THE SIGNIFICANCE OF URBAN AGRICULTURE IN ENHANCING FOOD SECURITY IN URBAN AREAS

BRIVERY Siamabele

PhD candidate at Pan African University, Institute of Governance, Humanities and Social Sciences (PAUGHSS)

ABSTRACT

Addressing urban poverty is firmly on the development agenda, whilst the issue of urban poverty is a worldwide problem, it is especially prominent in Africa, where 61% of the urban population live in slums. however, several factors have caused urban poverty including unemployment, lower salaries, Structural Adjustment Programmes and generally the economic crisis experienced recently in countries like Zambia (as of the years 2015 and 2016 and recent droughts in 2018). Therefore, the purpose of this paper was to investigate how in light of the recent economic changes urban agriculture can serve as a possible poverty reduction mechanism in Less Developed Countries' urban areas. The research was premised on firstly investigating the benefits associated with practicing Urban Agriculture in enhancing food security, secondly looking at the constraints associated with practicing Urban Agriculture using the sustainable livelihoods framework. The following were the identified constraints faced by the people practicing Urban Agriculture; poor access to land and water, insecure yields, lack of inputs, poor organization, and lack of institutional support. This paper used the secondary data by reviewing literature on Urban Agriculture.

KEYWORDS

Food security, poverty, urban agriculture, sustainable livelihoods theory

1. INTRODUCTION

Poverty affects more than 1.4 billion people in developing countries and is clearly one of the key global problems of the current era (The World Bank, 2009a). Poverty has been recognized as a key challenge worldwide and the Millennium Development Goals (MDGs), one of the main internationally collaborative initiatives, were formulated to address development and meet the needs of the world's poorest (United Nations, 2008). This consequently saw the formation of the Sustainable Development Goals (SDGs). Whilst poverty has often been seen as a predominantly rural problem, rapid urbanization trends and the effects of recent economic problems have put increasing pressure on urban populations in developing countries and led to an increase in levels of urban poor. In Africa it is estimated that 43% of the urban population live below the poverty line (UN-HABITAT, 2007) and governments, local authorities, and Civil Society Organizations (CSOs) still struggle to deal with the multitude of issues they face regarding urban poverty. Thus, the need to find effective mechanisms to address the high levels of urban poverty is great.

Food insecurity challenges remain pressing problems in many parts of Sub- Saharan Africa (Mougeot, 2005; UN Habitat, 2008), especially in and around the major urban centers (Satterthwaite, 1999; Mougeot, 2005). For example, the Food and Agriculture Organization (FAO, 2002) suggests that about 33 per cent of people in Sub-Saharan Africa are undernourished, whilst the United Nations (United Nations, 2005; UN Habitat, 2007) reports that the urban population in Sub-Saharan Africa is expected to rise from 39.7 to 53.5 per cent of the continent's population between 2005 and 2030. This brings pressing Challenges for assuring household food

security and alleviating poverty (Haddad et al, 1998; Klemesu, 2000; 2005).

The above challenges facing majority of Africans has led to the formulation of a range of government, community, and international initiatives in quest to address poverty issues. One of these, urban agriculture (UA) has been occurring in cities throughout the world for decades, and in some cases centuries (Tambwe, 2006). One of the arguments behind the occurrence of urban agriculture in developing countries is lessen the high dependence on the rural production.

The discussions around urban agriculture (UA) has, for a significant period of time, been recognized as a key facet of not only urban survival strategy but also as a way to increase income and improve the overall quality of life in the south. UA is not a new phenomenon; it has a long history, Lee-Smith and Memon (1994) point out that from a global perspective there is archaeological evidence which indicates that the development of agriculture and livestock occurred in urban, not rural settlements.

UA came about, in part, in early cities of hunters who needed to store food and were thus led towards domesticating animals and the regeneration of seed stocks. Observers of UA also note UA's importance in many pre-industrial cities. In these historical cities UA was often carried out for city defense, to avoid seasonal food shortages and cope with unpredictable events (Ellis and Sumberg, 1998). Sophisticated UA has also been shown to exist in the Persian, Greek and Roman empires and in historic American civilizations. In all these historical events UA has always been part of the urban landscape in many cities of developing countries providing food, employment and generally improving people's living standards (Mougeot, 1994). Nevertheless UA as a strategy to alleviate food shortages in urban areas did not just come from without; its existence has been caused by many factors.

Zambia in particular is one of the most urbanized countries in Africa south of the Sahara. It is estimated that 40.9 percent of the population of over 15 million live in urban areas, concentrated along the line of rail. Contrary to other scholars that argue that high urbanization leads to development of a country, Zambia however, has high levels of poverty and is ranked 139th on the Human Development Index (HDI) with majority of the people struggling for a three course meal in a day, placing it in the bottom twenty countries worldwide (UNDP, 2015). Poverty levels in Zambia have increased since the 1970s, partly not only as a result of the downturn in the copper industry but also over reliance on the copper, the effects of structural adjustment and other economic shocks.

Furthermore, Zambian cities in particular have been subject to significant socio-economic changes and have witnessed an increase in poverty levels (Hampwaye et al., 2007). More recently Zambia has faced further economic decline due to a further decline in the copper industry and the recent global economic downturn in general (Schifferes, 2009). Unlike many other parts of sub-Saharan Africa a high proportion of the population live in urban areas and as such there are high numbers of people living in urban poverty (Simatele and Binns, 2008). Therefore, there is a need to look at ways in which Zambia's levels of urban poverty can be reduced, and to find mechanisms and processes that enable sustainable livelihoods for the urban poor, as well as ways to enhance current community coping strategies (Hampwaye et al., 2007).

Research by different scholars has shown that UA is occurring in Zambia as one of the strategies to combat poverty levels, and more specifically in the capital Lusaka (for example Sanyal, 1985; Drescher, 1999; Hampwaye et al., 2007; Simatele and Binns, 2008). Lusaka has been noted as a city in which the practice of urban agriculture is particularly noteworthy. The city amongst the many in Zambia has a long history of UA and was at one stage noted as being "the world capital of urban cultivation" (Sanyal, 1985as cited in Rogerson, 1990). As such, it follows that UA has been suggested as a way in which to assist with reducing the levels of poverty in cities.

Kalingalinga site to be specific is located in the northern part of the densely populated settlement of Lusaka. UA practices in Kalingalinga compound were not immediately visible and occurred on a smaller scale than in other communities. The perception of UA as an important source of livelihood for the urban poor is consistent with views expressed in official documents such as the "Lusaka City State of the Environment", in which it is explicitly stated that, "urban agriculture has become an important part of city life in Lusaka's Kalingalinga community …[and there] has been an increase in informal agricultural activities within residential areas and road reserves in form of maize cultivation, vegetable gardens and even poultry rearing" (LCC, 2005; see also Simatele & Binns, 2008).

Whilst the reality that UA is occurring in Lusaka's city and other cities in Zambia, and Southern Africa generally, is not in dispute, there are still questions regarding the dynamics of UA, its official standing, and its relation to poverty reduction. In addition, whilst the significance of UA in the livelihoods of the poor in Lusaka is increasing as a result of economic rationalization and job loss, its practice is still inhibited by the limited nature of official support. A key challenge is to provide appropriate policy support and extension services to the families involved in the practice (Binns and Lynch, 1998; Hampwaye et al., 2007; Simatele and Binns, 2008; Thornton, 2008).

Arising from the above situation, it is evidently seen that levels of food insecurity in urban areas are high due to some key factors like urbanization, structural adjustments, compounded by global economic crisis and the recent droughts experienced in Zambia. And it is within these factors that cause food insecurity challenges in urban areas that urban agriculture becomes a solution to provide urban livelihoods. These factors have often led to job losses among urbanities, leading to deterioration of the quality of life of households across much of Africa. Consequently, urban agriculture is a critical tool as a survival and poverty alleviation strategy. However, the key question is does urban agriculture contribute significant benefits to the urban farmers or are the purported benefits just an illusion?

On the crest of a copper export boom, Zambian cities were among the world's fastest growing in the immediate post-colonial years. However, a protracted economic crisis beginning in the 1980s slowed the rate of urbanization significantly, from an annual increase of around 8 percent in 1965 to just 1.4 percent by 2000. In Lusaka, the peak of the crisis saw an explosion of food production, characterized by abundant fields of maize, to the point where the city was described as "the capital of urban agriculture in Africa". In the 1990s, subsistence agriculture accounted for about one-third of the food supply in its peripheral townships. Following a period of stabilization and structural adjustment, urbanization is now accelerating and the country's urban population is projected to more than double, to 11.8 million people, between 2010 and 2030. In Lusaka, growth is driven by high rates of migration from other parts of the country and is accompanied by rising levels of poverty. Most Lusaka residents live in poorly serviced townships and, owing to the decline in wage employment, work in the informal sector (Food and Agriculture Organization of the United Nations in Rome, 2012).

Lusaka's Kalingalinga settlement for example originally was developed as farming sites for a group of Asian and European farmers before Zambia attained political independence from Britain in 1964. In the 1940s and until the early 1960s, the settlement increasingly became recognized as residential area as more new native migrants took up urban residence in Lusaka (Frayne et al, 2012).

The aim of this paper was to investigate how, in light of the recent economic changes; urban agriculture is currently serving as one of the possible poverty reduction mechanism in less developed countries' urban areas. Solving the problem of poverty may be the biggest challenge facing humankind today. While the topic normally forms part of multi livelihood strategies and

its overall significance is the subject of some debate, it is an important feature of both urban landscapes and urban survival (Sanyal, 1985).

Therefore, the study will provide knowledge on the significance of UA and try to use this knowledge to close the gap of the on-going debate about its significance to food security in urban areas. This study is of significance as it will help the attainment of the Sustainable Development Goal number 1 which is the eradication of poverty by providing solutions to the policy makers on food security. Furthermore, the study is of great importance with regard to the realization of the Africa We Want 2063 agenda with interest to the aspiration number one (1) of a prosperous Africa which is founded on inclusive growth as well as sustainable development. Narrowing it down to the country of interest, this study can help the attainment of the Zambia's Seventh National Development Plan (7NDP) under the theme "accelerating development efforts towards the Vision 2030 without leaving anyone behind". It is however, worthy noting that Zambia has agricultural favorable climate, fertile land and vast water resources however its agricultural prospects are not yet fully tapped. Therefore, this study will provide solutions on how agricultural prospects can be realized and be fully tapped through UA.

2. THEORETICAL FRAMEWORK

Sustainable Livelihoods framework (SLF) was used in understanding the importance of urban agriculture in enhancing food security in less developed countries (LDCs)' urban areas. Sustainable livelihood approach is important in this paper as it places people and the priorities they define at the heart of analysis, the theory also supports methodological analysis of poverty issues in a holistic way that combines issues across sectors, this means that it is a people centered theory.

UA is one of the approaches used to enhance food security levels in urban areas. In this regard, food security must be available, accessed and utilized by the household members of the families practicing UA. SLF suggest that the urban poor employ a number of livelihood strategies. It has been suggested that from the many strategies, UA can be one part of a livelihood strategy that the urban poor can employ (Simatele and Binns, 2008).

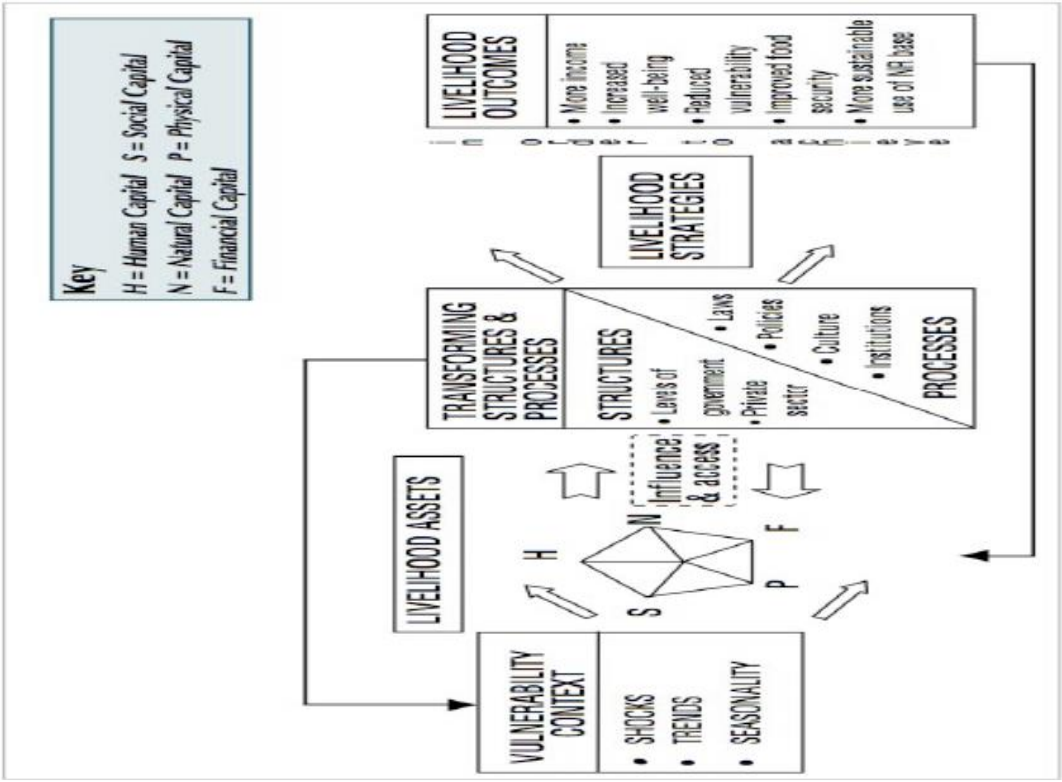
In this regard this paper made use of the Sustainable Livelihood Frameworks (SLF) developed by Scoones (1998). The SLF is possibly the most dominant, recent paradigm in rural development, especially in the context of poverty reduction (Scoones, 1998). The SLF is a way to improve the understanding of the livelihoods of the poor people (AFARD, 2004). However, a key feature of the SLF is the recognition that the root of all human development and economic growth is livelihoods not jobs per se, but the wide, infinitely diverse range of activities people engage in to make their living. The SLF is a people-focused concept centering on the multiple livelihood options and strategies of the poor as a result of them being in a vulnerable state due to shocks, trends and seasonality (AFARD, 2004).

The framework aims at understanding people's strengths (assets) and how they try to convert these into livelihood outcomes. An underlying belief of sustainable livelihood approaches is that people need a variety of assets to create positive livelihoods and that no one category alone is enough to support the varied livelihoods people seek (DFID, 1999). The framework set out by DFID is a widely recognized analytic tool for thinking about livelihoods (see Figure 1 below). It sets out the factors that affect people's livelihoods and the relationships between them, drawing attention to key influences and processes and emphasizing the multiple interactions between these factors. The framework shows how people faced with different shocks, trends and seasonality can exploit their asserts to improve their livelihoods. It is also worth noting that the transforming structures and processes plays a key role in the exploitation

of the existing asserts.

Figure 1: DFID's Sustainable Livelihoods Framework

.



Institutions, organizations, policies, and legislation that shape livelihoods are the 'transforming structures and processes' within the framework. These shape livelihoods and operate in all areas at all levels (DFID, 1999b). 'Transforming structures and processes' are important aspects in determining access to capital, livelihood strategies, decision makers and other sources of influence (DFID, 1999b). They are also important in the determination of exchange terms between types of capital as well as returns to livelihood strategies (DFID, 1999b). In addition, they impact on whether people have a feeling of inclusion and well-being (DFID, 1999b). Within the framework there is direct feedback from 'transforming structures and processes' to the 'vulnerability context'. For instance, trends can be directly and indirectly affected by "processes (policies) established and implemented through structures" and external shocks can be cushioned (DFID, 1999b).

3. Opportunities Of Urban Agriculture

Critically, the contribution of urban agriculture to local development in Africa is contested. At one extreme urban agriculture is viewed in highly positive tones as enhancing food security, providing income and employment for both poor and middle-income dwellers, and contributing to an ecologically sound urban environment (de Zeeuw et al, 2002; Mougeot, 2005). It is evident that urban agriculture can have different purposes in developing world cities, viz, contributing to subsistence needs for food security, city ecology improvement, and income and employment generation. In terms of its developmental contributions, urban agriculture is considered as having several positive attributes, not least expanding ``the number of livelihood strategies available to the poor" (Reuther and Dewar, 2006).

Additionally, millions of urban Africans cultivate vegetables and fruit trees in home gardens, both for their families and for sale. In Dakar, 7 500 households "grow their own" in micro-gardens. In Malawi, 700 000 urban residents practice home gardening to meet their food needs and earn extra income. Low-income city gardeners in Zambia make US$230 a year from sales (Food and Agriculture Organization of the United Nations Rome, 2012).

Furthermore, FAO (2006) identified several practical advantages arising from practicing urban agriculture. These advantages show the significance of urban agriculture in enhancing food security in urban areas. Proponents argue that urban agriculture can in principle have a positive impact on the food security situation of the households through two main avenues: the income it generates and the direct access to the food security. In addition, households that engage in urban farming may have access to relatively cheaper food, and to a wider variety of particularly nutritious foods, such as vegetables and products of animal origin (milk, eggs, meat) and can increase the stability of household food consumption against seasonality or other temporary shortages. The latter mechanism may be particularly relevant should urban food markets, particularly in poor neighborhoods, be inefficient. Under such conditions direct access to food may allow households to consume greater amounts of food and a more diversified diet, richer in valuable micronutrients (FAO Report, 2006).

In addition, De Haas (1996) and Mougeot (2000) asserted that, commercial urban agriculture makes a significant contribution to employment, income generation and poverty alleviation. For example in Cuba, Moskow (1995) postulates that the development of urban agriculture has created new employment opportunities, the government of Cuba estimated that 117,000 people work in urban agriculture and 26,426 workers are employed in jobs related to urban agriculture. In 1998, in the same country, urban agriculture accounted for 6-7% of the new jobs. Moskow argued that backyard production reduces food expenditures, improves household diets and during periods of economic and political crisis, urban agriculture proved to be an important survival strategy and fall back in many countries.

This however, is validated to the extent that urban agriculturist do not depend on the natural rainfall for farming, for example the Nakambala Sugar estate in Mazabuka District-Zambia uses irrigation methods, and for instance during the 1991, 1992 and 1994 farming season, Zambia was struck with heavy droughts, and Hampwaye (2007) argued that urban agriculture contributed major to the nation's food security. It has been concluded that the household income of many people working in urban agriculture is actually higher than the national average salary, hence reducing poverty levels.

Due to a number of factors contributing to urban poverty in urban areas, many people have become integrated into the market system and as such employment and income are usually key aspects of attaining food security (Baumgartner and Belevi, 2001). This however, can be problematic for the urban poor who do not have access to employment or income, meaning that it is difficult for them to attain food security. Thus, there is a clear need to find ways to increase food security. UA has frequently been put forward as a practice that has the ability to contribute to food security in urban areas (de Zeeuw et al., 2000; Mougeot, 2005).

Consequently, it should be noted that UA does not only reduce food insecurity levels but it has multiple advantages. Nelson (1996) added that UA has multitude of environmental benefits, in that organic wastes can be better cycled because the urban environment is the locus of both food production and consumption, instead of purely an endpoint. Decreased fossil fuel emissions are an obvious outcome, as transporting and refrigerating of food over long distances would be no longer necessary. Urban biodiversity increases due to habitat provision in the form of gardens as well as the tendency of urban growers to cultivate a variety of foods (Fairholm, 1998). Above all urban agriculture improves air condition since all the waste are not bent but re-cycled to natural

manure improving the production. Fairholm however, did not indicate some of the challenges that come along with UA.

Environmentally, urban agriculture increases green space, which reduces the urban heat island, and improves air quality, and because food is produced locally, UA also reduces energy consumption and pollution associated with transportation. A greener urban landscape can also provide psychological, emotional, and general health benefits (Beatley, 1997). This means that involvement in urban agriculture may also lead to better mitigation of diseases, more physical exercise, less dependency on food aid and enhanced self-esteem.

Nevertheless, it has been suggested that the urban poor tap into a variety of informal food supply strategies in order to reduce food insecurity (Mougeot, 2005). Whilst in some instances these strategies can include rural urban food transfers, increasing distances limits this and, as such, people are forced to rely more on self-provisioning. In this regard UA has become a critical part of the food security for urban poor (Mougeot, 2005). Simatele and Binns (2008) also noted the exacerbation of the urban food supply situation due to the deterioration of broader economic indicators and point towards the adoption of "a range of survival strategies" in response, one of which is the production of foodstuffs.

Many case studies have pointed to the contribution that UA makes in "helping the urban poor to become food secure" (de Zeeuw et al., 2000:162) and UA has been shown to have a positive impact on the food baskets of urban poor (Simatele and Binns, 2008). Likewise, the International Food Policy Research Institute commented that UA can be one way to assist with reducing hunger for low income households (Binns and Lynch, 1998).

In addition, urban agriculture reduces packaging, mitigates storm-water runoff, increases oxygen production, controls temperatures through shade and transpiration. Smit (1996) is of the opinion that through these interrelated benefits, urban agriculture has the potential to combat food insecurity by providing affordable culturally appropriate foods and fostering autonomy in food provision for low-income and other vulnerable urban households.

Drakakis (1991) asserted that self-production of own food becomes a critical strategy through which families cope with impact of meager wages and releasing pressure on family food expenditure budget. Usually people are forced to practice urban agriculture because of the increasing economic hardship, like in Zambia many people in urban areas are not employed and they are unable to meet their daily needs including food and hence, UA becomes their major fallback strategy. But this is not to mean that only the unemployed people face the challenges of food insecurity, even the employed people have these hardships due to the low wages that they receive. In the midst of the high food prices currently experienced in Zambia, many households have engaged themselves into various forms of backyard gardening in order to cushion the household food demands.

Furthermore, Van den Berg and Veehuizen, (2005) indicated that urban agriculture is significant because of its multifunctional purpose in urban areas. Some African countries have made efforts to promote the multiple functions of urban agriculture in such places as shown in Setif in Algeria (Boudjenouia, 2005), Lagos in Nigeria (Anosike, 2005). Overall, the multiple functions of urban agriculture results to reduced vulnerability levels among the poor households.

On the other hand, Nugent (1999) argued that economic impact of urban agriculture can appear at different levels. It can be related to the direct economic benefits for the households practicing agriculture production self-employment, income from sales of surpluses, savings on food expenditures, and exchange of agricultural products for other economic goods. Nugent (1999) added that this improves the living standard of the marginalized groups.

A research in Zimbabwe by Mubvami (2007) found that urban household gardens and community food gardens on the grounds of community centers, schools, churches and vacant public land as well as institutional food gardens (health care, clinics) can make important contributions to mitigating the negative effects of HIV/AIDS by enabling participants to improve their nutrition, reduce stress, save money and enhance their incomes. In addition, 'the gardens also mobilize community support, facilitate integration and help to reduce stigma'. The marginalized groups vary and include immigrants, refugees, asylees, the disabled, female-headed households and elderly people without pensions. FAO (2002) suggested that about 33% of such people in Sub-Sahara Africa are undernourished as a result of being food insecure and AU can help reduce poverty levels among such groups of people.

Furthermore, international research documents the particular benefits of urban agriculture for women who are responsible for family food provision. Low-income women benefit from urban agricultural activities that allow them to successfully combine their multiple roles in subsistence, production, and environmental management (Hovorka, 1998; 2002). Recent research shows that urban agriculture is an adaptive strategy of women `to protect household food security either through direct provision of a supplemental food source, as food reserve, or as a means of stretching other sources of income' (Hovorka, 2002). Urban agriculture is thus considered a primary strategy which is deployed by women in order to maintain livelihoods and protect subsistence production. Further, for Slater (2001), an urban food garden also offers low-income women a symbol of stability and an emotional refuge from fear and violence.

UNDP however, identifies several potential advantages for the pursuit of urban agriculture as follows: For the poorest of the poor, it provides good access to food. For the stable poor, it provides a source of income and good quality food at low cost. For middle-income families, it offers the possibility of savings and a return on their investment in urban property. For small and large entrepreneurs, it is a profitable business (UNDP, 1996).

4. CHALLENGES ASSOCIATED WITH URBAN AGRICULTURE

Despite the underscored benefits of urban agriculture above, there are a number of challenges that are either caused by the farmers themselves or that they are faced with. Such challenges ranges from production, processing and marketing.

One of the greatest challenges is the lack of land ownership (FAO, 2012). Today, most gardeners have no title to their land; many lose it overnight. Land suitable for horticulture is being taken for housing, industry and infrastructure. To maximize earnings from insecure livelihoods, many gardeners are overusing pesticide and wastewater (Food and Agriculture Organization of the United Nations Rome, 2012). In this regard, it is therefore necessary that national and local governments support and market gardening, which already produces fresh food for millions of Africans.

Environmentally, UA practices have been linked with negative effects such as soil erosion, siltation, destruction of vegetation, visual untidiness, and depletion of water resources and pollution of resources (Mougeot, 2000). This challenge in most cities like Lusaka has seen the blockages of many drainages leading to unnecessary and unwanted water bodies which then become the mosquito breeding points. The government has constructed a number of drainages across the city but a number of them get blocked during rainy season due to sand that gets carried away by water. Environmentally, UA has also resulted into dryness of some main water bodies due to soil erosion.

Additionally, Reuther and Dewar (2006) commented that UA competes with other land uses such

as housing, recreation space, public open space, community facilities, commercial and industrial activity, wetlands and storm water management. For example, in Kalingalinga, Kanyama and Garden settlement areas of Lusaka to mention a few there is barely free land for recreation as nearly all the free spaces are normally used for agriculture production. Bryld (2003) also notes that the large amounts of land used for UA represents an obstacle to providing more urban housing, for which there is a frequently an urgent need in developing countries.

Despite the above advantages of UA there are still real gaps in LDCs policy support and development practice. For example in Malawian policies, urban agriculture had not yet been formalized into policy support by 1986 either by the national Government or by the city Assemblies, hence there are still no practical regulations to guide and support urban food production. In addition most of the urban land officially earmarked for agriculture had been converted for other uses such as construction (Government of Malawi, 1986). Fitchett (2009) is also of the opinion that UA has not been integrated in the Zambian agricultural policy and this becomes a hindrance to the communities that practices urban agriculture.

Critics further argued that urban agriculture has a lot of potential health risks often linked with the re-use of wastes in the UA process. For instance health issues arise when waste water is used for irrigation and poor compost management can also lead to diseases such as bronchitis, tuberculosis, and dysentery. The health of both the cultivators and those who eat the products can be at risk as many pathogens have a sufficiently long half-life to infect people later in the food supply chain (Bryld, 2003).

Additionally, one of the often cited problems associated with UA is the potential for it to threaten public health. Potential health risks are often linked with the re-use of wastes in the UA process. For instance health issues arise when waste water is used for irrigation and poor compost management can also lead to diseases such as bronchitis, tuberculosis, and dysentery (Birley and Lock, 1998; Bryld, 2003). The impact of these problems depends on the type of crop as well as irrigation and work practices (Birley and Lock, 1998). The health of both the cultivators and those who eat the products can be at risk as many pathogens have a sufficiently long half-life to infect people later in the food supply chain (Birley and Lock, 1998). In addition, urban water courses may often be polluted and this can have serious implications for product safety and quality, and thus health (Binns and Lynch, 1998).

UA has been often been linked with an increased risk of vector-borne diseases such as malaria. It has been claimed, often by public health officials, that crops such as maize provide a breeding ground for mosquitoes which can lead to a variety of vector-borne diseases (Hampwaye et al., 2007). However, this has not been proven (Hampwaye, 2008), and Birley and Lock (1998) note that in Africa malarial mosquitoes do not breed in urban maize plants. Hence, the need for a detailed local studies to determine the types of malaria and different local conditions found around the world (Birley and Lock, 1998).

Industrial wise, UA by nature, occurs in populated areas it can often be subject to pollution from industrial and commercial activities that affect the soil, air, and water resources (Smit et al., 1996; Birley and Lock, 1998). Some waste water used to irrigate crops may contain industrial effluents such as heavy metals and domestic waste which can include pathogens (Birley and Lock, 1998). Major roadways often pass through peri-urban areas and this can lead to the contamination of soil and crops by air-borne heavy metals associated with traffic pollution (Birley and Lock, 1998; Binns et al., 2003). This can occur by soils becoming contaminated through lead settling directly on leaves and/or fruits of roadside crops (Smit et al., 1996).

With regards to land tenure, many practitioners face land constraints whereby there is either a lack of land available to cultivate, or the land that is available does not have secure tenure. Bryld

(2003) noted that only 20% of cultivated urban land in developing countries is owned by the cultivator. As such, those who practice UA use either public land or land leased from a landlord (Bryld, 2003). Whilst leased land may offer some, albeit temporary, degree of security, public land offers no security. These issues are linked with the population growth in cities, which has meant that there has been increasing pressure on urban land resources (Cissé et al., 2005).

Aside from land, access to water is another constraining factor for practitioners of UA in developing countries. Cissé et al (2005) pointed out that given that many developing countries suffer from a shortage of drinking water it is perhaps not surprising that those responsible for water distribution are reluctant to place any importance on the allocation of water for UA. In Lusaka, Zambia, Simatele and Binns (2008) also found that the development of UA was constrained by an insufficient water supply. Literature has linked this challenge with the city's poor infrastructure (Simatele and Binns, 2008). Both Cissé et al (2005) and Phiri (2008) also commented on the under developed nature of watering.

5. MEASURES FOR THE IMPROVEMENT OF UA

Due to the above mentioned challenges that UA practitioners either faces or poses to the environment, community and development, proponents of UA designs measures that can improve the practice of UA in improving food security in urban areas. UNDP (1996) stated that there are several measures put in place for example, the community based projects designed to increase food security in communities by bringing the whole food system together and create systems that improve the self-reliance of community members over their food needs, through projects like the 'women agriculture support' in LDCs and these systems are there to improve food security to women headed households. Such projects empower women with inputs like fertilizers and seeds, give them some arable lands. Above all they offer trainings, technical, and market assistance.

Supportive policies regarding UA are frequently seen as a key step to increase the utility and potential of UA. Therefore, incorporating UA into planning processes and legalizing the practice of UA is seen as key to managing the potential problems associated with UA and thus maximizing the opportunities presented by UA (Bryld, 2003). Legalizing the practice of UA and creating policies dealing with UA can help enable practitioners to engage in UA without fear and insecurity; this is likely to increase the ability of UA to assist with food security (Bryld, 2003).

Whilst some cities have implemented measures aimed at integrating and supporting UA, this is not an easy process to undertake. As de Zeeuw et al. (2000) noted, due to the different varieties, conditions and motivations of UA, the context must be carefully considered before designing or advocating policy measures. This is confirmed by Bryld (2003:84) who asserted the need for a contextual focus and emphasizes that there is "No single or uniform solution to urban agricultural planning". In addition, the specific interventions must also be carefully designed and linked to the development objectives that UA is expected to contribute to (de Zeeuw et al., 2000).

According to Ellis and Sumberg (1998:219) there are two main categories of policy proposals: those related to municipal planning, which often focus on land access, and those related to "sectoral agricultural policy", which focus on inputs and outputs and emphasize "access to farm inputs and services that could potentially raise productivity and output". Meanwhile, de Zeeuw et al. (2000:165) delineate policy instruments into those related to three policy areas: urban land use policy, urban food security and health policy, and environmental policy. The latter two areas broadly reflect Ellis and Sumberg's (1998) sectoral agricultural policy category.

Furthermore, the governments must recognize and appreciate the contribution to food security realized from UA. In Lusaka for example, the majority of the people are involved in informal

jobs, which basically are not sustainable. Such challenges has pushed many people into other income generating activities across the city. As literature clearly indicated, many people depend on UA as a means of income generation, food and employment. Due to the recent experienced employment freeze in the current government, it pushed many people outside employment with enormous household challenges. It is therefore, important that the government legalizes urban agriculture through the small holder agriculture system. The government must prioritize agriculture as it holds majority of the people and of course not forsaking other sectors.

Africa's urban population is growing faster than that of any other region. By the end of the current decade, 24 of the world's 30 fastest growing cities will be from Africa. Within 18 years, the urban population of sub-Saharan Africa is projected to reach almost 600 million, twice what it was in 2010. African governments must therefore plan and invest a lot in the agricultural sector as their city population is increasing fast than their agricultural production. This eventually stresses the food production and leading to high levels of poverty, starvation, malnutrition and deaths.

A city like Lusaka must plan its urban agriculture in the peri urban areas as it is highly congested as such no room for urban agriculture. Peri-urban areas like Chongwe town, Chibombo and Mumbwa could be used to decongest the city and expand urban agriculture in these areas. This can potentially adopt the small holder agricultural system used under the sugar industry like the Zambia sugar plantation. African cities already face enormous problems: more than half of all residents live in overcrowded slums; up to 200 million survive on less than US$2 a day; poor urban children are as likely to be chronically malnourished as poor rural children. It is within these lines that many governments have come up with urban agriculture as a strategy to improve the livelihoods of the urban population (FAO, 2012).

CONCLUSION

Zambia is one of the landlocked countries in Southern Africa with the majority population involved in agriculture for sustainable livelihoods. In the recent past, Zambia has undergone number of agricultural structural changes in trying to improve the sector and in a way improving the living standards of the people. Not too long ago Zambia was food basket for most of the surrounding countries in SADC. Despite the above Zambia is still experiencing high levels of poverty. The poverty levels are however across the country. Nevertheless, the most vulnerable and exposed to poverty tend to be the rural households. On the contrary, with the recent economic challenges that the country has experienced, there has been an increase in poverty levels in the urban areas due to a number of factors (urbanization, SAPs, and Globalization) to mention a few.

From the research conducted it indicated that UA has a lot of benefits to the urban dwellers to include; a source of income, food for their households and it is an employment for some households. It also showed that there are a number of challenges faced by the practicing households; issues of land ownership, agricultural inputs, and transportation, thefts levels are high and lack of support from the government or any other institution. The study confirms the view that the official position on UA in Lusaka is not an enabling one and that UA has not been incorporated into the planning agenda. Additionally, the research also highlights that the official position on UA is not well articulated and identifies that different groups or stakeholders have different opinions regarding the official standing of UA in Lusaka.

RECOMMENDATIONS

The results show that UA is currently an important livelihood strategy for the practitioners. Given the recent economic decline, it is pertinent to consider ways in which UA may be further supported in order for it to better serve as a poverty reduction mechanism.

From the conclusion above, the researcher therefore recommends the following to be done in order to enhance UA's contribution to food security in urban areas.

It is recommended that local government, policy makers and learners recognize the reality that urban agriculture as an activity that is valuable and legitimate as shown by the respondents in the study. This must be the first step towards urban agriculture becoming an effective poverty reduction mechanism, and if those in control of land-use planning and development in LDCs like the Lusaka city council do not see the important role that urban agriculture can play and legitimize it, urban agriculture will remain a somewhat precarious activity.

Furthermore governments and even NGOs must also be providing agricultural inputs like fertilizers to the poor urban people like widows to enhance food security which will in turn reduce poverty levels in urban areas. This can still be done in a more legalized and organized way just like it is done in rural areas.

It is also recommended that LDCs' governments should prioritize urban agriculture for it attacks poverty levels at its neck and provide food security at both individual and household level.

The researcher also recommends that policy makers need to undertake work such as a situation analysis to gain an understanding of the status of UA and to provide a baseline and define UA and this will help them understand its importance in enhancing food security in urban areas.

Lastly, there is need to carry out a further study in order to understand factors that are leading to most of the farmers practicing UA mostly in peri-urban areas in Lusaka and more so in the actual urban areas. As such a study will help in the planning of the new Lusaka capital city being designed and further help the development actors know UA's contribution to food security in urban areas. Such understanding will help in deciding whether to legalize the act or not.

ACKNOWLEDGEMENT

I would like to acknowledge the constructive comments and contribution made by the anonymous reviewers. I also acknowledge the African Union Commission (AUC) and the Pan African University, Institute of Governance, Humanities and Social Sciences.

BIBLIOGRAPHY

[1] AFARD (2004), 'Informing food security promotion through improved seeds and breed multiplication project'. A research report. Unpublished.Nebbi. At: http://www.afard.net.

[2] Armar-Klemesu, M. (2000) 'Urban agriculture and food security, nutrition and health', in Bakker, N., Dubbeling, M., Guendel, S., Sabel-Koschella, U. and de Zeeuw, H. (eds.)Growing Cities Growing Food: Urban Agriculture on the Policy Agenda Feldafing:DSE.

[3] Ashley, C. and Carney, D. (1999) Sustainable Livelihoods: Lessons from early experience. London: Department for International Development.

[4] Carney, D. (1998) Implementing the sustainable rural livelihoods approach, in Carney, D. (ed.) 'Sustainable Rural Livelihoods: what contribution can we make?' London: Department of International Development, pp. 3-23.

[5] Cissé, O., Gueye, N. F. D. and Sy, M. (2005) 'Institutional and legal aspects of urban agriculture in French-speaking West Africa: From marginalization to legitimization', Environment and Urbanization 17:143-54.

[6] De Haas (1996), Migration and development, A theoretical perspective Hein de Haas. International Migration Institute by James Martin 21st Century School, OXFORD University.

[7] DFID, (1999), Introduction to Sustainable Livelihoods. London: Pearson Inc.

[8] Drescher, A. W. (1999) 'Urban Agriculture in the seasonal tropics: The case of Lusaka, Zambia', in Koc, M., MacRae, R., Mougeot, L. J. A. and Welsh, J. (eds.) For Hungerproof Cities: Sustainable Urban Food Systems. Ottowa: International Development Research Centre, pp.67-77

[9] FAO (2006) Policy Brief 2: Food Security [online] Available from: http://www.fao.org/es/esa/en/pubs_pol.htm. [accessed 2 January 2014].

[10] FAO. (2012). Growing greener cities in Africa. First status report on urban and peri-urban horticulture in Africa. FOA of the United Nations. Rome.

[11] Frayne. B, C. Moser and G. Ziervogel (eds) (2012), Climate change, assets and foodsecurity in Southern African Cities. New York, Earthscan Publishers.

[12] Hampwaye, G. (2007), Decentralization Local Economic Development and Urban Agriculture in Zambia. Thesis PhD. University of Witwatersrand, Johannesburg, 2007.

[13] Haddad, L. (1998), Growing Urban Poverty and Undernutrition and some Urban Facts of Life.: Washington DC, USA press.

[14] Henn, M., Weinstein, M. and Foard, N. (2006) A Short Introduction to Social Research. London: SAGE Publications.

[15] Klemesu, M.A. (2000), Urban Agriculture and Food Security, Nutrition and Health. Bonn: Eurasburg Inc.

[16] Lusaka City Council, (2005) Lusaka Poverty Assessment Report Lusaka City Council, Lusaka.

[17] Memon, P. A. and Lee-Smith, D. (1993) 'Urban Agriculture in Kenya', Canadian Journal of African Studies / Revue Canadienne des Études Africaines 27:25-42.

[18] Mougeot, L. J. A. (1994) African City Farming from a World Perspective. in Egziabher, and Sawio, C. J. (eds.) Cities Feeding People: An Examination of Urban Agriculture in East Africa. Ottawa: International Development Research Centre (IDRC).

[19] Mougeot, L. J. A. (2000) “Urban Agriculture: Definition, Presence, Potential and Risks”. In Bakker, N., Dubbeling, M., Guendel, S., Sabel-Koschella, U. and [20] de Zeeuw, H. (eds.)Growing Cities Growing Food: Urban Agriculture on the Policy Agenda. Feldfing: DSE, pp. 1-42.

[21] Mougeot, L. J. A. (2005) 'Introduction', in Mougeot, L. J. A. (ed.) AGROPOLIS: The Social, Political and Environmental Dimensions of Urban Agriculture. London; Stirling, VA: International Development Research Centre, pp. 1-29.

[22] Rogerson, C. M. (1990) 'Managing urban growth in Lusaka, Zambia', Development Southern Africa 7:179-94.

[23] Sanyal, B. (1985) Urban agriculture: who cultivates and why? Lusaka: Zambia.

[24] Scoones, I. (1998). Sustainable rural livelihoods: A framework for analysis. Brighton: IDS, University of Sussex.

[25] Scoones I. (1998) ‘Sustainable Rural Livelihoods: A Framework for Analysis’, IDS Working paper 72, Brighton, IDS.

[26] Schifferes, S. (2009) 'Zambian miners hit by copper slump' [online] BBCNews Available from: http://news.bbc.co.uk/2/hi/business/7920945.stm.[accessed 10 February, 2017]

[27] Simatele, D. and Binns, T. (2008) 'Motivation and Marginalization in African Urban Agriculture: The Case of Lusaka, Zambia', Urban Forum 19:1-21.

[28] SUMBERG J. (1998). Food Production, Urban Areas and Policy Responses. University of East Anglia, Norwich, U.K.

[29] Tambwe, N. (2006) 'Urban Agriculture as a Global Economic Activity with Special Reference to the City of Lubumbashi in the Democratic Republic of [30] Congo (DRC)', African & Asian Studies 5:193-213.

[31] Thornton, A. (2008) 'Beyond the Metropolis: Small Town Case Studies of Urban and Peri urban Agriculture in South Africa', Urban Forum 19:243-62.

[32] United Nations (2005), The Millennium Development Goals Report 2005. United Nations, New York.

[33] UN-HABITAT, State of the World's Cities Report 2006-2007 (Nairobi: UNHABITAT, 2007).

[34] UN-HABITAT (2008) The State of African Cities 2008: A framework for addressing urban challenges in Africa. Kenya: UN-HABITAT.

[35] UNDP (2015), Human Development Report 2015, 1 UN Plaza, New York, NY 10017, USA.

[36] Bryld, E. (2003) "Potentials, problems, and policy implications for urban agriculture in developing countries", journal of Agriculture and Human Values. 20:79-86.