

## **The Role of Urban Agriculture in Household Wellbeing: Case Study of Community-Based Urban Agriculture in Ndola, Zambia**

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### **Abstract**

This paper investigates the role of community-based urban agriculture in household wellbeing in Ndola, Zambia. Although urban agriculture has attracted the attention of various scholars in recent years, there are relatively few studies from the region of Southern Africa. The research confirms the positive influence of urban agriculture on household wellbeing. Farmers appreciate that agriculture-based activities are a promising option for sustaining their livelihoods, in terms of food intake and income generation.

Moreover a spill-over effect occurs due to the ability of farmers to provide small job opportunities for people living in their neighbourhood. On the other hand, farmers face various constraints in the form of limited access to food markets, crops marketed via middlemen, low diversity of planted crops and low levels of savings. Better organization of farmers and legal recognition of their cooperative may help to tackle these problems.

**Key words:** urban agriculture, community, household wellbeing, Zambia

### **Introduction**

Urban agriculture has attracted the attention of various scholars in recent years and they consider this concept to be a viable strategy in ensuring urban food security (e.g. Armar-Klemesu, 2000; Maxwell, 1995; Mwangi, 1995; Tinker, 1994), in enhancing the economic situation of the urban poor (e.g. FAO, 2007; Moustier & Danso, 2006; Nugent, 2000) and in improving the local environment (e.g. Cofie et al., 2006; Deelstra & Girardet, 2000; Smit & Nasr, 1992). Smit et al. (2001) add that urban agriculture can bring economic potential to areas which are not suitable for commercial purposes. Urban agriculture is also seen as a significant employer, especially in developing countries. For instance, FAO (2007) states that more than 200 million people are involved in market-oriented urban agriculture, thereby providing 15 – 20% of the global food supply. Mougeot (2000) suggests an even higher figure of nearly 800 million urban dwellers being involved in agriculture. It is estimated that more than 40% of all African urban households are engaged in farming (FAO, 2012). Nugent (2000) states that urban agriculture represents one of the possible self-employment strategies in cities which are not able to satisfy job demand.

However, the concept of urban agriculture has its limitations. The key issue is household assets, mainly in the form of land (as one of the key forms of capital in the agriculture sector). In this respect Bryld (2003) states that only 20 % of all urban agriculture is located on privately owned land. Therefore food production is significantly threatened by insecure land tenure. Moreover, the viability of the concept of urban agriculture relies on urban policies and the attitude of local governments. This is particularly relevant in African cities, where urban agriculture is restricted by numerous laws and by-laws (Mubvami & Mushamba, 2006). Some authors also warn against the health risks connected with food production within urban areas (Smit et al., 2001; Armar-Klemesu, 2000; Cofie et al., 2006; Brown & Jameton, 2000).

Some aspects of urban agriculture are linked to other approaches to development: *community-based development and participation*. Researchers, international agencies and non-governmental organizations see communities as being the impetus for development in terms of poverty alleviation, empowerment, raising social capital and sustainability (Mansuri & Rao, 2004). Typically, this process has two major goals: to improve the well-being of all community members and to involve all members in the process (Nikkhah & Redzuan, 2009). *Community-based urban agriculture* and *community gardens* share similar goals to community-based development and therefore can be seen as one of the numerous approaches to community-based development.

This paper focuses on community-based urban agriculture as one possible livelihood strategy in an urban environment. The first part of the paper discusses the concept of community-based urban agriculture, mainly in the context of sub-Saharan Africa. The second part of the paper is devoted to the case study of the farmers' community in Ndola, Zambia.

### **Community-based urban agriculture**

Guitart et al. (2012) state that despite the existing research on community-based urban agriculture there is no standardized definition of this concept and authors frequently see the term as self-evident. However, De Neergaard et al. (2009) characterize community-based urban agriculture as having shared access to water resources and common land tenure. Smit et al. (2001) add that community members are responsible for their own plots but they share the responsibility for water and electricity supply, security, fences, pathways etc. Finally, Smit & Bailkey (2006) suggest that community-based urban agriculture mainly provides social interaction which leads to the empowerment of the community assets. They also see cooperation within the community as the most valuable element.

The research of Guitart et al. (2012) shows there is a lack of peer-reviewed papers concerning community-based urban agriculture in developing countries. However, community-based urban agriculture in Africa and other developing regions has been covered in a number of case studies. These papers predominately focus on community gardens which provide improved food access and increased economic opportunities to various dis-

advantaged communities. The establishment of community gardens is usually initiated by external bodies rather than by the community. A typical example of community-based urban agriculture is a garden for people suffering from HIV/AIDS and their relatives. People affected by the illness are forced to change their dietary habits to ensure proper mineral and vitamin intake; in this way HIV/AIDS strongly influences households' food security mechanisms. Additionally, infected household members are not able to work and generate money, thus they do not contribute to the budget (Wills et al. 2009). The participation of HIV positive individuals in community gardening can help them and their families to improve food intake and nutrition. There are also other dimensions: stigma removal, the inclusion of HIV positive people in society and the educational benefits.

One example is the Ubuntu Foundation, which has started a gardening project in a health clinic for HIV positive people in Port Elizabeth, South Africa. This project brings the clients of the clinic and the local community together. The garden provides nutritional and economic support to those undertaking antiretroviral therapy – almost 60% of the yield is consumed by the clients while the rest is sold in markets (Lief, 2007). Mubvami & Manyati (2007) stated that the collaboration between HIV-affected people and the rest of the population was important. They revealed that this activity is fundamental for removing the stigma in communities affected by HIV/AIDS. Moreover, the time spent together can serve as a learning ground about HIV/AIDS issues. On top of that, these projects can provide employment opportunities for those often discriminated against in the labour market, therefore reducing their vulnerability.

Community gardens are quite often adjacent to schools, churches, prisons and community centres. School gardens enable schools to provide part of their meals for schoolchildren. At the same time, students learn new practical skills (Smit et al., 2001). The Kampala School for the Physically Handicapped accommodates 100 pupils with various disabilities. The children participate in farming activities according to their abilities. This is an innovative idea and disabled students can be subsistent in terms of food provision while learning skills which can be useful in the future (Rutt, 2007). Furthermore, community-based urban agriculture can even be found in densely populated neighbourhoods. Therefore one of the challenges for community-based urban agriculture is the competition between agricultural land and land for construction. According to some authors, initiatives of *sack/bag gardening* could be a solution which may facilitate farming within urban communities. Churches and local NGOs usually supply bags, old containers, soil and seeds as substitutes for regular vegetable plots. These small food sack gardens help poor communities to provide part of their own diet and also to strengthen their social capital. by learning new knowledge and by social networking (see e.g. Pascal & Mwendu, 2009; Jansen, 2009; Radice & Welly, 2009).

Even though the case studies mentioned above have different backgrounds, it is still possible to find some common characteristics. All the projects aim to enhance the quality of life of disadvantaged communities which are usually dependent on food transfers and other

forms of donation. Community-based urban agriculture decreases their dependency on external resources and community members are also able to create additional funds. The ownership of the project is distributed amongst the participants. Such cases support the suggestion of Smit & Bailkey (2006) that community-based urban agriculture strengthens community awareness of solidarity.

Finally, community-based urban agriculture can take the form of informal groups of farmers and cooperatives. While informal groups can be seen as the first step in community institutionalization, the establishment of cooperatives is the final stage of the process. According to Birchall (2004), all cooperatives should adopt the spirit of self-help, responsibility, democracy, equality, solidarity and justice and an awareness of collective action. Basically, economic profit is not the major purpose of the cooperatives. They strengthen the potentials of individuals within the collective and enable cooperative members to achieve benefits which would not be achievable for individuals: entering official markets and selling products at higher prices. Ortman & King (2007) conclude that the facilitation of access to the inputs and product markets is the major driver in the establishment of the cooperative. Poor (urban) farmers are very often limited in their productivity because of inappropriate access to the inputs, credit, high transaction costs and other constraints of the market. Cooperatives should be capable of dealing with these problems of the poor farmers as they are officially recognized by the government. Paradoxically, Birchall (2003) impugns the role of cooperatives in poverty reduction. He concludes that, after the establishment of a cooperative, the poorest people are discouraged from participating while middle income individuals are predominant among the members.

### **Case Study: Farmers of Chipulukusu**

The purpose of this paper is to introduce the community of the Chipulukusu Vegetable Growers Society. The case study aims to introduce urban agriculture in Ndola with a special focus on the farming site in Chipulukusu. Furthermore, the research explores the farmers' socio-economic background and their motivation for undertaking urban agriculture, as well as the functioning of their community and the implications for their well-being. The case study also examines key features of the informal group of farmers who were considering the establishment of formal cooperation. Although the community of Chipulukusu farmers is not a legal entity, the Ministry of Agriculture and the Cooperative in Ndola were aware of the activities carried out by the group. Therefore a significant effort was made by the community to achieve official recognition through the establishment of a cooperative.

Primary data were obtained during field research in the summer of 2013. Different qualitative methods were used during the research. In the initial phase, observation and key informant interviews with officers from the Ministry of Agriculture and the Cooperatives were carried out. The research was based on in-depth semi-structured interviews and fo-

cus groups. The findings of the field research were complemented by the analysis of official documents issued by the Ndola City Council. The data on the socio-economic situation of the individual farmers were researched in the interviews. This method was chosen intentionally so farmers could feel more confident about the information they provided. For the evaluation of the farmers' community and the interaction within the community, the focus group method was chosen. Most of the activities were conducted with the assistance of an interpreter. This fact might lead to a distortion of the information gained.

### **Research Site**

With a population of more than 450 000 (CSO, 2011), Ndola is the third largest Zambian city and the administrative centre of Copperbelt province. Copperbelt province is a traditional copper-mining region and has the highest urbanization rate in Zambia. The urbanization process started with the mining boom at the beginning of the 20th century, which has continued until today (Potts, 2005). The Copperbelt area as a whole (especially Ndola) was hit by the economic crisis caused by the liberalization of the economy, which led to the collapse of the economy in the late 1990s and to the closure of many companies in the region (MDP-ESA & RUAF Foundation, 2008). The decline in the economy resulted in a rise in unemployment and an increase in poverty (Phiri, 2009). Kalemba (2013) estimates that 14.5% of Ndola's population lives in the low-income areas, where the unemployment rate is 71.7%. Despite the crisis, Ndola remains an important economic centre in Zambia; a country highly dependent on the mining industry (World Bank, 2015)

Chipulukusu is the oldest and the largest township in Ndola, with a population of 32 000. The majority of its inhabitants are unemployed or work in the informal sector. The most common economic activity is retail sales (Kalemba, 2013). Furthermore, over 500 households have chosen small-scale market oriented urban agriculture as their survival strategy. The number of urban farmers is highest in the city (Phiri, 2009). Urban agriculture is a traditional activity in Chipulukusu. The fields around the township are located in the flood area which is not suitable for construction works or any other economic activities. This fact supports the statement of Smit et al. (2001) that urban agriculture may enhance the productivity of areas with low economical potential. The majority of the farming activities in Chipulukusu take place on land belonging to the Ndola City Council and there is no legal land tenure in the area (Mwitwa, 2008). Most fields are located on the edge of the township and only a minority of Chipulukusu dwellers cultivate small plots – usually in the form of kitchen gardens – in the built-up area.

### **State of Urban Agriculture in Ndola**

The economic crisis at the beginning of the 21st century has had many implications for Ndola's dwellers and it was one of the driving forces behind the boom in urban agriculture. Interestingly, households from a range of income groups are engaged in urban agriculture, although in different forms. According to an official from the Ministry of Agriculture and Cooperatives (MACO), backyard gardens or kitchen gardens are typical for

middle and high-income areas, while the cultivation of open space is found in low-income areas. Subsistence production predominates among gardeners; open space farming is usually market-oriented.

In contrast with the views of Mubvami & Mushamba (2006), who see urban policies in many African cities as restrictive, Ndola can be seen as a prime example of a city where the attitude of the local governments and their policies have changed over a few years. Before 2008, agricultural activities balanced on the edge of illegality in Ndola. However, in 2008, Ndola City Council, RUA Foundation and MDP-ESA set up the Multiple-Stakeholder Platform, in order to address the need for a policy which would govern agricultural activities within the city. The platform came up with two key documents: *Urban Agriculture Strategy Agenda and Urban and Peri-urban Agriculture Policy* (see RUA Foundation, 2016). This initiative has led to the official and full recognition of urban agriculture in the city. Since then, Ndola City Council and the Ministry of Agriculture and Cooperatives have supported farming activities in Ndola. In addition, RUA Foundation and MDP-ESA (2008) issued a report; *Summary of Key Issues and Recommendations on Urban Agriculture*, which summarizes the major challenges related to urban agriculture. The report mainly highlights water and land accessibility issues, and the position of Ndola City Council towards urban agriculture. Missing and unclear land titles were identified as one of the main challenges for agriculture in Ndola. It is often the case that the farmers lack land titles for the land they cultivate – the landowner is either unknown or in many cases the land belongs to the Ndola municipality. In Chipulukusu there are more mechanisms for farmers to gain access to land for agriculture: some farmers have “inherited” their plots while others have had to buy or rent plots. It must be emphasized that despite the land belonging to the Ndola municipality, the farmers treat the land as their own. Those who lack financial capital may decide to start cultivating unused land.

Chipulukusu farmers mainly grow varieties of leafy vegetables, such as rape, Chinese cabbage, spinach or pumpkin leaves. Some of the farmers also cultivate maize as a “cash crop”. Despite the fact that the farmers belong to the low-income group, the use of agrochemicals is common, while the use of organic manure is quite low. There is no mechanization in the vegetable production and all the work is done manually. Crop production is carried out in open space outside the township, while poultry breeding takes place in the built-up area. Nevertheless, poultry is relatively rare in the area as it requires higher capital inputs.

### ***Who are the farmers of Chipulukusu?***

All the farmers participating in the research were residents of Chipulukusu. There were 18 respondents in total, 11 men and 7 women. Households with male heads and with female heads were present. The average household had seven members and the age of the farmers ranged from 20 to 69. The majority of households were dependent on farming. Men saw urban agriculture mostly as a full time occupation and only two male

respondents had another occupation. One of them worked in the formal sector while the other owned a small shop. The attitude of women to the farming differed according to their role in the family and their life situation. While some of them helped their husbands, others had their own plots. The female landowners were also the heads of their households as they were widowed or divorced. Although men slightly predominated in the research sample, the total proportion of women farmers is questionable, considering the high number of women working in the fields as part of the hired workforce.

According to the respondents, the main motivation for agricultural activities is stable income generation. The majority were involved in or had experience of formal and informal jobs. The farmers agreed that every time they were employed (regardless of whether it was in the formal or the informal sector), their income was too low and was usually received after delays. Thus all respondents recognized that urban agriculture was the most secure form of employment, with a stable level of income. Some of them also stated that urban agriculture is a kind of insurance policy in case of job market failure. The farmers' motivation fully supports the statement by Nugent (2000) that urban agriculture is a viable survival strategy for urban poor.

Income gained through farming differed according to the type of crops. The average weekly gross income ranged from 60 – 120 ZMK (Zambian Kwacha, 1 USD was, at the time of the research, equivalent to 6.5 ZMK), depending on the size of the plots. The most profitable crop was maize, reaching its highest value during the dry season, when farmers could earn as much as 400 ZMK per week. Conversely, the lowest income, around 35 ZMK per week on average, was generated by the sale of leafy vegetables. Revenues also depended on the farmers' abilities, knowledge and capital inputs. Leafy vegetables do not require any special knowledge regarding the lifecycle of the plant and inputs are very low. Maize and tomatoes are the most demanding plants, with a large need for capital inputs in terms of agrochemicals and agricultural skills. Crop marketing is another challenge because farmers who do not sell their produce directly use the services of middlemen. Such marketing of the products has caused significant financial losses. The farmers were aware of this issue but the majority argued that it was more time effective than to sell the crops on their own. Another problem was the farmers' insufficient access to food markets. There is also a high competitiveness among the farmers as long as their production is highly unified.

Income generated by urban agriculture was spent on food and other expenditures. While farming contributed to part of the household diet, the rest, such as mielie-meal and other foods, had to be purchased. Other spending covered agricultural inputs: seeds, fertilizers, pesticides and any additional paid workforce. Finally, most of the farmers were able to send their children to school, thus investing their income in education. This implies that only a little of the earnings was saved and many farmers spent more than they earned.

## Community and the Cooperative

At the beginning of the research, clarification was needed on what the farmers meant by the term *community*. All of them understood community as something present and something they belong to. It was also perceived as kind of social safety net. Farmers defined community in different ways, yet with the same conclusion: *community is a place where people live and work together, knowledge is spread and ideas are shared. Community members help each other when something happens*. At the time of the research, each farmer acted as an independent unit and the cooperation among farmers was on an occasional basis. The community only collaborated when it was necessary, for maintenance and the improvement of the basic infrastructure of the field area, such as cleaning the irrigation channels and, in the case of civil patrols, protecting their crops. Some members also held regular meetings to set the prices of maize and tomatoes, the idea being to reduce the competition among farmers. All these aspects were also seen as the most important advantages of the work within the community. Other benefits included the transmission of information, knowledge and the additional sharing of the workforce. Even though the relationships within the community were weak and the cooperation was on a low level, the exchange of knowledge and the mutual help between the farmers strengthened the community assets, as suggested by Smit & Bailkey (2006) in their work focused on community-based urban agriculture.

Despite the fact that the community was not collaborating on the basis of a cooperative, the idea of its formation was viable for some individuals. All the farmers were aware of the process required for the formation of a cooperative. At the beginning of the process, farmers have to elect a transparent leadership and pay membership fees. After that, the members need to set up bylaws and a business plan for the cooperative. When these conditions are fulfilled, the cooperative is registered at the Ministry of Agriculture and the Cooperatives in Ndola. This process also brought some significant challenges and some distrust for the community. Mostly, the farmers were afraid of poor leadership and a contest for power. Some also suffered a reduction in their financial assets due to obligatory membership payments, and this was without any certainty of the cooperative's success. Finally, respondents expressed doubts about the fair and equal distribution of duties among members of the community due to the perceived laziness of some individuals. .

Although the respondents did have some concerns regarding the establishment of a cooperative, the farmers are still willing to undertake the process of establishing the cooperative. The members were informed of the benefits of the process. Official recognition for the community would help farmers obtain land titles and would enable the extension of activities in terms of access to formal food markets and better marketing options. Finally, the cooperative would be authorized to purchase agricultural inputs for subsidised prices, and to have a bank account and receive loans. Beyond these direct benefits arising from governmental support, another advantage of improved community management is in place. Farmers were calling for a better distribution of work and crop diversification.



Some farmers also mentioned that a cooperative can provide employment opportunities for other Chipulukusu residents. Finally, the farmers believed the cooperative could potentially bring additional income.

## **Conclusion**

Community-based urban agriculture is a world-wide phenomenon which is difficult to define. The majority of authors dealing with the issue focus their research on the involvement of disadvantaged groups in community gardening. These projects are usually initiated by NGOs, churches, schools, community centres and other civil society organizations. People participating in such activities are not farmers in the true sense of the word. The main aim of these community projects is the empowerment of the participants.

The case study of Ndola, Zambia maps the situation of the farmers' community in Chipulukusu, the largest and oldest township in the city. The farmers involved in the research are typical representatives of poor people engaged in urban agriculture. The findings of the research confirmed the positive influence of urban agriculture on household wellbeing. Farmers commonly agreed that agriculture is the most promising option for sustaining their lives, in terms of food intake, income generation and the opportunity to improve their situations. Additionally, farmers are also able to provide small job opportunities for people living in their neighbourhood. Nevertheless, farmers had to face various constraints, such as limited access to food markets, marketing their crops via middlemen, low diversity of crops and low level of savings. Possible solutions to these issues include the better organization of the farmers, their official recognition and the establishment of a cooperative.

Although the farmers are not organized as an officially recognized legal-body, there is strong potential for the establishment of a cooperative. The community members were aware of the benefits and the risks associated with the establishment of a cooperative. Despite this, the farmers could see that there would be benefits from the increased institutionalization of the community. The most pronounced advantages of the cooperative were access land titles to the cultivated land, governmental subsidies and better access to markets.

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