence, economic development and lobby (ENDA-Zimbabwe, 1996). Within the last 15 years, the practice has gained attention importance in urban centres due to increasing urban food insecurity, concerns over environmental degradation of land and water, competition from other land uses and its popularity as a long standing practise of open space cultivation as well as the declaration by President Mugabe that urban residents should grow crops wherever applicable for them to be self-sufficient with regard to food ( as in Sakubva, Mutare) (Mazuruse and Masiya, 2008). Broadly, the tough economic environment in Zimbabwe since the launching of ESAP in 1993 and persistent

droughts has affected all families, particularly the urban ones. Households have to establish extra means of survival and sources of income. Urban agriculture is one sure way to do so in Mutare, and other cities of Zimbabwe considering the sprawling of cities at an exponential rate of 3,5%, poverty levels of 62%, urbanization levels of 50% in 1998, and the recent unemployment rate of 70-85% (Mbiba, 2000; The Daily News, 4 October 2011). There is potential that everybody, the rich and the poor, can be an urban agriculturist albeit different economic motivations.

Since time immemorial institutional responses to urban agriculture in Zimbabwe have been either accommodative or prohibitive. In much more simpler terms, Colonial urban development viewed the urban African as a sojourner in the city. Hence, there were two basic responses to urban agriculture by the then urban administrators (Mbiba, 1995). Firstly, they used access to urban cultivation as an excuse to pay the urban African low wages. Secondly, foreseeing the environmental damage likely from the activity, conservation programmes were initiated. These included demarcation of and pegging of areas to be cultivated or not to be cultivated. A number of regulations were passed to assist in the conservation campaigns, namely: Salisbury protection of lands by laws, 1973, Rhodesia Government Notice No. 104 of 1973; Salisbury Protection of lands by laws, 1975, Rhodesia Government. Notice No. 840 of 1975 (No. 1); Salisbury protection of lands by Laws of 1975, statutory instrument 545 of 1979; Natural Resources (protection) Regulations of 1979. Similar laws were promulgated in the city of Umtali (Mutare) by the colonial administrators. Thus for exploitative reasons, urban farming was accommodated in the pre-1980 era while recognition of its potential damage to the environment led to conservation measures buttressed by legal regulations. This approach was inherited at independence in 1980.

At independence in 1980, Department of Natural Resources and local authorities inherited cities with urban agriculture managed with a supporting string of conservation regulations. The municipality had neither plans nor policy to manage urban agriculture. All its actions were prompted by requests and comments of other actors especially Department of Natural Resources and Natural Resources Board. Therefore, unless probed by some external agent or institutions, the city council was content to let the existing situation prevail; turning a blind eye to the activity (Mbiba, 1995). The pressure from the Department of Natural Resources resulted in the flight tour in Mutare and other cities so as to assess the urban agriculture prevalence, and the subsequent urban agriculture deterrent measures like penalising residents Z\$1000-00 for cultivating within 30 metres range of the naturally banks of a public stream, and slashing of crops on illegal sites (Mbiba, 1995). The municipal security unit was given the mandate to monitor urban agriculture as residents were attacking technical officers who were monitoring urban agriculture. Also, the Mutare City Council illegal cultivation committee was set up under the Department of Housing and Community Services to formulate strategies for urban agriculture. However, by 1984 it was obvious that all attempts to halt urban farming had been in vain.

At the instruction of the then minister of Local Government and Town Planning (Mr Enos Chikowore), in 1985 Council of Mutare, among others, were urged to set clear policies against uncontrolled urban agriculture, and not urban agriculture perse. Council would destroy without notice any crops grown in contravention to this policy. This was a new development which became a feature of years to come (Mbiba, 1995). As it is, Council has to continue controlling the activities in general and accommodate them where possible. In this process, Council has to inform the public hitherto, particularly on how to do proper urban agriculture. This was in line with the Water Resources Act of 1927, National Resources Act

of 1952, Salisbury by-laws of 1973, Rhodesian Regulations No 104 of 1973, Environmental Management Act, Regional, Town, and country Planning Act, and Urban Councils Act. It is not surprising that the said policies rarely empower authorities to systematically monitor or regulate urban agriculture.

It were the delegates to the Urban Councils Association of Zimbabwe's 61<sup>st</sup> Annual Conference comprising the Minister of Local Government, Public Works and National Housing, representatives of Urban Councils, Councillors, and regional, international and local development partners that strongly urged local authorities to promote urban agriculture in their cities, develop appropriate incentives and other policies necessary for its growth (Mushayavanhu, 2002) (see also the Nyanga Declaration on Urban Agriculture Appendix 4). Also, the delegates urged central government to include urban agriculture in its programmes to improve food security. Non-governmental organisations and donor agencies were also urged to support financially and materially urban agriculture projects for the benefit of the urban poor. As it were, Mutare city was not spared in implementing these recommendations. For example, the Department of Housing and Community Services under Mutare City Council has set aside officers to facilitate the payment of an annual \$10 levy for urban cultivation and the inspection of the whole process (Minutes of Full Council meeting 110 of 8 June 2003). As if that is not enough, AGRITEX of Mutare has deployed extension officers specifically for urban agricultural activities. Non-governmental organisations like Caritas Internationalis, Practical Action and Environment Africa have chipped in to complement government effort in the area of inputs, implements, levies, irrigation, trainings and marketing of urban agriculture produces (Minutes of Full Council meeting 142 of 7 November 2009).

While the municipal provisions accommodate urban food production, they give local authorities the discretion to determine the desirability and extent of the activity at any point in time (Mbiba, 2000). Consequently, institutional responses to urban agriculture have varied from extremely prohibitive measures to supportive programmes. The nature of the response depends very much on the personalities holding various positions in the city council, and the city mayor in particular (Mbiba 2000). For example in Mutare of Zimbabwe, officials generally tolerate on-plot crop production, but livestock rearing is strictly controlled (Mbiba 2000). The controls have also ensured that no livestock rearing exists in off-plot agriculture. The approach to off-plot production is at times accommodative, but in some years, can be drastically prohibitive. Crops are often destroyed, even those supposedly grown with approval from councillors and city officials.

Land for urban agriculture in Zimbabwe can be classified in two categories based on its location, that is, on-plot and off-plot (Mbiba, 2000). On-plot urban agriculture refers to farming practised on the plots around houses, like backyard gardening. It involves mainly crop production. Maize is in the main crops produced during the wet season. Vegetables are produced throughout the year. Health laws prohibiting on-plot livestock rearing are largely successful. At most, a negligible 1% of households in Mutare and other cities of Zimbabwe keep small livestock such as poultry, in the city (Mbiba 2000). Over 60% of the maize and leafy vegetables produced in on-plot agriculture in Mutare is consumed in the household. Of the remaining 40%, 75% is sold from the home or neighbourhood market stalls (Manica Post, 11 February 2011). Plot sizes for urban agriculture are usually around 200 square metres up to 2 acres per household cultivator in on-plot urban agriculture and up to 50 square metres to as high as 1 acre in low density on-plot urban agriculture (Mbiba, 2000). In Harare About 80% of properties in summer and 60% in winter, 70% property owners and 305 lodgers are

the households involved in on-plot urban agriculture (Mbiba, 2000). However it is difficult to find out quantities produced, consumed or marketed, largely because of the complex food flow mainly originating from other sources including rural areas.

Moreso, in on-plot urban agriculture during dry spells, tape water is used to irrigate crops. In low density areas, borehole water is also used. Water use has not been quantified, and there are no meaningful data regarding quantities used for manure, fertilisers and other inputs (Mbiba, 2000). However, it is quite clear that low-income households, tenants and recent rural-urban migrants hardly have access to on plot land as in the case of Mutare, Harare and Bulawayo of Zimbabwe (Mbiba, 2000; Sedze, 2006).

Off-plot agriculture is conducted in public open spaces, utility service areas and agricultural allotments, (Mbiba, 2000). All reports regarding off-plot production, however, are about agriculture taking place in public open spaces, where production is largely “uncontrolled”, “illegal” or heavily “contested” (Mbiba, 1995; Mushayavanhu, 2002). In Mutare of Zimbabwe off-plot agriculture also occur on undeveloped private and public places like aerodrome, Nyakamiti, Natvest industrial site, and along Sakubva River. It heavily relies on rainfall and public water from streams. A significant proportion of urban farmers tend to cultivate more than one plot in the same area or other area. This feature is more associated with older residents in the city especially those who have no household member in full-time employment (Mbiba, 1995). Again, Mbiba (1995) observed that those residents with multiple plots had at least five years in the city and resident on current premises.

The distance travelled by cultivators to off- plot(s) varies and depends very much on whether one owns a residence or not. A study done by Mbiba (1995) revealed that in the high density

area of Mabvuku, Harare the mean distance was 1,77km while in the low density areas the mean was 1,75km. Thus, he concluded the distance travelled was on average two kilometres from places of residence and 92% of the cultivators lived within 5km of the plots they were found cultivating. Likewise, an assessment on livelihoods strategies for vulnerable groups in Mutare revealed that residents simply walk to their off-plots and they proffer no security to produce implying that they are within walk-able distances not more than ten kilometres (Caritas Internationalis, 2009).

Again, a key feature of Zimbabwe's cities is the vlei phenomenon (Mbiba, 2000). Vleis are seasonally waterlogged drainage systems that occur on both clay and sandy soils. During the wet season (October to March), they become heavily waterlogged, resulting in surface marshes along all drainage systems. The vlei soils get wet with the first rains and then retain moisture long into the next wet season. Traditionally, communities had taken advantage of the vlei properties to plant an early crop and a late crop, thus enabling them to produce two harvests a year from the same piece of land. The proximity of vlei soils to stream makes them favoured area for gardening as in Mutare. Vlei soils have long been left un-built because they expand tremendously during the wet season and shrink and crack in the dry season (Mbiba, 2000).

In Zimbabwe, by law a resident intending to use a piece of land for urban farming should get permission from the local authority through the Department of Housing and Community Services (Mbiba, 1995). This department works closely with the Department of Works (Town Planning, Land Surveys) and the Town Clerk (Municipal Police Unit, legal section). As mentioned earlier on, in Mutare it is the Department of housing and Community Services that collects annual land use levies and monitors urban agriculture to ensure compliance with city



land use by laws. Again, the department advises residents on areas free for urban agriculture and those to be used for City developments. However, in most cases the majority of urban farmers do not follow this procedure in obtaining plots. They just get in and start using the land. Informal networks are often used to coordinate and regulate plot sizes and entry into the sector within any given locality.

Women provide the bulk of labour and management inputs for urban agriculture (Mbiba, 2000). In Harare, for example, the proportion of women cultivators in the off-plot sector ranges between 60% and 55% (Mbiba, 1995). Of these female cultivators over 80% were working on their own plots. In the higher income areas, more women employ manual labour. Mudimu cited in Mbiba (2000) found out that 24% of the men working on the plots were hired labour and that 59% of the men were assisting their wives. The dominance of women in urban agriculture extends from production to marketing. Up to 68.8% of those involved in marketing of urban agriculture produces in Zimbabwe were women (ENDA-ZIMBABWE, 1996). At all stages of production and marketing, children share the bulk of the labour with their mothers (Mbiba, 2000). It is noteworthy that urban agriculture extends the working hours and burdens of women relative to those of men, especially with the collapsing economy posing more and more difficulties to the household subsistence. According to Mbiba (2000) any support to the sector should therefore aim to reduce time costs, as well as management, marketing and administration costs, apart from aiming to improve production.

Although adoption of cultivation as a survival strategy is made by women, in almost all cases they have to obtain the blessing of their husbands before proceeding (in the case of married women). Basically, women are in control of what they produce (Mbiba, 1995). Nevertheless, the increasing numbers of men active in urban agriculture can be attributed to increased

unemployment, as thousands of men are retrenched from formal employment, particularly in Mutare due to closure of companies like Border and Paper Mills (Manica Post, 11 February 2011). As attitudes towards urban agriculture become more favourable, there might be a danger that men will displace women from an activity in which women have been engaged for years.

In Zimbabwean cities, Mutare included it is crystal clear that urban agriculture is an activity dominated by older urban residents (The Manica Post, 11 February 2011). Entry by new immigrants is difficult unless they lease a piece of land from urban landlords. Contrary to Council policy and procedures, urban farmers ‘cling’ to their pieces of land. Council requires cultivators to renew their tenure every season and start cultivating only after such renewal (Mbiba, 1995). However, farmers proceed without renewing their tenure. They seem to be aware of the regulations. Even those farming in illegal zones are aware of their position since residents are often educated on their limits and rights with regard to urban agriculture (Minutes of Mutare City Full Council Meeting 150 of 5 May 2011). In fact, residents take it as a worthwhile risk in their efforts to sustain their families. In a way, where Council takes an accommodative and educative approach to urban agriculture, the residents are to blame if their crops are slashed.

According to Mbiba (1995), urban agriculture in Zimbabwe makes use of basic technology. Inputs are mainly in the form of seeds purchased from local shops, from the city centre or stored from the previous season’s harvest. In a study done by Mbiba (1995) in WarrenPark of Harare and Mandara of Harare, it came out that it is difficult to get information on costs and quantities on inputs. With no records kept such information would be a bit unreliable. More often one could estimate from the areas covered by crop the amount of seed that could have

gone down at planting. Mostly urban agriculture implements are in the form of hoes, shovels and tins. Very few people use leased tractors for tilling although private tractors have been available for hire in most areas including Sakubva of Mutare, as well as Bulawayo (Resource Centres on Urban Agriculture and Food Security, 2010 ).

Although human labour is an input in all cases, Mbiba (1995) says some respondents in his study did not bring this up when requested to itemise the inputs into their activities. Also, in most Zimbabwean cities there are no loans, subsidies credit facilities or extension services. Extension service for urban agriculture in Mutare, for instance, are rarely provided because urban agriculture remains an “ad hoc” activity shrouded in “illegality” and “uncertainty” (Mbiba, 1995; Sedze, 2002). The legal and institutional voids that limit support for urban agriculture continue largely to prevail, on account of the absence of political commitment to change the status quo. According to ENDA-Zimbabwe (1996), the official view remains that urban farming is bad for the environment and dangerous to health because standing water and dump vegetation attract mosquitoes and rodents. As such, government land policies prefer to stress the rights of the low-income, to return to white owned rural farming areas through land referees.

Over and above, the nature, increase and prevalence of urban agriculture in Zimbabwe and Mutare City in particular have been seen to depend on at least four conditions (Mbiba, 1995). These relate to national and urban economic collapse, land ownership and land availability in the form of ‘public’ open spaces or home space, urban management regimes, edaphic and climatic conditions, and the food security situation. The decaying national and urban economies seem to be the umbrella factor while drought and food availability or access to food seems to have acted as trigger factors in the rise of informal urban agriculture in

Zimbabwe. Strictly speaking, the bulk of urban agriculture in Zimbabwe is rain fed. Therefore, a good rainy season will witness more farming in urban areas especially if it is preceded by a drought year.

## **CHAPTER 3**

### **METHODOLOGY**

#### **3.0. Introduction**

This chapter will give an overview of the study methodology, that is, the research design, sampling, data collection, data analysis and the limitations of the study.

#### **3.1. Research design**

This study used both quantitative and qualitative research methodologies. Hence, a survey method was used to gather quantitative data from respondents. In-depth interviews which are part of a qualitative methodology were used, in some instances, in discussions with key informants. As it is, the descriptive and exploratory nature of the study called for the mixture of quantitative and qualitative research methodologies to gather data on the prevalence of urban agriculture, socio-economic factors associated with it and suggestions on how to improve it.

Cozby, et al, (1989) view surveys as entailing self-report measurement techniques to question people about themselves, that is, their attitudes, behaviours, personality, and demographics (age, income, race, marital status and dependency ratio). The survey method helped to gather data from individual household representatives engaging in urban agriculture as the units of analysis, and it worked well with the use of simple random sampling which ensured representativeness of the sample so as to obtain an accurate description of urban agriculture in Sakubva Chisamba Singles. Strictly speaking, the survey research method helped to ensure that each respondent was presented with exactly the same questions in the same order and context by way of an interview schedule thereby minimising context effects and holding

them constant across respondents. In a sense, study findings can be reliably aggregated and comparisons can be made with confidence between different survey periods (Rubin and Babbie, 1993).

The use of many questions in gathering data from respondents countered Rubin and Babbie's (1993) survey method problem of 'the fitting of round pegs into square holes' (other relevant issues may not be captured) often caused by standardisation of questionnaires. In this case, there was flexibility in data collection resulting in flexibility in analyses.

With in-depth interviews commonly referred to as "qualitative interviewing" (Mason, 2002), semi-structured, open-ended questions were used to gather perceptions and interpretations of key informants on lives of urban farmers, the socio-economic factors that motivate them to engage in urban agriculture and the ways to strengthen this activity. The emphasis was on 'depth, nuance, complexity and roundedness in data' from key informants rather than the kind of broad surveys of surface patterns which, for example, questionnaires may provide (Mason, 2002). Data from in-depth interviews were used to somehow validate data collected from respondents using the survey method.

### **3.2. Target population**

This study targeted urban households of Sakubva Chisamba Singles engaging in agricultural food production. There were a total of two hundred and sixty eight (268) households in Chisamba Singles and all of them engaged in urban agriculture. In addition such key informants as, one Councillor of Sakubva ward four (4), one Caritas Mutare staff, one AGRITEX staff, one Environmental Management Agency (EMA) staff, and one City Council Official were targeted as key informants. As such, the key informants were meant to provide

data on the administration and management of urban agriculture as well as on any other issues relevant to the study.

### **3.3. Sampling Method**

A simple random sampling of the target population was conducted using a table of random numbers (Sakubva Chisamba Singles rooms had numbers 1 to 268). A random sample of fifty (19%) households in Sakubva Chisamba Singles was selected for interviewing. A simple random sample gave each household in the area under study an equal chance of being selected, and study findings could be fairly generalised across the study population. Furthermore, the purposive sampling method was employed to select individuals and institutions to be interviewed as key informants.

### **3.4. Data Collection Techniques**

The researcher visited the selected urban households of Sakubva Chisamba Singles. As it is, an interview schedule was used to collect data from households. An interview guide was used for the key informants, that is, one councillor of Sakubva ward four (4), one Caritas Mutare staff, one AGRITEX staff, one Environmental Management Agency (EMA) staff, and one City Council Official, and one City Council Official who were interviewed at their workplaces upon appointment. Photographs were also taken to back-up quantitative data.

### **3.5. Data Analysis**

Research data from the study was analysed manually using the data matrix technique.

### **3.6. Ethical Considerations**

The respondents were not coerced to participate in the study. Informed consent by respondents was sought through briefing them of the issues surrounding the study. Also, interview responses were kept in strict confidence.

### **3.7. Limitations of the study**

The major limitation of this study was that the use of one location of study limited the extent to which the results could be generalised in that not every location in Mutare had an equal chance of being sampled. In spite of that, this method was feasible since not all urban residents engaging in urban agriculture could be accessed easily.



## **CHAPTER 4**

### **PRESENTATION, DISCUSSION AND INTERPRETATION OF STUDY FINDINGS.**

#### **4.0. Introduction**

This section presents, discusses, and interprets the findings of the study. Data collected from households engaging in urban agriculture, and key informants was collated and combined to provide a synthesized description of the socio-economic factors promoting urban agriculture, the prevalence of urban agriculture and possible means to strengthen the urban agricultural activities as suggested by respondents.

#### **4.1. Socio-demographic characteristics of respondents**

##### **4.1.1. Demographic characteristics**

The results to the question of gender, marital status, and social position in household are reflected in Table 1 below.

**Table 1: Distribution of Respondents by Gender, Marital Status and Social Position in Household.**

N=50							
Marital Status	Social Position			Gender of Respondents		Frequency	Percentage Total
	Household Head	Primary Caregiver	Children	Female	Male		
Single	1	3	2	5	1	6	12%
Married	15	11	0	15	11	26	52%
Divorced/Separated	2	0	0	2	0	2	4%
Widowed	16	0	0	13	3	16	32%
Grand Total	34	14	2	35	15	50	100%

As shown above (table1), it is apparent that the majority of respondents were females (35 or 75%) and the remainder were males (15 or 30%). The marital status of respondents as shown above, varied from single (6 or 12%), married (26 or 52%), separated/divorced (2 or 4%) to widowed (16 or 32%). Also, the majority of respondents (34 or 68%) were household heads, fourteen (22%) were primary caregivers and two (4%) were children. This could indicate that urban agriculture is dominated by females who in most cases are mothers with household care giving responsibilities. Males and children often play a supportive role in the whole urban agriculture process. This is consistent with the findings of Mbiba (1995) and Maxwell (1995) who pointed out that the production pattern in Africa generally means that it is the women who are in charge of cultivation. Bryld (2003) offers two reasons for this. First, urban cultivation is relatively easily fitted into women's daily work pattern. With the plots situated relatively close to the residence, the female household members are easily attending to the produce if and when they have a break from other duties. Second, different research

studies (Maxwell, 1995; Dennery, 1996) from African countries show that men generally do not regard urban agriculture as a business, but only as a marginal activity. Furthermore, following up on the findings on gender aforementioned, it is usually women rather than men who forgo food in order to feed their children making urban agriculture a viable option to pursue for most family women (Freeman, 1991).

The ages of respondents ranged from 18 years to above 60 years with a modal range of 40- 60 years (19 or 38%) followed by 25-40 years, plus 60 years, and 18-25 years which constitute eleven (22%), ten (20%) and ten (20%) of respondents respectively . These results are tabulated below.

**Table 2: Distribution Frequencies of Respondents by Age and Sex**

**N=50**

<b>Age Category (Years)</b>	<b>Sex</b>		<b>Frequency</b>	<b>Percentage Total</b>
	<b>Male</b>	<b>Female</b>		
18-25	3	7	10	20%
25-40	4	7	11	22%
40-60	6	13	19	38%
+60	2	8	10	20%
Grand Total	15	35	50	100%

Given that the majority of the respondents are old adults it could be suggested that urban agriculture demands maturity and endurance especially in areas of accessing land and other resources to engage in this activity. It was the Manica Post of 11 February 2011 which noted that in Zimbabwean cities, Mutare included it is crystal clear that urban agriculture is an activity dominated by older urban residents. On a similar note, Mbiba (1995) asserts that contrary to Council procedure residents just get in open spaces and start using the land,

informal networks are often used to coordinate and regulate plot sizes and entry into the sector within any given locality, and most residents cling to their pieces of land.

Number of dependants per each respondent varied from 1-3 (15 or 30%), 4-6 (28 or 56%), 7-10 (5 or 10%), and above 10 (2 or 4%). It is indicated that most respondents had at least more than three people to assist in meeting basic needs, meaning to say it could be safe to say that the need to make ends meet propels households to engage in urban agriculture. The finding is echoing why Mougeot, (2000) notes that self-produced food in cities provides nutritious food otherwise unaffordable, replaces purchased food staples or supplements these with more nutritious foodstuff, affords saving (as much as 20% of income) which can be spent on non-produced foodstuff or other needs (school fees, transportation), and/or generates supplemental or principal income which can be invested in other business (Kitchen appliance, sewing machine) for the household.

#### **4.1.2. Social Characteristics of Respondents**

The social traits of people have a bearing on how they view the environment in general (Beistein et al, 1994). On being asked about their religion forty-six (92%) professed being Christians and only four (8%) mentioned African traditional religion. If these findings are anything to go by, urban agriculture is subsidized to a greater extent by the intrinsic Christian endurance and love of one towards the food insecure household and the need to work hard for the survival and development of significant others. This echoes the kind of endurance required as urban agriculture remains illegal, leaving urban cultivators with an array of problems from slashing and theft to gate keeping and exploitation of land (Foeken and Mwangi, 2000; Armar-Klemesu and Maxwell, 2000).

To ascertain whether the rural culture has a bearing on urban agriculture respondents were asked on where they hailed from before they resided in Chisamba Sakubva Singles. Their responses were as follows:

**Table 3: Distribution Frequencies of Respondents by Number of Years Stayed in Chisamba and Last Location before Residing in Chisamba Singles**

Number of Years in Chisamba	N=50			Frequency	Percentage Total
	Location of Origin				
	Other Locations in Mutare	Rural Area	Other Urban Centres		
5	2	9	3	14	28%
6-10	3	6	3	12	24%
10-20	2	12	1	15	30%
+20	5	3	1	9	18%
Grand Total	12	30	8	50	100%

As portrayed above, thirty (60%) came from the rural areas, twelve (24%) from other locations in Mutare City, and eight (16%) from other urban centres. As depicted, many of those from rural areas had stayed more than ten years and some more than twenty years in the area of study prompting the conclusion that urban agriculture has a long history linked to socio-economic attributed to ESAP and other disasters. It can be assumed that most households engaging in urban agriculture could be bringing to the city the rural culture of farming. At the same time, it could be argued that agriculture is inherent in most Africans whether of urban background or not. As mentioned by Maxwell (1999) the double burden of ESAP and general economic melting down in Africa has increased the intra-urban poverty and pushed urban citizens to become engaged in urban agriculture in order to feed the household, although rural experience cannot be completely ruled out.

On the question of how long respondents had stayed in the Sakubva Chisamba Singles, all had stayed more than five years, that is, fourteen (28%) had stayed for five years, twelve (24%) for 6-10 years, fifteen (30%) for 10-20 years, and nine (18%) for plus twenty years (see table 4 above). For urban agriculture the number of years one would have spent in an area would determine one's access to basic prerequisites such as land, water for irrigation and other social networks for lateral learning. This is agreed by Mbiba (1995) who observed that entry by new immigrants to urban land is difficult unless they lease a piece of land from urban landlords inasmuch as residents 'cling' to their pieces of land without renewing their tenure with City Council.

When asked about the highest levels of education they had attained responses of the respondents were as follows (Table 4):

**Table 4: Level of Education and Employment Status of Respondents**

N=50				
Level of Education	Employment Status		Frequency	Percentage Total
	Employed	Unemployed		
Primary level	2	31	33	66%
Secondary Level	7	7	14	28%
Tertiary	3	0	3	6%
Grand Total	12	38	50	100%

As portrayed above the majority (33 or 66%) of the respondents had primary level education, followed by fourteen (28%) with secondary education, and only three (6%) had tertiary level education in the form of degrees and diplomas. As it is, urban agriculture is determined much by one's socio-economic status rather than expertise resulting from academic or specialised training. However, in general urban agriculture is dominated by the poorly educated who may

be having difficulties in getting formal employment. The findings outlined are in congruent with the observation of Sawio (1994) that in Dar es Salaam (Tanzania) urban farmers are spread over all education levels. Adding on, Ashebir et al cited in Neergard et al (2009) studying urban residents in Mekelle (Ethiopia), concluded that urban farmers, generally, have low educational status.

Human behavior, more often than not, is motivated by the ability to meet basic needs such as food (Beinstein et al, 1994), and as of late this often depends on how moneyed one is. So it was imperative to establish the employment status of respondents. Only twelve (24%) were employed and the rest, thirty eight (76%) were unemployed (see table 4 above). Most of those unemployed had attained primary level of education making it difficult for them to have formal employment. As it is, unemployment may encourage people to be innovative by way of engaging in informal livelihood activities in the form of urban agriculture. Of those employed three (25%) earned \$50-100, six (50%) earned \$100-200, two (17%) earned \$200-300 and one (9%) earned \$300-400. This can be taken to mean that to some urban agriculture is an activity to complement formal employment. These findings agreed with the assertion of Atukunda and Maxwell (1996) that some urban high-income residents use agriculture as a strategy of further accumulation through the production of high yields crops close to the market, while some middle-income households use urban cultivation as means of consolidation, securing the family well-being.

On being asked whether they have alternative informal sources of livelihoods all fifty (100%) respondents answered 'yes' mentioning growing crops (50-100%), petty trade (26-52%), and piece jobs (35-75%). Meaning to say, urban agriculture has become too popular a source of livelihood in Mutare City. Of the approximate monthly income from other sources

of livelihoods twenty-five (50%) mentioned \$100-200, followed by thirteen (26%) with \$50-100, six (12%) with \$10-50, four (8%) getting \$200-300 and two (4%) who mentioned \$300-400. If these findings are anything to go by, it is crystal clear that informal livelihood strategies, urban agriculture included have become a profitable venture in urban areas. As Maxwell (1999:150) puts it: “Under circumstances where low income urban populations are spending up to three-quarters of their total income on food, the issues of income and livelihood are directly linked to food security. People are not passive victims within the constraints they face, people do their best to cope, to make ends meet, to protect their livelihoods, and meet their basic requirements.”

## **4.2. Prevalence of Urban agriculture.**

### **4.2.1. Involvement in urban agriculture.**

The rampant food insecurity in most cities makes involvement in urban agriculture inevitable. In fact, urban agriculture has become the norm rather than an exception. The results to the question of involvement in urban agriculture are reflected in table 5 below:



**Table 5: Involvement in Urban Agriculture and the Underlying Reasons****N=50(multiple responses)**

<b>Reasons for Engaging in Urban Agriculture</b>	<b>Involvement in Urban Agriculture</b>		<b>Frequency</b>	<b>Percentage Total</b>
	<b>Yes</b>	<b>No</b>		
Source of Food	50	0	50	100%
Income	34	0	34	68%
Use of available land and water	11	0	11	22%
Unemployment	15	0	15	30%
High dependency ratio	12	0	12	24%

**N: B: These responses may not add up to 100%, because some respondents gave more than one response (multiple responses).**

The results of the study showed that all the respondents (50 or 100%) answered yes when asked about whether some members of their households were engaging in urban agriculture. Multiple responses revealed that they engaged in urban agriculture for food (50 or 100%), income (34 or 68%), to make use of readily available Council water and land (11 or 22%), source of employment (15 or 30%), and to meet the need of many dependants (12 or 24%). Of those respondents who mentioned need to make use of readily available Council water and land, one (9%) was quoted as saying:

“Mwanangu tingaregawo kushandisa mvura nemunda zvatinaizvo izvi togonzi tirivanhu here” (meaning that how can we fail to use the readily available land and water as living beings).

In a way urban agriculture is a necessity that urban residents can no longer do without. This echoes Mbiba's (2000) comment on Zimbabwean cities that in the light of the economic crisis and incessant droughts households have to establish extra means of survival and sources of income. Hence, there is potential that everybody, the high-income and the low-income, can be an urban agriculturist albeit different economic motivations.

#### 4.2.2. Requirements for urban agriculture.

Urban agriculture production is often organic with low inputs of capital, fossil energy, fertilisers and chemical pesticides (Mougeot, 2000). Table 6 below gives multiple responses on the requirements for urban agriculture, and land size and location.

**Table 6: Requirements for Urban Agriculture versus Land Size and Location**

**N=50(multiple responses)**

Requirements for Urban Agriculture	Land size and Location					Frequency	Percentage Total
	Backyard (square metres)		Off-plot (square metres)				
	100-150	200-300	100-200	200 - 500	+500		
Complete package of inputs	50	5	16	22	12	50	100%
Labour	-	-		2	6	8	16%
Tape Water and rainfall	50	5	16	22	12	50	100%
Council Permission	-	-	6	3	6	15	30%
Training and Extension Services		2	2	2	3	9	18%

**N: B: These responses may not add up to 100%, because some respondents gave more than one response (multiple responses). Also, residents had more than one piece of land.**

As shown above, respondents indicated the requirements for one to engage in urban agriculture as complete inputs package ( seeds, fertilizers/manure and land) (50 or 100%); labour (8 or 16%); tape water and rainfall (50 or 100%); council permission (15 or 30%); training and extension services (9 or 18%). Further probing on labour revealed that women and children dominated in all urban agricultural processes whereas men would assist on the here and there. The few who mentioned labour indicated that they sometimes had to hire labour, otherwise most respondents who relied on family labour saw it as something obvious and given. Portable tape water was mentioned by all respondents as necessary since it is readily available in the area at a fixed rate of only \$6 per month per household regardless of usage. Those who indicated training and extension services were in a project run by Caritas Internationalis, a local non-governmental organization assisting some Mutare City residents with education and basic inputs for urban agriculture in the form of fertilizers, seeds, extension services, training and implements. Council permission was mentioned by those who had paid up their land usage levies for that year at a fixed fee of \$10 per year regardless of land size. Otherwise, the general view as shown above was that prerequisites for urban agriculture are simple, less expensive and in some cases readily available making it somewhat easy to kick-start this venture. It was also revealed that in some cases there is a correlation between inputs required and the land size and location.

The findings above were confirmed by the Councillor, Mutare City Council official, EMA staff, AGRITEX officer and the Caritas Internationalis field officer who said that land and water are very basic ingredients for urban agriculture to take shape. The Mutare City Council official had to emphasise that where children provide labour is as child work (life skills training as part of grooming) and not child labour. As highlighted by Neergard et al( 2000), the production system of urban agriculture in Africa (Zimbabwe included) may be a low-or-

zero-input system of haphazard nature, ranging over more or less consciously designed urban agro-ecosystems with recycling of organic wastes or manures, to input-intensive horticultural systems with large inputs of fertilizers and agrochemicals.

#### **4.2.3. Land size and location**

Land for urban agriculture is either on-plot (backyard gardening) or off-plot (public open spaces, utility service areas and agricultural allotments) (Mbiba, 2000). When asked on where they do cultivate, all (100%) respondents indicated they cultivated on backyard pieces of lands with fourty-five (90%) having land sizes of 100-150 square metres and five (10%) with 200-300 square metres of land. Again, these respondents had other plots away from home with areas of 100-200 square metres (16 or 32%), 200-500 square metres (22 or 44%), and more than 500 square metres (12 or 22%) ( see table 7 above). In Sakubva Chikanga singles off-plot cultivation was taking place in utility service areas like Nyakamiti, aerodrome, the 'Pit' and Natvest industrial park, along Sakubva River, roadsides, and along railway lines. These findings confirmed that at least there is land available for urban agriculture whether as a permanent or an interim activity, making it part and parcel of the activities of daily living for most urban residents. All respondents indicated that they had more than one piece of land so as to maximize on agricultural production. The land sizes and multiple plots are a pointer to the kind of intensive production typical of urban agriculture in the light of competition with other land uses. In fact, the findings agreed to the observation of Mbiba (2000) that plot sizes for urban agriculture are usually around 200 square metres up to 2 acres per household cultivator in on-plot urban agriculture and up to 50 square metres to as high as 1 acre in low density on-plot urban agriculture. A separate interview with the Councillor, Mutare City Council official, EMA staff, AGRITEX officer and the Caritas Internationalis field officer also revealed that backyard gardening was being done on areas not exceeding 400 square

metres and off-plot agriculture on not more than two hectares unless the resident combines a number of plots. It was an official from EMA who pointed out that most residents are trying to expand their land sizes by venturing in illegal zones like wetlands and they are fining such people.

#### **4.2.4. Crop production**

The need to complement urban subsistence strategies through the generation of income and/or the consumption of self-produced products is imminent in urban agriculture (Purnomohadi, 2000). When asked to list the crops they grow in order of importance, all (100%) respondents listed covo, rape, beans and maize, followed by onions (34 or 68%), spinach and carrots (21 or 42%), and lastly carrots (15 or 30%). In most cases vegetables were grown on-plot and field crops like maize and beans off-plot (see appendix 3- Insert 3-6).

Moreover, harvested of their two major crops was asked for. Respondents mentioned that on a weekly basis the majority of twenty-nine (58%) harvest 60-100 bundles of covo, followed by eleven(22%) who harvested 20-60 bundles of covo and only eight (16%) harvested above 100 bundles of covo per week. On maize the majority of the respondents (28 or 56%) harvested 5-10 bags, followed by ten (20%) who harvested 10-15 bags, seven (14%) harvested more than 15bags, and five (10%) harvested less than five bags. All (100%) respondents had a cropping pattern of growing field crops like maize and beans (see appendix 3- Insert 3-5) during the rainy season and on other plots away from the homestead whilst vegetables were grown throughout the year including dry seasons using tape water for irrigation. It is noteworthy that those with high-yields had also large pieces of land plots when combined.

If anything, the findings pointed out that urban agriculture enables residents to be self-reliant with regard to vegetables and cereals, of course, depending on plot sizes. The interview with the Councillor, Mutare City Council official, EMA staff, AGRITEX officer and the Caritas Internationalis field officer confirmed the types of crops grown, and the seasonal cropping pattern. It was the Caritas Internationalis field officer who went on to mention crops like garlic, lettuce, tomatoes and cabbages the assumption being that since they were handing out such seeds residents were growing them yet residents were not growing them. On the harvest estimate, all key informants interviewed had to hide their lack of information by stating that it depends with land size. They were quoted as saying:

“Izvi zvinosiyana-siyana nekukura kwemunda wemunhu wacho” (meaning it depends on a resident’s land size).

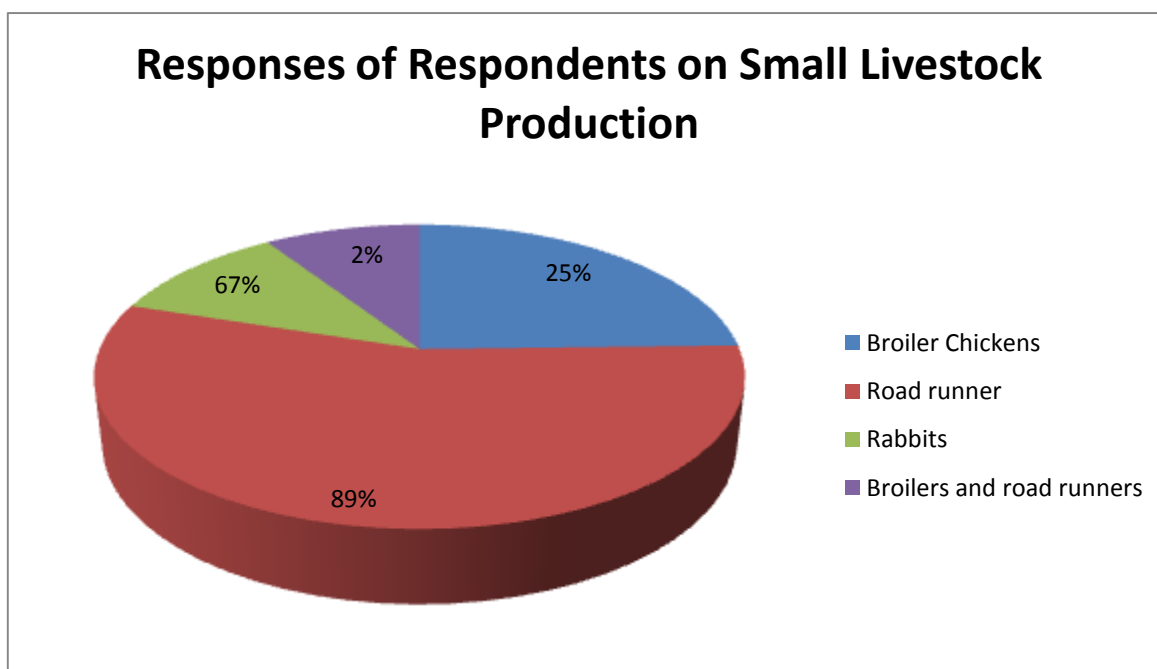
Generally, these findings confirmed the assumption that urban agriculture yields are quite low-largely because of poor quality inputs, low technology farm practices, and high losses from a variety of sources (Smit, et al, 1996). Nevertheless, this does not rule out high-yields that have been documented on urban residents in some cases and clearly are potentially available to many residents (Nugget, 1999).

#### **4.2.5. Livestock Production**

In urban agriculture there are still small-scale household plots with mixed production of cereals, vegetables and animals, and livestock production seems to be on the increase with pigs, broiler chickens, egg chickens, and dairy cattle being kept (Yi-Zhang, and Zhangen, 2000). On the question of whether or not the respondents kept livestock at their homes thirty-eight (76%) of the respondents answered ‘no’, and twelve (24%) answered ‘yes’. Of those respondents who answered ‘yes’ three (25%) indicated they kept less than five rabbits, and nine (75%) mentioned that they kept more than twenty chickens in the form of broiler

chickens (6 or 67%) and road runners (8 or 89%) (see appendix 3- Insert 1 &2). In a sense, two (2 or 22%) had both broiler chickens and road runners (see pie chart below).

**Table 7: Responses of Respondents on Small livestock Production**



Although the question of the purpose for livestock production was not pursued in the study, it is kind of clear that the small number of small livestock kept could be for relish to supplement the vegetables aforementioned. As can be seen by the number of small livestock kept, they could be for family consumption to make complete the package of self-produced food. The Councillor, Mutare City Council official, EMA staff, AGRITEX officer and the Caritas Internationalis field officer interviewed agreed to the findings indicating that indeed small livestock are being kept around houses including chicken broilers for sale, albeit in small numbers. On the whole, these findings agreed with Mbiba's (2000) observation that livestock production in Zimbabwean cities is strictly controlled and the controls have also ensured that no livestock rearing exists in off-plot agriculture. He concluded that health laws prohibiting livestock rearing are largely successful and at most, a negligible 1% of urban residents in Mutare and other cities of Zimbabwe keep small livestock such as chickens and

poultry (Mbiba, 1995; Mbiba 2000). However, the findings are contrary to those in other cities like Shanghai of China and La Paz of Bolivia as well as Kenya where a large variety of animals are kept: chickens, ducks, guinea pigs, rabbits, pigs, “even sheep and here and there the odd cow or two” (Yi-Zhang, and Zhangen, 2000; Kreinecker, 2000). The difference between Mutare City and Shanghai and La Paz with regard to livestock production can be due to permissive city bylaws in the later.

#### **4.3.0. Socio-economic Factors of urban Agriculture.**

##### **4.3.1. Access to land.**

While city planners in some areas have taken a very restrictive approach to itinerant farming on public land, others have a more laissez-faire position (Neergard et al, 2009). The question was asked to ascertain how respondents were accessing land for urban agriculture, multiple responses indicated that all (100%) respondents said they used illegally undeveloped private land, thirteen (26%) used open spaces on public land, twenty-two (44%) were given some pieces of land by relatives who had stayed in the city for several years, and fifteen (30%) are renting land from Mutare City Council. The majority twenty-seven (54%) travelled 1-2km to the field plot, sixteen (32%) travelled 2-4km and seven (14%) travelled more than 4km to their off- plots. All (100%) of the respondents indicated that they offered no security for their pieces of land. For example on security of produce, one (2%) of the respondents mentioned that:

“Mwari ndivo vega vanotochengeta minda yedu hapana zvetingamboita isu” (meaning that only God can keep our fields safe since we cannot provide security)

It is depicted in the findings that urban agriculture exists in an informal and illegal manner with land grabbing and social networks as key means of accessing land within walk-able distances from homesteads. Only a few respondents had legal titles to land after paying the



City Council rentals as alluded to earlier on in this report (see chapter 1). Security of produce was a no issue. It can be taken to mean that the haphazard access to land enabled residents to amass large tracts of land by way of grabbing many off-plots within easy reach at a given time and the worry is on maximising agricultural production, not security of produce.

The findings on access to land subscribed to the general view that residents gain access to urban land from a variety of urban actors, through diverse modalities of tenure and usufruct, and arrangements are very often informal and sometimes based on customary law (Mougeot, 2000) (see chapter 2 for details). In a separate interview with the Councillor, Mutare City Council official, EMA staff, AGRITEX officer and the Caritas Internationalis field officer these findings were confirmed with the five making it clear that it is difficult to put some order in urban agriculture since there is no land for permanent farming. To this effect, Mutare City Council official was quoted as saying:

“Vanhu vaifanira kutsvaga pavanokwanisa kurima vozouya kuKanzuru vobhadhara ma\$10 pagore ekuti tabvumirana. Asi vanhu vanongorima madiro vasina mari yavabvisa isu ndopatinozetemera pasi zvirimwa zvavo” (meaning that people were supposed to identify their own pieces of land and then go to Council to pay usage fee of \$10 per year before cultivation, but often people simply grab land and do cultivate without Council knowledge resulting in slashing of crops).

Likewise, Mbiba (1995) notes that Council requires cultivators to renew their tenure every season and start cultivating only after such renewal so as to avoid crop slashing, but most residents proceed without renewing their tenure since they take it as a worthwhile risk in their efforts to sustain their families.

### 4.3.2. Official Promotion of Urban Agriculture

There has been rampant official promotion or management of urban agriculture in a variety of forms, namely, changes in city by-laws and review of master plans to accommodate urban agriculture (Mougeot, 2000). Table 8 below shows the responses on the role of various stakeholders in urban agriculture.

**Table 8: Roles of Stakeholders in Urban agriculture**

**N=50(multiple responses)**

Stakeholder	Roles	Number of Respondents	Percentage Total
Central Government	-no visible role	50	100%
City Council	-Issuing land usage permits	26	52%
	-Controls and slashing crops on unauthorised area	50	100%
	-Supplies portable, tape water	50	100%
NGOs	-Trainings	18	36%
	-seeds	25	50%
	-implements -Extension Services	21 21	42% 42%

**N: B: These responses may not add up to 100%, because some respondents gave more than one response (multiple responses).**

When asked on the roles of other actors in urban agriculture as shown above, all(100%) respondents mentioned Council as being responsible for controlling poor agricultural practices and slashing crops on places deemed not suitable or not paid off, twenty-six(52%) said Council issues land user permits at an annual fee of \$10 irrespective of land size so as to

regularize urban agriculture, all(100%) respondents indicated that City Council was giving them regular supply of portable tape water for irrigation of backyard gardens at a fixed rate of \$6 per month, all(100%) respondents mentioned central government as giving no support towards urban agriculture, and non-governmental organizations (NGOs) were indicated as giving trainings (18 or 36%), seeds(25 or 50%), implements( 21 or 42%), and extension services(21or 42%). As it is, there are two key players that promote urban agriculture, one playing a management role (Council) and the other a supportive role (NGO). Although not pursued in this study, bi- and multi-lateral development agencies like United Nations Development Programme and Swedish International Development agency are usually behind the scene funding local non-governmental organizations (see chapter 2 for details). It is clear that central government is not so active in urban agriculture except in the formulation of legislation on environmental management in general and not specifically on urban agriculture. In a nutshell, the findings echoes Kekana's (2006) comment that eThekweni Municipality (Durban, South Africa) tries to assist in urban agriculture, together with the Department of Agriculture, in providing inputs, and fences upon requests from community projects under the condition that the urban gardens must be abandoned once the space is needed for other uses.

The foregoing responses were shared by the Councillor, Mutare City Council official, EMA staff, AGRITEX officer and the Caritas Internationalis field officer who indicated that City Council regulates the whole process of urban agriculture and other stakeholders like AGRITEX, EMA and NGOs chip in after the 'green-light' from Council. The tolerance of urban agriculture as an interim or permanent land use was also observed by Potutan, et al, (1999) in the Philippines where legislation enabled the Cagayan de Oro City government to establish the City Agriculture office, now responsible for all urban agriculture matters, and

the City Council has issued an initial ordinance allowing urban farmers to use parts of idle land and open spaces.

#### **4.3.3. Affordability of Inputs for Urban Agriculture.**

Urban agriculture makes use of basic technology which is easily accessible (Mbiba,1995). On being asked how they get resources to kick-start urban agriculture activities all (100%) respondents mentioned personal resources, eighteen (36%) respondents indicated non-governmental organization support in the form of seeds and implements, and two (4%) respondents indicated government support in the form of 2kg seed packs. It was essential to pursue the accessibility of loan facilities to respondents to which all (100%) responded they had no access and they did not even know of such facilities. When asked on the specific inputs they use for production, all(100%) respondents mentioned seeds, fertilizers, family/relatives labour, tape water for irrigation and hand-use implements (hoes, watering cans), twenty-two(44%) respondents mentioned manure, and only two(4%) respondents mentioned hired labour. As the findings indicated, urban agriculture thrives on affordable, accessible and feasible resources that could be raised even by a low income household. Hired labour was mentioned by those in employment who could be taking part in urban agriculture on a part-time basis to complement formal earnings. Also, manure is proving too difficult to come by in the study area, and hence not mentioned by many respondents. Those who mentioned manure were either close to dumpsites or keeping small livestock like chickens.

The aforementioned findings were confirmed by the Councillor, Mutare City Council official, EMA staff, AGRITEX officer and the Caritas Internationalis field officer who pointed out that residents purchased their own seeds and fertilizers from local shops, and family labour particularly in the form of women and children was common. These findings confirmed other

studies which revealed that inputs are mainly in the form of seeds purchased from local shops, from the city centre or stored from the previous season's harvest; implements are in the form of hoes, shovels and tins; the establishment of new gardening activities occurs on waste dumpsites where some soil fertility building has occurred before the initiation of farming activities and further building of soil fertility is ensured by continued applications of organic matter in the form of urban wastes and animal manure; very few people use leased tractors for tilling although private tractors have been available for hire in some areas; there are no loans or subsidised credit facilities; women and children provide the bulk of the labour (Neergard et al, 2009; Mbiba ,1995; Maxwell, 1996). However, there is fear that urban agriculture can become a low-income trap that imprisons unskilled women (Potts, 1997; UNDP, 1996)

#### **4.3.4. Extension Services on Urban Agriculture**

As local authorities are being accommodative to urban agriculture some residents are receiving extension services on various aspects of agricultural production (Mougeot, 2000). On the question of training and extension services respondents were receiving the majority thirty-two(64%) of respondents indicated that they had not received anything in that regards, and eighteen(36%) indicated they had received pre-planting, planting and crop monitoring training and follow- ups from non-governmental organizations like Caritas, Environment Africa and Practical action. If these findings are anything to go by, it is apparent that very few respondents were receiving extension services and it was noted that these few were part of a livelihood project being run by Caritas Internationalis in the study area. These findings can be taken to mean that the skills imparted to the few residents by NGOs could end up being used by those not trained through a system of lateral learning. In agreement with the findings were the Councillor, Mutare City Council official, EMA staff, AGRITEX officer

and the Caritas Internationalis field officer who were interviewed separately, and they said AGRITEX extension officers were also offering extension services. City Council was also mentioned by these informants as on the record educating residents on the do's and don'ts of urban agriculture. Therefore, the disparity on some of the information supplied by respondents and that of informants with regards to the role of AGRITEX extension officers in urban agriculture could be because some things do exist as a principle, but not in practice. Nonetheless, these findings are in contrast to the claim that extension services for urban agriculture in general, do not exist because urban agriculture remains an "ad hoc" activity shrouded in "illegality" and "uncertainty" (Mbiba, 1994; Sedze, 2006).

#### **4.3.5. Use of Urban Agriculture Produce**

The majority of urban residents are engaged in cultivation as a means of survival (Freeman, 1991; Atukunda and Maxwell 1996; Rigg, 1998). On being asked about the consumers of their products, all(100%) respondents mentioned the family, thirty-four(68%) mentioned the local market which involves those in the neighbourhood and the nearby areas. A follow up question on the approximate income from urban agriculture per month revealed that seventeen get \$40-60, followed by eleven(22%) who were getting \$10-40, ten(20%) who were getting above \$100, eight(16%) who were getting \$60-100, and four(8%) who were getting less than \$10. The findings revealed that urban agriculture produce had the primary purpose of feeding the household and extras were sold to locals. The meagre incomes from urban agriculture produce sales as indicated by most respondents could mean that urban agriculture is not meant to be a business venture but a critical component in the ability of staying alive in an urban environment. A separate interview with the Councillor, Mutare City Council official, EMA staff, AGRITEX officer and the Caritas Internationalis field officer confirmed the findings by revealing that urban agriculture produce is primarily meant to feed

the household and surplus is sold in the neighbourhood by women and children. On a similar note some authors noted that urban agriculture becomes an activity where residents engage in it for both subsistence and cash income (Maxwell, 1995), and poor households will focus production on staples such as maize, sweet potatoes and cassava, whereas better-off households can supplement their diet or income with higher-value products and livestock (Moustier and Mbaye, 2000). However, examples of poor households who were forced to sell some of their produce to generate money, even when they are not able to supply the household, have been reported (Bryld, 2003).

#### **4.4.0. Strengthening Urban Agriculture**

##### **4.4.1. Knowledge of Urban Agriculture Guidelines**

Urban residents are often educated on their limits and rights with regard to urban agriculture (Minutes of Mutare City Full Council Meeting 150 of 5 May 2011). When asked their knowledge of guidelines on urban agriculture in general the majority forty-two (84%) of respondents mentioned anti-stream bank and wetlands cultivation, nineteen (38%) mentioned the need to be granted land user rights by way of paying for permits from Council, eleven (22%) mentioned avoiding growing cereals (maize, sorghum) in backyard gardens, six (12%) growing in sacks and eight (16%) respondents said they were not aware of such guidelines on urban agriculture. These findings reflected that the majority of urban residents were at least aware of more than one guideline on how to better manage their urban agriculture activities. Lack of knowledge of the few can be attributed to fear of disclosure since the guidelines are somewhat too general for anyone to purport not to know. It is noteworthy that the guidelines indicated were more to do with urban management rather than improving urban agriculture production. Hence, there is dire need to raise awareness among residents on those guidelines on how best to boost urban agriculture production.

Still on the findings of urban agriculture guidelines, the Councillor, Mutare City Council official, EMA staff, AGRITEX officer and the Caritas Internationalis field officer who were interviewed separately confirmed the findings emphasizing that urban agriculture should remain a controlled activity to avoid ‘urban disorder’. According to Mbiba (1995) the regulations which were set in Zimbabwe since pre-independence era were to assist in the conservation campaigns. On a similar note, Mougeot (2000) asserts that the official view on urban agriculture the world view is now biased towards urban agriculture management, that is, deciding which types of products and what scales of operation should be allowed in different parts of the city. Therefore, Armar-Klemesu and Maxwell (2000) suggested that if the urban agriculture practice was legalized, steps could be taken to improve the cultivation techniques and assist in creating the right environment for food generation, which is so essential to cities in Africa.

#### **4.4.2. Active Participation of Urban Agriculture Stakeholders.**

The diverse roles of various stakeholders in urban agriculture are of critical importance with regard to the existence and sustainability of this activity. When asked what should be done by other significant actors to improve urban agriculture there were multiple responses as follows: thirty-two(64%) respondents said central government should avail land close to cities for urban agriculture; Mutare city Council should continue giving land user permits and ensure fair land distribution(34 or 68%), control agricultural practices(19 or 38%), give training and extension services making people aware of the dos and don'ts of urban agriculture (15 or 30%), and provide inputs (seeds, fertilisers) (7 or 14%); non-governmental organizations should provide training(35 or 70%),provide a complete input package of seeds, fertilizers, implements(43 or 86%) and extension services(17 or 34%). If these findings are



anything to go by, there are two groups of stakeholders, one meant to regulate and administer urban agriculture (City Council) whereas the other group is to facilitate (NGOs and central government) urban agriculture. Residents expected stakeholders to assist them holistically so as to produce effectively with the major thrust being on availing land and inputs to residents. It is apparent that residents saw it as not necessary to lobby for their participation in urban agriculture management through committees and other engagement procedures, yet this is important. To this end, Zeeuw (2000) proposes that advocating for policy change in those areas without sufficient support is worth the effort, for small changes in policy can mean big changes to residents. Hence, local governments need to awaken to the fact that, for relatively small investment in personnel, capital, and legislative and regulatory change, they can catalyse urban communities to help solve so many of their immediate needs.

#### **4.4.3. Positive Attitude of Residents towards Urban Agriculture.**

Urban agriculture is an idea whose time has come. On being asked whether they would wish to continue in urban agriculture in the next two(2) years the majority forty-seven(94%) answered 'yes' stating that urban agriculture is an activity of daily living and a source of livelihood. Only three (6%) respondents answered 'no' mentioning that they preferred formal employment and they were engaging in urban agriculture simply because they were failing to get a formal job.

It is so unfortunate for these respondents had only completed grade seven in terms of level of education. Again, it was essential to pursue the question of the kind of incentives residents would want to continue in urban agriculture. Responses to this question are tabulated below.

**Table 9: Incentives to Continue in Urban Agriculture****N=50 (multiple responses)**

<b>Stakeholder</b>	<b>Expected Contribution</b>	<b>Number of Respondents</b>	<b>Percentage Total</b>
Central Government	<ul style="list-style-type: none"> <li>• Provide Land</li> </ul>	32	64%
	<ul style="list-style-type: none"> <li>• Not sure/nothing</li> </ul>	18	36%
City Council	<ul style="list-style-type: none"> <li>• Permission and fair distribution of land</li> </ul>	34	68%
	<ul style="list-style-type: none"> <li>• Controls</li> </ul>	19	38%
	<ul style="list-style-type: none"> <li>• Training and Extension Services</li> </ul>	15	30%
	<ul style="list-style-type: none"> <li>• Seeds and Fertilisers</li> </ul>	7	14%
NGOs	<ul style="list-style-type: none"> <li>• Trainings</li> </ul>	35	70%
	<ul style="list-style-type: none"> <li>• Complete input package</li> <li>• Extension Services</li> </ul>	43 17	86% 34%

**N: B: These responses may not add up to 100%, because some respondents gave more than one response (multiple responses).**

Respondents indicated as shown above that they could be motivated by the following: central government providing land (thirty-two or 64%); permission and fair distribution of land by Council (34 or 68%); controls on urban agriculture by Council (19 or 36%) ; trainings and extension services by Council ( 15 or 30%); seeds and fertilizers from Council (7 or 14%); trainings from NGOs (35 or 70%); complete input package from NGOs (43 or 86%);

extension services from NGOs (17 or 34%) activities. These responses are indicative of the fact that urban agriculture is a reality and thus, might become an activity of daily living for most urban residents for some time to come once it gets necessary support. Respondents felt strongly that City Council should ensure that urban agriculture is legalized and this coupled with the availability of requisite inputs would pave way for high-yields motivated kind of production.

The aforementioned findings concurs with the responses of the Councillor, Mutare City Council official, EMA staff, AGRITEX officer and the Caritas Internationalis field officer who in a separate interview highlighted that residents would be encouraged firstly by accommodative Council guidelines that permit urban agriculture, of course, in an organized manner, and most importantly injection of an input support particularly for vulnerable groups like the elderly and vulnerable children like orphans. The Mutare city Council official interviewed vehemently states that Mutare City Council has already pledged its support to urban agriculture by issuing land usage permits, monitoring land use and allowing NGOs operating space to support residents with inputs. Like what many authorities say, to facilitate the improvement of subsistence oriented urban agriculture with the main objective of achieving food security of the urban residents, the main policy issues are: access of residents to public and private land and water, and enhanced security in land tenure (like usufruct medium-term arrangements in the form of leasing schemes), human capacity building, and development of farmer networks and organizations (Zeeuw, 2000).

## **CHAPTER 5**

### **SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

#### **5.0. Introduction**

This final chapter presents a brief summary of findings, gives conclusions and makes recommendations for strengthening the socio-economic factors that promote urban agriculture, and for further study.

#### **5.1. Summary of Findings**

Basically, the study aimed at investigating the socio-economic factors that promote urban agriculture. As it is, the major focus of the study was to establish the prevalence of urban agriculture, to explore the socio-economic factors that promote it and suggest ways to strengthen urban agricultural activities of urban residents. As such from the study area, a sample of fifty urban residents engaging in urban agriculture was selected for interviewing and information was also gathered from key informants who were the Councillor of the area under study, Mutare City Council official, EMA staff, AGRITEX officer and the Caritas Internationalis field officer. This study discovered that urban agriculture in most cases is promoted by accommodative land tenure systems, affordability of inputs, need for survival, availability of extension services and official support for urban agriculture, interalia.

Results of this study revealed that the majority of respondents were females (35 or 75%) and the remainder were males (15 or 30%) indicating that urban agriculture is a female dominated livelihood activity. The marital status of respondents varied from single (6 or 12%), married (26 or 52%), separated/divorced (2 or 4%) to widowed (16 or 32%) and thus, the majority of respondents were either fathers or mothers. Also, the ages of respondents ranged from 18 years to above 60 years with a modal range of 40- 60 years (19 or 38%) followed by 25-40

years, plus 60 years, and 18-25 years which constitute eleven (22%), ten (20%) and ten (20%) of respondents, respectively suggesting that urban agriculture is for mature, family people . Each household interviewed had at least three members as the number of dependants per each respondent varied from 1-3 (15 or 30%), 4-6 (28 or 56%), 7-10 (5 or 10%), and above 10 (2 or 4%).

The study results also reflected that most urban residents engaging in urban agriculture were Christians since forty-six (92%) professed being Christians and only four (8%) mentioned African traditional religion. Again, the majority (34 or 68%) of urban residents were household heads, fourteen (22%) were primary caregivers and two (4%) were children. Thirty (60%) of respondents came from the rural areas, twelve (24%) from other locations in Mutare City, and eighty (16%) from other urban centres before residing in the area of study, hence it could be assumed that most households engaging in urban agriculture could be bringing to the city the rural culture of farming. All respondents had stayed more than five years in the area of study, that is, fourteen (28%) had stayed for five years, twelve (24%) for 6-10 years, fifteen (30%) for 10-20 years, and nine (18%) for plus twenty years. It was revealed that at least all respondents were literate despite their differing educational levels as the majority (33 or 66%) of the respondents had primary level education, followed by fourteen (28%) with secondary education and only three (6%) had tertiary level education in the form of degrees and diplomas.

Only twelve (24%) of the respondents were employed and the rest, thirty eight (76%) were unemployed. Most of those unemployed had attained primary level of education making it difficult for them to have formal employment. Of those employed three (25%) earned \$50-100, six (50%) earned \$100-200, two(17%) earned \$200-300 and one (9%) earned \$300-400

suggesting urban agriculture activity to be complementary to formal employment, in some instances. Besides, all fifty (100%) respondents reported having other sources of livelihood mentioning growing crops (50 or 100%), petty trade (26 or 52%), and piece jobs (35 or 75%). As such, of the approximate monthly income from other sources of livelihoods twenty-five (50%) respondents mentioned \$100-200, followed by thirteen (26%) who were getting \$50-100, six (12%) \$10-50, four (8%) who were getting \$200-300 and two (4%) who mentioned \$300-400.

Moreover, the results of the study showed that all the respondents (50 or 100%) answered 'yes' when asked about whether some members of their households were engaging in urban agriculture. Multiple responses revealed that they engaged in urban agriculture for food (50 or 100%), income (34 or 68%), to make use of readily available Council water and land (11 or 22%), source of employment (15 or 30%), and to meet the need of many dependants (12 or 24%). Respondents indicated the requirements for one to engage in urban agriculture as a complete input package (seeds, fertilizers/manure and land) (50 or 100%); labour (8 or 16%); tap water and rainfall (50 or 100%); council permission (15 or 30%); training and extension services (9 or 18%). Further probing on labour revealed that women and children dominated in all urban agricultural processes whereas men would assist on the here and there. The few who mentioned labour indicated that they sometimes had to hire labour, whereas most respondents who relied on family labour saw it as something obvious and given. Portable tap water was mentioned by all respondents as necessary since it is readily available in the area at a fixed rate of only \$6 per month per household irrespective of usage. Of those who indicated training and extension services were in a project run by Caritas Internationalis, a local non-governmental organization assisting some Mutare City residents with education and basic inputs for urban agriculture in the form of fertilizers, seeds, extension services, training

and implements. Council permission was mentioned by those who had paid up their land usage levies for that year at a fixed fee of \$10 per year regardless of land size. Otherwise, the general view as shown above was that prerequisites for urban agriculture are simple, less expensive and in some cases readily available making it somewhat easy to jump-start this venture.

All (100%) respondents indicated they cultivated on backyard pieces of lands with fourty-five (90%) having land sizes of 100-150 square metres and five (10%) with 200-300 square metres of land. Again, these respondents had other plots away from home with areas of 100-200 square metres (16 or 32%), 200-500 square metres (22 or 44%), and more than 500 square metres (12 or 22%). When asked to list the crops they grow in order of importance, all (100%) respondents listed covo, rape, beans and maize, followed by onions (34 or 68%), spinach and carrots (21 or 42%), and lastly carrots (15 or 30%). In most cases vegetables were grown on-plot whereas field crops like maize and beans were grown off-plot.

Respondents mentioned that on a weekly basis the majority of twenty-nine (58%) harvest 60-100 bundles of covo, followed by eleven(22%) who harvest 20-60 bundles of covo and only eight (16%) harvest above 100 bundles of covo per week. On maize the majority of the respondents (28 or 56%) harvested 5-10 bags, followed by ten (20%) who harvested 10-15 bags, seven (14%) harvested more than 15bags, and five (10%) harvested less than five bags. Also, all (100%) respondents had a cropping pattern of growing field crops like maize and beans during the rainy season and on other plots away from the homestead, whilst vegetables are grown throughout the year including dry seasons using tape water for irrigation.

To add on, on the question of whether or not the respondents kept livestock at their homes thirty-eight (76%) of the respondents answered 'no', and twelve (24%) answered 'yes'. Of those respondents who answered 'yes' three (25%) indicated they kept less than five rabbits, and nine (75%) mentioned that they kept more than twenty chickens in the form of broiler chickens (6 or 67%) and road runners (8 or 89%). In a sense, two (2 or 22%) had both broiler chickens and road runners. Although the question of the purpose for livestock production was not pursued in the study, it is kind of clear that the small number of small livestock kept could be for relish to supplement the vegetables aforementioned.

On accessing land for urban agriculture, multiple responses indicated that all (100%) respondents said they used illegally undeveloped private land, thirteen (100%) used open spaces on public land, twenty-two (22%) were given some pieces of land by relatives who had stayed in the city for several years, and fifteen (30%) were renting land from Mutare City Council. In a way, residents had several pieces of land at a time. The majority twenty-seven (54%) travelled 1-2km to the field plot, sixteen (32%) travelled 2-4km and seven (14%) travelled more than 4km to their off- plots. All (100%) of the respondents indicated that they offered no security for their plots. It is depicted in the findings that urban agriculture exists in an informal and illegal manner with land grabbing and social networks as key means of accessing land within walk-able distances from homesteads. As it were, only a few respondents had legal titles to land after paying the City Council rentals and security of produce was a no issue.

Study responses indicated that the various stakeholders had some roles to play in urban agriculture with all(100%) respondents mentioning Council as being responsible for controlling poor agricultural practices and slashing crops on places deemed not suitable or



not paid off, twenty-six(52%) said Council issued land user permits at an annual fee of \$10 irrespective of land size so as to regularize urban agriculture, all(100%) respondents indicated that City Council gave them regular supply of portable, tape water for irrigation of backyard gardens at a fixed rate of \$6 per month, all(100%) respondents mentioned central government as giving no support towards urban agriculture and non-governmental organizations (NGOS) were indicated as giving trainings (18 or 36%), seeds(25 or 50%), implements(42%), and extension services(21or 42%). As it is, there are two key players that promote urban agriculture, one playing a management role (Council) and the other a supportive role (NGO).

Respondents indicated that they had to kick-start urban agriculture activities by means of personal resources (50 or 100%), non-governmental organization support in the form of seeds and implements (18 or 36%), and government support in the form of 2kg seed packs (2 or 4%). All (100%) respondents indicated that they had no access to loan facilities and they did not even know of the existence of such facilities.

Moreso, all (100%) respondents mentioned that they used seeds, fertilizers, family/relatives labour, tape water for irrigation and hand-use implements whilst twenty-two (44%) added manure, and two (4%) used hired labour. Hired labour was mentioned by those in employment who could be taking part in urban agriculture on a part-time basis to complement formal earnings. Those who mentioned manure were either close to dumpsites or keeping small livestock like chickens.

The majority (32 or 64%) of the respondents did not receive training and extension services, whereas only eighteen (36%) respondents indicated that they had received pre-planting, planting and crop monitoring training and follow- ups from non-governmental organizations

like Caritas, Environment Africa and Practical action. It is apparent that very few respondents were receiving extension services and it was noted that these few were part of a livelihood project being run by Caritas Internationalis in the study area.

Urban agriculture products were mainly consumed by the family as indicated by all (100%) of the respondents. Thirty-four (68%) respondents mentioned that surplus was sold at local markets which involves those in the neighbourhood and the nearby areas. A follow up question on the approximate income from urban agriculture revealed that seventeen were getting \$40-60, followed by eleven (22%) who were getting \$10-40, ten (20%) were getting above \$100, eight (16%) were getting \$60-100, and four(8%) were getting less than \$10.

Respondents indicated knowledge of guidelines on urban agriculture in general by way of pointing out issues like anti-stream bank and wetlands cultivation, the need to be granted land user rights after paying for permits from Council, avoiding growing cereals (maize, sorghum) in backyard gardens and growing in sacks. Eight (16%) of the respondents said they were not aware of such guidelines on urban agriculture. These findings reflected that the majority of urban residents are at least aware of more than one guideline on how to better manage their urban agriculture activities.

The roles of significant actors towards improving urban agriculture were summarised as follows: central government should avail land close to cities for urban agriculture; Mutare City Council should continue giving land user permits and ensure fair land distribution(34 or 68%), control agricultural practices(19 or 38%), give training and extension services making people aware of the dos and don'ts of urban agriculture (15 or 30%), seeds and fertilisers (7 or 14%); non-governmental organizations should provide training(35 or 70%), provide a complete input package of seeds, fertilizers, implements(43 or 86%) and extension

services(17 or 34%). In other words, residents expected stakeholders to make available the relevant resources for urban agriculture production.

The study results, also, showed that the majority forty-seven(94%) wished to continue in urban agriculture in the next two(2) years stating that urban agriculture is an activity of daily living and a source of livelihood. Only three (6%) respondents mentioned that they would prefer formal employment and they engaged in urban agriculture because they were failing to get a formal job. It was so shocking in as much as these respondents had only completed grade seven in terms of level of education. On a similar note, the kind of incentives residents would want to continue in urban agriculture were indicated as availability and fair land distribution, Council permission, Council controls, complete input package (fertilizers, seeds, implements and extension services), and training and extension services. These responses are indicative of the fact that urban agriculture is now the in-thing for most urban residents.

Over and above, the findings revealed that the prevalence of urban agriculture is attributed to a variety of socio-economic factors, most importantly the accommodative land tenure systems and the need for survival in the light of the economic quagmire. It came out clearly that urban agriculture will be either an interim or permanent feature of urban centres for some time to come. Residents and significant stakeholders like City Council, central government and NGOs therefore, need to work hand in glove so as to strengthen urban agricultural activities, and emphasis is on ensuring clear creating land titles that motivate residents to keep on producing.

## **5.2. Conclusion(s)**

A hindsight on the study findings revealed that urban agriculture is a widespread activity within most cities and something without which some urbanites cannot afford to make ends meet. Most households grow a variety of vegetables and cereals on plot and off-plot as well as keeping small livestock to feed families and to sale surplus to some local markets for cash to sustain the household. With intensive agriculture on small plots either on plot or off-plot (undeveloped public and private land, roadsides, river banks and along railway lines), urban residents often have a significant harvest dependent on land area under cultivation. Crops are often rotated with vegetables grown throughout the year using portable, tape water and cereals like maize reserved for the rainy season making them rain-fed. Mature, adult women and children, more often than not, provide the bulk of the labour for urban agriculture from land preparation to marketing of produce. It is noteworthy that urban agriculture has been viewed as a complement to formal employment or a form of employment on its own especially when the majority of urban farmers are poorly educated for formal employment.

Land for urban agricultural activities is readily available, although there are often controls on its usage. Residents rarely own land except home stand if they happen to have some title deeds. It is common to have residents having only usufruct rights to land in urban centres hence they tend to grab public and private open spaces, pay for land usage to City Council, get a piece of land from some urban relatives and negotiate for temporary use of private undeveloped stands. Urban agriculture is not yet viewed as something permanent as there is no land dedicated to that activity by some local authorities. Residents are known for using more than one piece of land within walk-able distances from homesteads to maximise on use of inputs and to cope in the event of eviction from one plot. These off-plots are left on their own without security against theft and vandalism.

The official position on urban agriculture has tilted towards being accommodative and permissive, rather than restrictive and prohibitive. Although the role played by central government in urban agriculture could not be identified by respondents, it is common knowledge that it provides the legal framework of environmental management and oversees the running of Councils. City Councils are of great importance in managing urban agriculture that is maintaining order, and facilitating smooth access to land by way of usage permits at a nominal annual fee. Non-governmental organisations usually support residents with inputs such as extension services, trainings, seeds, implements and fertilisers. This then means that NGOs complement the efforts of local authorities in urban agriculture.

Urban agriculture relies heavily on simple and affordable technology that can be accessed with ease by urban residents. As such, residents use personal resources to jumpstart this activity by way of procuring basic inputs. They also make use of readily available resources like manure from dumpsites and small livestock wastes. Only a handful of residents may happen to get meagre support from central government and NGOs. NGOs are on record for assisting a certain target group as specified by their beneficiary selection criteria. Capital injection in the form of loans for urban agriculture is tantamount to ‘pipe-dreaming’, may be because of the unclear land tenure systems. Also, labour is often not seen as an input in urban agriculture, since it is readily available in the form of household members with adult women dominating the show. Only a few households with employed household members tend to hire labour for urban agricultural activities.

Extension services and trainings is now a feature in urban agricultural activities of most cities. It is not uncommon to have NGOs training residents and following them up on land

preparation, growing of crops and crop growth monitoring. As a principle, AGRITEX has deployed some staff to conduct extension services within some urban centres. Of importance to note is the fact that, residents feel strongly that government is not active and visible in the area of extension services for urban agriculture.

As already alluded, to urban agriculture is both subsistence and commercial focused. The household or family of the urban farmer serves as the primary consumer of urban agriculture products whereas the local neighbourhood benefit through buying surpluses. From this study, the amount of income from urban agriculture produce sales is so small to sustain households and it depends on one's land size. In this case, the major thrust of urban agriculture is not business, but to at least cushion residents against hardships amidst economic crisis.

It is agreeable that urban agriculture needs strengthening. In this regards, residents are quite aware of the general guidelines on urban cultivation especially the dos and don'ts stressed by City Council. These include the conservation campaigns against stream bank and wetlands cultivation and avoiding growing cereals on backyards meant for vegetables. Residents expect central government to make land available for urban agriculture, City Council to control cultivation processes, provide portable, tape water and hand out some inputs to residents, and NGOs to provide a 'complete input package' for crop cultivation. In fact, to most residents urban agriculture is about crop cultivation and not livestock rearing as all discussions seem to focus on crop production. It is the intention of most residents to continue with urban agriculture for some years to come. To this end, they look forward to external support in accessing land, and a complete input package for urban agricultural activities.

It suffices to say, the prevalence of urban agriculture is attributed to some socio-economic factors. Strengthening and building on these socio-economic factors would see the continuity and sustainability of urban agriculture as a vital activity for the continued ‘survival’ of urban residents in the light of persistent urban poverty.

### **5.3. Recommendations**

The socio-economic factors that promote urban agriculture are many and complex. There is dire need to strengthen these factors to ensure that urban agriculture activities are propelled towards high-yields and in turn continue to assist urban residents accordingly. Therefore, every urban agriculture stakeholder is hereby urged to contribute accordingly to make this activity continue to thrive. Below are the recommendations that could be useful in improving the viability of urban agriculture.

#### **5.3.1. Enhanced access of urban residents to land for urban agriculture.**

The results of the study showed that urban residents had a disorderly access to land. It is essential for City Councils to put order in the way open spaces are used in urban centres by a process of ensuring that it is Council that identifies open spaces and then people pay for usage permits to gain access to those open spaces rather than the reverse. This would ensure equitable access to land by residents and do away with the current trend of grabbing many pieces of lands because of one’s connections and longer time of residence in an urban location. A healthy situation will be one where residents have a small piece of land with security of tenure which can then be intensively put to use for high-yields. There is also need to make sure the off-plots are kept secure by way of fencing to protect them against vandalism and to lesser extent theft.

### **5.3.2. Legalising urban agriculture.**

Results of the study revealed that urban agriculture is only tolerated or accommodated by local authorities and not legalised. It is hereby urged that government should work to provide a legal framework for urban agriculture as in the case of other activities like rural agriculture. If legalized, steps could be taken to improve the cultivation techniques and assist in creating the right environment for food generation. Also, this will enable urban agriculture to be planned for and supported easily even by development partners like NGOs. In a sense, legalising urban agriculture would reduce the fear of slashing and theft and motivate high yield cultivation, reducing food shortages in the city. To this end, residents should be actively involved in the processes of urban agriculture such as master plan designing and formulation of by-laws through relevant structures. However, the legal framework should give Council the mandate to maintain and sustain order in the whole process of urban agriculture.

### **5.3.3. Improved urban agriculture technology**

Results of the study indicated that urban agriculture uses simple and affordable inputs. There is need to consider use of high-tech technology in the form of tractors for land preparation, drip irrigation, high-yield short-term seed varieties and use of pesticides and herbicides which can facilitate high crop yields. To be exact, residents need assistance from central government, City Council and NGOs to access modern technology that can enable intensive use of available small pieces of land.

### **5.3.4. Increasing Extension Services Coverage**

Given the low coverage of extension services as indicated by the number of respondents who had received extension services, consideration should be given to establishment of mechanisms to make sure all residents receive much needed extension services. NGOs could



increase their field staff to cover even those outside their target group. Central government may strengthen the capacity of AGRITEX to recruit more field officers to cater for the urban populace and also, the available few may be assisted to be mobile to cover many residents at a given time. Training of trainer programmes could be facilitated by all stakeholders concerned to ensure that some urban residents are capacitated to train others or even learn from each other through lateral learning processes like demonstration plots.

#### **5.3.5. Improving Market Linkages for Urban Agriculture Produce**

Results of the study showed that in the event of surpluses residents only sold to the local neighbourhood. Urban farmers should be linked to other profitable markets like supermarkets and institutions like schools whenever they need to sale their surplus produce. This requires providing assistance to process of self-organization of urban farmers (such as producers' organizations, marketing co-operatives and machinery pools) as observed by Zeeuw (2000). In a nutshell, this could motivate residents to produce in abundance as there will be value for their effort.

#### **5.3.6. Collective responsibility to strengthening Urban Agriculture**

Since the collective responsibility to strengthening urban agriculture was mentioned by respondents as necessary, due care should be taken to ensure collaboration among urban residents, City Council, NGOs and Central government to ensure that urban agriculture gets necessary support. City Council could work as the secretariat of this team approach to make sure that urban agriculture is well regulated and residents have access to land and other input support in a co-ordinated and equitable manner. This would entail each stakeholder in urban

agriculture pouring in resources within their limit to boost urban agriculture both in production and policy issues.

#### **5.3.7. Contributions of Social work**

Social work is defined as a profession concerned with the relationship between people and their environments that affect the ability of people to accomplish life tasks realize aspirations and values and alleviate distress (Suppes, and Wells, 1991). As such, the social development worker in the employ of City Council and NGOs may lobby and advocate with relevant stakeholders to view urban agriculture as a social development strategy that can promote improved livelihoods and hence a better option for the poverty stricken urban community. In a sense, the social development worker can steer urban residents towards popular participation so as to see to it that their concerns on urban agriculture are taken into cognizance in policy formulation. Social analysis and evaluation of some urban agriculture projects can inform decision makers on how best to intervene in a manner that will sustain the relevance and importance of urban agriculture activities. Also, the social development worker as a technocrat may also be involved in formulating social policies on urban agriculture and to fundraise for urban agriculture through project proposal writing in the NGO sector.

#### **5.3.8. Areas of Future Study**

There is need to explore in detail effects of urban agriculture remaining illegal, that is, the drawbacks that could emerge as a result of the mixed accommodative and restrictive approach to urban agricultural activities by local authorities. In this case, in-depth interviews with urban residents would help to unearth the potential consequences of urban agriculture remaining illegal. This issue was latent and subtle in this study. Also, future research should

focus on training and capacity building needs of urban residents so as to strengthen their capacity to engage effectively and efficiently in urban agriculture.

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## **Appendices**

### **Appendix 1: Interview Schedule for Respondents**

**An investigation into the socio-economic factors that promote urban agriculture in Zimbabwe: The case of residents of Sakubva Chisamba Singles Mutare City.**

General Information

Date of interview:.....

Questionnaire Number:.....

Starting Time:.....

Ending Time:.....

### **Introduction**

Good morning/ afternoon. I am .....a student at the University of Zimbabwe- School of Social Work. I am doing a study to understand the factors that promote urban agriculture in Zimbabwe. I would like to ask you some questions on urban agriculture. The study is for academic purposes, although findings may be accessed by other stakeholders like local authorities for their use. All your responses will be kept in strict confidence and they will appear as percentages and not as individual responses. Your names shall not appear unless you so wish. You are required to answer truthfully and faithfully. Feel free not to respond to any question(s) you are not comfortable to answer. I hope you will not mind my interviewing you. Thank you in advance.

## Section 1: Socio-Demographic Characteristics

### 1A: Demographic characteristic

1. Gender ☐ Female ☐ Male

2. Marital status.....

3. What is your age group?( tick any category below)

Below 18.....

18-25years.....

25-40years.....

40-60years.....

60+years.....

4. How many dependants do you have in your household?

.....

### 1B: Social Characteristic

5. What is your religion?.....

6. What is your position in the household?

.....

7. Where did you lastly come from before residing in this area?

.....

8. How long have you resided in Sakubva Old Houses Section of Mutare City?

.....

9. What is your educational level? (tick any category below)

Primary school.....

Secondary level.....

Tertiary.....

10. Are you formally employed?

.....

A. If yes, in which salary category do you fall? (tick category)

a) US\$10-50

b) US\$50-100

c) US\$100-200

d) US\$200-300

e) US\$300-400

f) Other

(specify).....

.....

11. Do you have other sources of income?

.....

A. If yes, name them?

.....

12. What is your approximate total income per month?

.....

## **Section 2: Prevalence of Urban Agriculture**

### **2A: Involvement in Urban Agriculture**

13. Do members of your household engage in urban agriculture?

.....

14. If answered yes to question 14, why do your household members engage in urban agriculture?

..... 15.

What is required for one to engage in urban agriculture?

.....

16. What is the approximate area you cultivate in square metres?

Backyard : .....

Other Plot : .....

## **2B: Crop Production**

17. Please list, in order of importance, the crops that you cultivate.

.....

18. Approximately how much do you harvest of two major crops you have mentioned?

.....

19. What is your cropping pattern according to seasons?

.....

## **2C: Livestock Production**

20. Do you keep livestock?

.....

A. If yes to question 22, please list the type of livestock and their numbers.

.....

## **Section 3: Socio-economic Factors of Urban Agriculture.**

### **3A: Access to land**

21. How do you access land for urban agriculture?

.....

22. What is the distance you travel to your furthest plot?

.....

23. How do you keep your other plots produce safe?

.....

### **3B: Official Promotion of Urban Agriculture**

24. What are the roles played by the following actors in urban agriculture?

Actors	Role in urban agriculture
Central Government	
Local Authority(Mutare City Council)	
NGOs	

### **3C: Affordability of Inputs for Urban Agriculture**

25. How are you mobilising finances for urban agriculture? ( probe on loans facility)

.....

### **3D: Extension Services for Urban Agriculture**

26. What types of training and extension services do you receive, if any?

.....

27. What kind of inputs are you using for production?

.....

### **3E: Use of Urban Agriculture Produce**

28. Who are the consumers of your products?

..... 29. How

much income do you get from urban agriculture per month?(approximation)

.....



## **Section 4: Strengthening Urban Agriculture**

### **4A: Knowledge of Guidelines on Urban Agriculture**

30. Can you mention any policies or guidelines on urban agriculture in general you know?

.....

### **4B: Suggestions on the Role of urban Agriculture Stakeholders**

31. What do you think should be done by the following to improve urban agriculture?

Actors	Contribution
Central Government	
Local Authority(Mutare City Council)	
Non-governmental organisations	

### **4C: Positive Attitude of Residents towards Urban agriculture**

32. Do you wish to continue in urban agriculture in the next 2 years?

.....

A. If yes, what kind of incentives could motivate you to improve production?

.....

.....

**Thank you**

**The End**

## **Appendix 2: Interview Guide for Key informants**

**An investigation into the socio-economic factors that promote urban agriculture in Zimbabwe: The case of residents of Sakubva Chisamba Singles Mutare City.**

### **General Information**

Date of interview:.....

Questionnaire Number:.....

Starting Time:.....

Ending Time:.....

Name of Organisation represented: .....

### **Socio-Economic Factors of Urban Agriculture**

1. In your opinion, how prevalent is urban agriculture in the area of study?

..... 2. In

your opinion, how do households in the area of study gain access to land for urban agriculture? .....

3. In your view, which crops are usually grown and the animals kept?

Crops:.....

Animals:.....

4. What is the approximate average area of land used for urban agriculture by each household in the area of study?

Backyard:.....

Other plots:.....

5. Approximately, how much do households harvest of each crop you have mentioned?

.....

6. In your opinion, what is the cropping pattern according to season?

.....

7. What do you see as the guiding policies or guidelines on urban agriculture in the area of study? .....

8. Who provides labour in urban agriculture activities, in your own opinion?

.....

9. In your own opinion, who are the consumers of urban agriculture products?

.....

10. In your view, what are the major inputs involved in urban agriculture?

.....

11. In your opinion, what motivates households to engage in urban agriculture?

.....

12. What do you think is being done by the following actors to facilitate urban agriculture?

(multiple responses)

Actors	Contribution
Central Government	
Local Authority(Mutare City Council)	
Non-governmental Organisations	

13. Do you see urban agriculture continuing in the next 2 years?.....

If yes, what could promote this trend? .....

**Thank you**

### **Appendix 3: Photographs of Some Urban Agriculture Features**

#### **Insert 1: Backyard Broiler Production at one of the Households in Sakubva Chisamba Singles**





**Insert 2: Typical ‘Road Runner’ Livestock Production in Backyards of some Houses in Sakubva Chisamba Singles**





**Insert 3: A Portion of Sugar Beans along a School Durawall and Adjacent to Roadsides near Chisamba Grounds**



**Insert 4: Roadside Production of Sugar Beans in Sakubva Chisamba Singles**





**Insert 5: Major Maize Growing area in Natvest Industrial Site of Mutare City.**





**Insert 6: Backyard Maize Production at One of the Respondent's House in Sakubva  
Chisamba Singles**

## **Appendix 4 A: Nyanga Declaration on urban and peri-urban agriculture**

### **DECLARATION ON URBAN AND PERI-URBAN AGRICULTURE**

We, the delegates to the UCAZ 61<sup>st</sup> Annual Conference and Geberal Meeting, comprising Mayors, town Clerks, Chairpaersons of town Councils, Committees, Government, Public Works and National Housing, international, regional and local non-governmental organisations, meeting at Montclair Hotel, Nyanga, from 4 – 7 June 2002, ackknowledging that UPA can contribute to poverty reduction, local economic development and sustainable urban development;

#### **Are urging**

Local authorities to promote urban and peri-urban agriculture in their cities, develop appropriate incentives and other policies necessary for its growth, mainstream urban food security within their operations and promote the collection and dissemination of information on UPA activities in their territorial planning areas,

The government to include urban agriculture in its programmes to alleviate poverty and economic empowerment, food security, promotion of local economic development and environmental and health improvement,

Non-governmental organizations and donors to support financially and materially urban and peri-urban agriculture projects for the benefit of the urban poor,

The private sector to invest in high value intensive urban and peri agro-industries in order to create employment opportunities and promote local economic development.

Parliament of Zimbabwe to legalise urban and peri-urban agriculture as a legitimate urban land use.

#### **Are encouraging**

Urban local authorities to recognise the significance of the contribution of UPA to social development approaches, generation of jobs and income, self esteem, environmental improvement and urban food security and to add them to their key development goals.

#### **Are re-affirming**

Our commitment to improve urban management through the promotion of peri-urban agriculture in our cities so as to enhance urban food security, address urban poverty, improve urban environmental and health management as well as to protect the urban and peri-urban bio-diversity.

Nyanga, Zimbabwe on 7 June 2002

## **Appendix 4 B: The Harare Declaration on Urban and Peri-Urban Agriculture in Eastern and southern Africa**

We, the Ministers responsible for Local Governments from Kenya, Malawi, Swaziland, Tanzania and Zimbabwe, at our meeting in Harare on Urban and Peri-urban Agriculture (UPA) in Eastern and southern Africa organised by the Ministry of Local Government, Public works and National Housing of the Government of Zimbabwe and the Municipal Development Partnership for Eastern and Southern Africa, in collaboration with UNDP, UNICEF, FAO-SAFR, FARNPAN, RUAF, and IDRC held on 28 and 29 August 2003;

### **Acknowledging,**

The presence of local government practitioners and representatives of non-governmental organisations and community based organisations;

Acknowledging further that:

UPA is a widely practised activity in and around towns and cities within the region on parcels of land with alternative competing uses;

UPA has generally been practised informally without appropriate policy, legislative and institutional frameworks;

UPA has generally been practised informally without appropriate policy, legislative and institutional frameworks;

UPA plays and will continue to play, a significant role in promoting food security, employment creation and income generation, health and nutrition and improving the economies of urban area;

Some governments in the region have made significant progress in incorporating UPA in their urban development plans, and that others are now beginning to rise to the challenge.

### **Recognising,**

The existence and increasing practice of UPA and also noting the many challenges that it faces, including:

Absence, inadequacy and or inconsistency in the policies, legislation and institutional arrangements for regulating the sector.

Limited availability of and access to resources

Limited research, documentation and information-sharing nationally and regionally

The need for environmental sustainability

### **Accepting,**

That the foregoing challenges require immediate and prudent reform of policies, legislative and institutional arrangements in order to effectively integrate UPA into our urban economies,

### **We therefore,**

Call for the promotion of a shared vision of UPA that takes into account the specific needs and conditions in the region, and accordingly commit ourselves to developing policies and appropriate instruments that will create an enabling environment for integrating UPA into our urban economies.

Thus done at Harare on 29<sup>th</sup> Day of August, 2003