



Will urban farming survive the growth of African cities: A case-study in Kampala (Uganda)?



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ABSTRACT

Despite the fact that urban farming is widespread in many African cities there is not yet a clearly defined view on how to deal with these activities in urban planning and management. On the basis of field interviews in the rapidly expanding metropolitan area of Kampala (Uganda) three different urban farming types were identified: subsistence farming, garden farming and commercial farming. These three urban farming types have their own spatial organisation logic and each interact in a specific way with urban expansion. In this paper the possible outcome of three alternative urban management strategies for Kampala (urban sprawl, urban infilling and a combination of both) were translated into spatially explicit land use scenarios for the years 2020 and 2030. This allowed to evaluate the spatial impact of each scenario on the future viability of the different urban farming practices. Urban sprawl fragments large open spaces thereby reducing the space for subsistence farming with 80% by 2030. Urban infilling, on the other hand, decreases the opportunities for small to medium scale garden and commercial farming by a possible reduction of 62% of the available farming land by 2030. The results of the analysis are useful for urban planners as they give insight in the potential future effects of proposed planning strategies on urban farming.

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Introduction

Strong urbanisation worldwide but especially in developing countries raises concern about food security and unemployment (De Bon et al., 2009). Urban farming (UF) is an important but underestimated source of food and employment in urban areas. Many definitions and types of UF are described in literature (Table 1). Some are based on the location of UF (urban centre, fringe or even peri-urban locations). Others are based on the crops grown and the markets where they are sold. Most studies on UF show that it is a common practice in African cities in which almost all social groups are involved (Obudho and Foeken, 1999; De Bon et al., 2009). Varying numbers of involvement in UF can be found in literature up to two-thirds of all urban residents (FAO, 2001; Zezza and Tasciotti, 2010; Luyten, 2012). In developing countries a stratification in agents is present whereby UF for some can serve as survival strategy while for others it is a very lucrative business (Luyten, 2012). Poor urban households use UF to increase the household income

by selling the yield or surplus and/or to reduce a part of the daily expenses by producing their own food.

Despite the fact that UF is widespread in many African cities there is not yet a clearly defined view on how to deal with these activities in urban planning and management. In the recent past UF was officially an illegal activity in several African countries such as South Africa, Zambia and Uganda (Bryld, 2003; Hangwelani et al., 2013). Only recently urban governments became aware of the fact that a significant share of the urban food consumption is produced within the city and that many people are employed (part or full time) in this sector (van Veenhuizen, 2006). Moreover, urban planners now consider the green open spaces where UF is practiced as an asset for the city. Another benefit that is mentioned in recent literature is the processing of urban waste by re-using garden waste as natural fertilisers (Deelstra and Girardet, 2000). On the other hand several authors (Binns et al., 2003; van Veenhuizen and Danso, 2007; ESSA, 2007) raised concerns about the negative impacts of UF on the urban residents health and environmental pollution as UF sites are sometimes considered to be hotbeds of bacteria and mosquitoes where surface water – potentially polluted by domestic contamination such as people bathing or defecating – is used in the growth process. Therefore a consensus has grown that UF should be regulated and explicitly included in the urban planning

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Table 1
definitions of urban farming in the international literature.

Author	Activities/products	Space	Agents	Study area
Mougeot (1994)	Food and non-food plant and tree crops and animal husbandry (livestock, fowl, fish, and so forth)	Both within (intra-) and fringing (peri-) urban areas	Not only the poor, not only the recent immigrants	Global
Egziaher et al. (1994)	It includes the cultivation of crops, vegetables, herbs, fruit, flowers, orchards, parks, forestry, fuel wood, livestock, aquaculture, and bee-keeping	Within a city boundary or on the immediate periphery of a city	Long term migrants, low income urban households	Addis Ababa, Ethiopia
Smit et al. (1996)	Wide range of activities depending on farmers' goal	From small garden plots to large vacant spaces unsuited for urban development	From low income households to (rich) entrepreneurs	Global
Ellis and Sumber (1998)	Production for food: grains, vegetables, fruit, meat, milk and fish	Public land and un-built private lands ... in urban and peri-urban areas of towns and cities	–	Sub-Saharan African countries
Foeken (2006)	Mainly basic food crops and a wide range of vegetables for food	Wherever land is available: back yard or open space	Many urban poor, but also medium- and high-income households	Africa
Luyten (2012)	Horticulture: producing vegetable and fruits	In and around the city, until 30–40 km from the city centre	Agents with diverse social economic status	Ouagadougou and Dakar

process in order to maximise the benefits while minimising the negative externalities (van Veenhuizen, 2006).

The regulation and inclusion of UF in the urban planning process cannot be done without considering the impact of urban growth on the possibilities for UF. Some authors (Brueckner, 2000; Satterthwaite et al., 2010) report on how the expansion of competing land uses puts pressure on agriculture in the city. Because land rent from UF is in general much lower than the rent from other uses such as residential, industrial and recreational activities (Bryant et al., 1982), land owners are more likely to rent out their land to the most lucrative use. Urban farming is therefore constantly threatened by displacement from central areas to the periphery. For farmers selling their goods at central markets this means an increase in transportation time and costs. Farmers who deal with perishable crops, the proximity to the market determines the viability of their business and are therefore vulnerable to urban growth.

Urban planners face the challenge to find complimentary interests between the different and sometimes even contrasting priorities: economic growth, environmental protection and social justice (Campbell, 1996). Urban sprawl is identified as one of the most troubling trends of modern cities, especially in developing countries (UNHabitat, 2010). Not only is the peri-urban environment threatened by low density constructions, but also mobility of the people living at the urban fringes is under pressure as the transportation cost and/or time increases to the city centre (which is still the employment hotspot). Poor residents are more vulnerable to these increasing transportation costs than their rich counterparts. Therefore urban planning often pleads for a compact city policy with concentrated high density centres and preservation of open green spaces (Jabareen, 2006). Such urban planning strategies have important implications for the future of urban livelihoods such as UF. In order to assess these impacts, it is important to get a deeper insight in the spatial organisation of UF livelihoods.

Urban growth scenarios are useful tools to assess the impact of different planning strategies. Urban growth scenarios for African cities are often based on an extrapolation of the observed exponential population growth and expect a continuation of urban sprawl in peri-urban areas. This implies that less land is available for medium to large scale farming. However alternative urban growth scenarios are possible to develop whereby measures such as infilling of existing built-up areas and high-rise constructions are presented to test the compact city proposal. Such urban planning scenarios will

show potential consequences for the different types of UF present in the city.

This paper aims to explore the relation between the different UF types and possible urban growth scenarios whereby Kampala is taken a case study. First, UF practices in Kampala are explored by identifying different types of UF based on socio-economic and spatial characteristics. Second, the spatial occurrence of these UF types throughout the city is mapped and analysed on the basis of remote sensing. Finally, we evaluate to what extent the different UF types are affected by alternative growth scenarios.

Urban farming in Kampala

Kampala, capital and prime city of Uganda was selected as a case study because of its high population growth rate of 5.61% per year (Nyakaana et al., 2007) and the high importance of UF (Maxwell, 1995). The national statistical office estimated the city's population at almost 1.6 million in 2010 (UBOS, 2008) on an area of 181 km². This implies an average population density of 8840 ppkm² with internal variations ranging from 400 to 44,000 ppkm². Besides some high density slum neighbourhoods Kampala is a relatively green city. Originally Kampala occupied seven hills but nowadays comprises more than twenty hills. The wetlands between the hills are covered with papyrus but are gradually encroached by UF and built-up area (Vermeiren et al., 2012). Urban farming in Kampala is a common practice that dates back from the 1890s (ESSA, 2007). Maxwell's (1995) extrapolated household study claimed half of the urban population to be involved in either cultivating crops and/or breeding cattle inside the city boundaries. While at the peri-urban zone larger plots are available for cultivation, closer to the city centre agriculture is carried out in backyards, on public land and around buildings (Bryld, 2003). In Kampala different forms of UF are present: for example cattle breeding, crop growing and fish agriculture. This paper focuses on the dominant UF activity in Kampala: crop growing in open air. This type of urban farming, clearly visible in the townscape and contributing to the open character of the city is in competition with the urban expansion in Sub Saharan African cities

Urban farming in Kampala was long time conceived as a remnant of rural life that was brought to the city by migrants (Atakunda and Maxwell, 1996). Urban farming was even formally declared illegal up until 2005 when the city authorities issued a set of ordinances to control and regulate urban and peri-urban agricultural activities

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