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Urban agriculture in sub-Saharan Africa: State of knowledge and the present study

This chapter provides an overview of the state of knowledge on various aspects of urban agriculture in the sub-Saharan African context. It focuses on the significance of urban agriculture for household livelihoods, and for the urban economy and environment. It also illuminates the diverse ways in which various national governments and urban authorities have responded to urban agriculture in terms of policy, and in practice. The chapter then highlights the various constraints that urban farmers encounter in the process of trying to earn a living, before reviewing key gender issues in urban agriculture. It ends by delineating the scope of the present study.

Importance of urban agriculture

Urban agriculture and household livelihoods

Many studies have cast urban residents' decision to farm in town as an important informal sector survival strategy[1] aimed at enhancing household food security and nutritional status as well as generating some household income in the context of dwindling incomes and rising food costs (Drakakis-Smith *et al.* 1995; Simatele & Binns 2008; Mbiba 1995; Obosu-Mensah 1999; Page 2002; Maxwell *et al.* 1998; Mudimu 1996; Dennery 1996; Flynn 2001). Although urban farming has always been an integral part of the urban landscape, economy and food system for as long as urban settlements have existed (see for example, Simatele & Binns 2008; Obosu-Mensah 1999), its practice surged and its importance became

[1] As an approach to urban economic analysis generally, the survival strategy perspective can be traced back to the early 1970s and has since been used widely in illuminating the strategic livelihood decisions that people, especially the poor, make in response to – and in a desperate attempt to survive – deteriorating economic circumstances (Owusu 2007).

widely recognized only in recent years, especially since the 1980s following growing economic hardships immediately preceding and further exacerbated by SAPs (Drakakis-Smith *et al.* 1995; Simatele & Binns 2008; Mbiba 1995; Obosu-Mensah 1999; Page 2002; Maxwell *et al.* 1998; Maxwell 1995; Mudimu 1996; Bryld 2003). Drakakis-Smith *et al.* (1995: 183) have gone so far as to suggest that "it is not possible to examine the current growth and nature of cultivation or animal husbandry in any African city without first discussing the economic and social background of the structural adjustment programmes".

Urban agriculture has been found to be of particular importance for the urban poor, who rely more on cash incomes to purchase food items (Bryld 2003; Maxwell *et al.* 2000) and for whom food expenditures take up relatively large proportions of their incomes, which are in any case irregular. The proportions have ranged from 40-60% in Nairobi (Freeman 1993), to over 70% among one-fifth of the population in Accra (Maxwell *et al.* 2000), and to upwards of 80% among some households in Dar es Salaam (Mlozi 1997) and 90% in Zambia's Copper Belt area (Steckley & Muleba 2003). In the circumstances, own food production insulates poor households against adverse food insecurity and malnutrition when their incomes are no longer forthcoming (Maxwell *et al.* 1998). Maxwell (1995) found out that farming households in Kampala (Uganda) spent up to two times less on food than non-farming households, and Foeken (2006) has reported better nutritional status among young children of farming households compared to those of non-farming households. The finding by Nabulo *et al.* (2009: 87) from their Kampala study that "37 percent of farmers would have no food if prevented from growing food" further illustrates the value of urban farming for the poor.

Besides, any savings that may result from own food production by poor households often constitute a significant proportion of their household incomes (Freeman 1993). The savings enable them to purchase other foodstuffs they do not produce, to diversify their diet (Bryld 2003; Foeken 2006; Dennery 1996; Lynch *et al.* 2001) and to attend to other non-food household needs and social obligations (Page 2002; Obosu-Mensah 1999; Lynch *et al.* 2001; Dennery 1996) such as paying school fees, rent, as well as medical, water and energy bills, etc. In fact for some households, such savings (or indirect income) are more important than receiving direct income (Foeken 2006; Dennery 1996). For its significance to the survival of poor urban households and given the stiff competition urban agriculture faces from other more profitable land-uses manifested in shrinking urban space for farming (Zalle *et al.* 2003; Brock & Foeken 2006; Lynch *et al.* 2001; Dennery 1996), many researchers have advocated its promotion, as Lynch *et al.* (2001: 169) would put it, "if merely on the basis of equity".

The 'survivalist' characterization of low-income farmers' urban agriculture enterprises is best captured by Freeman (1991: 110) when he says of the situation

of urban farmers in Nairobi (Kenya) thus: "The vast majority of urban cultivators, both male and female, are very poor, landless, subsistence dwellers for whom their little *shamba* may mean the difference between a precarious but continued existence in the city and a full-blown family catastrophe." Kiguli *et al*. (2003: 11) have described urban farming in Kampala as "an initiative to lessen the growing poverty", while urban residents who took up farming on part-time basis in Kano (Nigeria) pointed out that "they too rely on their production to survive, since their monthly salaries could hardly sustain them for longer than fifteen days" (Lynch *et al*. 2001: 166). That urban farming is critical to the survival of such urban dwellers has been underlined by their tendency to knowingly cultivate urban spaces with obvious precarious tenure rights, and to undertake farming in defiance of municipal authorities despite the implied risks of doing so (e.g. crop destruction and eviction by land owners without compensation). The importance of the survival motive as a factor in urban agriculture is further underscored by the fact that many poor households cultivate basic food crops for home consumption and more so that urban residents who had previously cultivated non-staples in the period preceding economic hardships have had to switch to staples once economic hardships set in. Page (2002: 49) has for instance illustrated how residents of Buea (Cameroon), changed from "fruits and vegetables chosen because of their taste" to staple food crops after the implementation of SAPs.

But to conceptualize urban agriculture as a pure survival strategy onto which people cling just to get by during precarious economic times and for want of better income-earning opportunities is to miss the point that although many studies have shown urban agriculture to be more or less dominated by the poor (Mougeot 2000; Mbiba 1995), many other studies have also indicated that middle and high income groups are no less represented (Obosu-Mensah 1999; Maxwell *et al.* 1998; Kiguli *et al*. 2003; Mudimu 1996) and are sometimes even over-represented (Flynn 2001; Foeken 2006; Mkwambisi *et al*. 2010). Indeed, it is now well known that in fact the entry into urban agriculture by those who stand to benefit the most from it – i.e. the poorest of the poor – is the most constrained (Rakodi 1988; Mbiba 1995; Simatele & Binns 2008; Drakakis-Smith *et al.* 1995; Flynn 2001; Mougeot 2000). They lack access to productive resources such as land, capital and inputs, and social networks and political influence to leverage such access. Simatele & Binns (2008) report, for instance, that 46% of the respondents in Lusaka (Zambia) cited poverty as the main reason for their limited or non-participation in urban farming.

Motives of middle and high income groups in urban agriculture cannot be confined to the survival imperative. These groups engage in urban farming as a means of diversifying and subsidizing income as well as securing and sustaining their family well-being (Foeken 2006; Bryld 2003). They also do so to access

fresh produce and for ornamental and recreational reasons (Page 2002; Thornton 2008; Ngome & Foeken 2012). Moreover, undertaken as an agri-business as some high-income households do, urban agriculture can constitute an important accumulation strategy (Bryld 2003; Lynch *et al*. 2001) and generate incomes comparable to or even better than those accruing to some senior formal sector employment (Simatele & Binns 2008).[2]

Moreover, important as it has been for many urban households (see for instance, Mkwambisi *et al.* 2010; Nabulo *et al*. 2009), for many households too, urban farming caters for only a small portion of household income and food requirements. Maxwell and others (2000) found out that urban food production accounted for no more than 1% of household food consumption in Accra (Ghana), and that even for households that engaged in urban farming, self-produced food accounted for only about 7% of household food consumption (see also Mbiba 2000; Maxwell *et al.* 1998).

The survival perspective of urban agriculture also fails to account for the evidence that suggests that some of those who engage in the practice may continue doing so even if their economic conditions were to improve (Obosu-Mensah 1999). This implies that economic reasons may not be the only or even the most important determinants of people's choice to engage in urban farming (Foeken 2006). Obosu-Mensah (1999) has proposed a cultural lag model whose central hypothesis is that in their selection of livelihood activities in the informal sector, individuals are guided by their familiarity with the activities and the skills and experience they have, which are mediated to a great extent by the individuals' cultural backgrounds. In the particular case of urban agriculture, individuals would more likely take up farming if they had a background in the particular farming activities and if they find space to do so (see also Tinsley 2003; Dennery 1996). By the same account, the choice of farming activities (crops to cultivate and livestock to keep) as well as the household division of labour might similarly be explained. Obosu-Mensah's thesis was based, in part, on his findings that 30% of farming households in Accra had been farming in smaller towns before migrating to the city. Research findings elsewhere also seem to vindicate the cultural imperative. Flynn (2001) notes the absence of Asians from urban farming in Mwanza, which she explains in terms of their traditional non-participation in agriculture in East Africa, while Mlozi (1997) found out that approximately half of the livestock in Dar es Salaam belonged to a cluster of ethnic groups that kept them because of their 'cultural utility.' Similar reasons were advanced by 44% of livestock keepers in South Africa's Grahamstown urban settlement (Thornton 2008).

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[2] It is also noteworthy that as urban authorities extend their city/municipal boundaries, there is a tendency for such extentions to include some already profitable commercial farms.

Moreover, confining motives of urban households to the cultural imperative is to assume that cultural values are static and that the urban context is not differentiated from its rural opposite. As was described in Chapter 1, the urban environment bears certain dynamics that shape people's livelihoods and social relations underlying reproductive and productive activities in ways that are somewhat distinct from what obtains in rural areas.

What is less in doubt from the proceeding discussion though is that urban farming derives multiple livelihood outcomes for urban farmers at the household level. The following section highlights the importance of urban farming at the city/municipality level.

Urban agriculture and the urban economy and environment

While the contribution of urban farming to the household economy and food security has increasingly become recognized, its contribution to the urban economy has been less appreciated. Many urban planners and city authorities view urban agriculture as an activity of only marginal value to the urban economy (Bryld 2003), and as a transitional urban landuse that would sooner give way to more legitimate and productive landuses (Foeken 2005). This perception largely relates to the fact that urban farming is undertaken predominantly for subsistence, which makes a quantification of its contribution to the urban economy a difficult undertaking (Memon & Lee-Smith 1993; Bryld 2003).

However, various studies and anecdotes point to urban agriclture's significance to the urban well-being. For instance, Smit *et al*. (1996) estimated for Dar es Salaam that 61% of urban families were involved in urban farming by 1991, making it the most important employer after petty trade. In 1998, urban farming provided part-time and full-time employment to an estimated 13,000 people constituting about 9% of Nakuru town's labour force and supplied about 8% of the total energy requirements of the entire population of the town "at lower than normal market price" (Foeken 2006). Ssebaana (2002; cited in Kiguli *et al*. 2003) reports that 60% of Kampala's population consumes at least one urban agriculture crop or animal product and that urban agriculture supplies 70% of the city's poultry products (Kiguli *et al*. 2003).

In regards to urban environment, many urban authorities have for long perceived agriculture as belonging solely in the rural areas (Bryld 2003) and therefore incompatible with and detrimental to the urban environment. It was seen as an activity that spoils the beauty of the urban landscape, which is ostensibly meant for residential, commercial, industrial and formal income-earning activities (Simatele & Binns 2008; Mlozi 1997; Kiguli *et al*. 2003) and as one that is fraught with public health risks. Livestock keeping is associated with transmission of diseases, nuisance, bad smell, and safety threats to pedestrians as well as

destruction of urban green gardens and infrastructure. Urban crop cultivation is also believed to pose health risks associated with the use of untreated waste water and sewage as well as heavy metal concentration in crops grown on contaminated soils and exposed to industrial pollution and motor vehicle exhaust fumes. Crops also supposedly provide breeding grounds for disease-causing vectors such as mosquitoes. Excessive use of chemical fertilizers and insecticides and cultivation along river banks are considered causes of environmental degradation, while tall crops supposedly provide hideouts for thugs thereby contributing to urban insecurity.

While some of these environmental concerns have been echoed by some researchers, the overall picture remains less than clear-cut, owing to limited research on environmental impacts of urban agriculture (Foeken 2006; Lynch *et al*. 2001). Basing on a cursory observation of farming activities in Dar es Salaam, Mlozi (1997: 116) has noted that "the problem of environmental degradation caused by urban agriculture is great." Flynn (2001) has similarly pointed out environmental problems associated with urban farming in Mwanza, ranging from land degradation, soil erosion, to the contamination of Lake Victoria by chemicals and animal waste; while Simatele & Binns (2008) have reported a possible association between cholera and dysentery prevalence in parts of Lusaka to urban farmers' use of untreated sewage on their plots.

On the other hand, although Pasquini's (2006) study of health and environmental risks associated with the use of refuse ash in urban vegetable production in Jos (Nigeria) revealed much higher concentration levels of heavy metals (e.g. Lead and Cadmium) in the vegetables than those recommended by WHO/FAO, the results were inconclusive as to whether the contamination was directly linked to the use of town refuse ash on plots. Elsewhere, laboratory analysis of soil samples and crops irrigated with sewage water in Nakuru (Kenya) also detected high concentration levels of heavy metals (in some instances also surpassing WHO/FAO recommended levels) (Foeken 2006). However, it is pointed out that this did not necessarily "pose a serious health threat for people consuming those plants" (*ibid.*: 121). Similarly Nyamari & Simiyu's (2007) laboratory tests on kidney and liver tissues from animals slaughtered in Kenya's Eldoret town showed higher concentration levels of heavy metals (lead and cadmium) in animals originating in urban areas compared to those from rural areas. However, the concentration levels fell below maximum tolerable levels recommended by WHO/FAO and therefore did not pose any health risks to consumers. Nyamari & Simiyu caution though, that "there is potential of heavy metals accumulating along the food chain, thereby posing health risk to meat consumers depending on the rate of exposure" (p. 105).

Thus more research on environmental and public health issues is required and ways found to mitigate any risks in order to make urban farming safer and sustainable (Pasquini 2006; Lynch *et al*. 2001). The premise is that not only do the benefits accruing to urban farmers and (potentially) to the urban environment from urban agriculture far outweigh the health and environmental risks, but that most of the risks are manageable (Mougeot 2000). Urban agriculture's potential for ecological renewal and environmental sustainability through urban greening, recycling of organic waste, clearing of bushes that would otherwise provide shelter for rodents and thieves, and reclamation of unproductive, smelly and dangerous dumpsites into productivity has, for instance, been cited (Pasquini 2006; Brock & Foeken 2006).

Brock & Foeken (2006) have also shown how bush clearance for urban crop cultivation removed the potential of open spaces being put to informal uses such as squatting and human waste disposal and in the process prevented the pollution of nearby water sources and how it also enhanced the aesthetics of the urban landscape in affluent areas of Cotonou (Benin) by bringing the beautiful ocean frontage in open view. They also show urban agriculture's potential for conserving marshlands which serve as important natural water reservoirs. Study findings by Lynch *et al*. (2001: 169) from Kano (Nigeria) also highlighted the potential of urban agriculture in mitigating the impact of seasonal flooding on neighbouring built-up areas.

Policy and institutional settings for urban agriculture

Despite its benefits to urban households and (potential) contribution to urban economy and ecology, many urban authorities across sub-Saharan Africa have continued to harp onto colonial urban laws and policies and to invoke public health, environmental and aesthetic concerns to omit urban farming from urban land-use planning, and to restrict its practice. Sometimes urban authorities have resorted to outright repression of urban agriculture, for example, by slashing farmers' crops without compensation (see Kiguli *et al* 2003; Mudimu 1996; Dennery 1996; Toriro 2009) and harassing livetock keepers (Poynter & Fielding 2000)

However, notwithstanding official restrictions and repression, urban agriculture has remained a common feature of the urban landscape of many sub-Saharan African cities. This is partly as a consequence of farmers' conscious defiance of by-laws (Mlozi 1997; Mbiba 1995; Simatele & Binns 2008; Mudimu 1996), which in a way underscores the significance of the practice to the urban farmers. It is also as a result of the involvement of powerful individuals including government officers in urban agriculture, which makes it difficult for urban authorities to enforce their by-laws (Mlozi 1997; Obosu-Mensah 1999). As Mlozi

(2003) has noted in a Tanzanian urban context, "[T]he fact that there are many senior government and ruling party officials among the livestock keepers who break the by-laws with impunity, is probably the best assurance for most other livestock keepers that they will not be punished for breaking the law." Similarly, Mbiba (1995) has reported that those seeking elective positions in Harare are compelled by political expediency to take sides with and to avoid jeopardizing the interests of urban farmers, who constitute a substantial electoral constituency. Indeed, in some cases, as in Mwanza (Flynn 2001), the participation of powerful individuals in urban farming can provide the necessary leverage for promoting the activity and thrusting it up the policy agenda.

The nature of many production sites also explains urban agriculture's endurance in the urban landscapes of sub-Saharan Africa against predictions to the contrary. Apprehensions about the future of farming in urban areas have been predicated on restrictive legal settings and, most importantly, the stiff competition from other more profitable and 'legitimate' land uses. The reprieve for urban agriculture comes from the fact that many spaces that are cultivated by urban dwellers are not suitable for other land-uses and developments because of their locations, terrain and ecological vulnerability. Official designations of, and development restrictions in some spaces may also leave farming as the only viable land-use. Brock & Foeken (2006: 575) have concluded from their study of horticultural production in Cotonou, Benin, that

> (…) certainly in developing countries, UA (urban agriculture) may well often be the most appropriate way of using certain tracts of land. Examples include; (i) locations too close to major traffic flows to allow habitation or other constructions, for example, roadside verges, areas next to railroad tracks and those close to airports (despite the possible air pollution these are prime locations for ornamental plants among others); (ii) hazard-prone areas or ecologically vulnerable locations (in Cotonou especially the swamps, which experience seasonal flooding, and the coastline); and (iii) locations where squatting and unauthorized growth are particularly unwelcome, for example, the most expensive residential areas, tourist sites, government and business locations and, possibly, coconut plantations.

But it is perhaps the economic hardships of the 1980s and 1990s – and which have persisted since – that most profoundly affirmed the permanence of urban farming in sub-Saharan Africa's urban areas. In appreciation of the negative impacts of SAPs on urban dwellers' livelihoods, but also because of the political implications of potential urban unrest due to deteriorating economic conditions, many governments and city authorities relaxed their restrictions on urban farming (Kiguli *et al*. 2003; Mlozi 2003; Mlozi 1997; Drakakis-Smith *et al.* 1995; Page 2002). This was done either tacitly through non-enforcement of by-laws and official toleration as in Buea (Page 2002), or overtly by reviewing constraining legislations and policies and/or enacting enabling ones (see van Beek & Rutt 2007; Pasquini 2006; Kiguli *et al*. 2003; Mougeot 2000). In other urban settings,

urban residents were publicly encouraged to produce their own food as in Tanzania (Mlozi 1997), Ghana (Obosu-Mensah 1999), and, more recently, Kampala (van Beek & Rutt 2007). Indeed, in many countries such policies seem to have achieved desirable political outcomes as depicted by Page (2002: 42) in the Cameroonian context:

> (…) urban agriculture absorbed the dissatisfaction of citizens whose standards of living fell rapidly during the implementation of structural adjustment policies (…). The anger that resulted from salary cuts was absorbed by producing an increased proportion of domestic food requirement on nearby land.

Such is a clear testimony as to the significance of urban farming not only to the urban economy but to the national economy and political stability as well.

Overall, the emerging trend in many countries and urban authorities is that of official attitudes softening towards urban farming. However, whereas positive steps have continued to be taken by governments and urban authorities across sub-Saharan Africa towards legalizing and planning for urban farming[3], the overall picture of policy and legal contexts within which urban farming takes place in sub-Saharan Africa remains mixed, so is that of the impact of such contexts on the choice and practice of urban farming as a livelihood strategy. Many urban authorities have procrastinated in translating national pro-urban agriculture rhetoric, legislation and policies at the local level, while outright prohibitive laws and policies remain in place in others. In other instances, implementation of the policies and legislation for the actual support and promotion of urban agriculture has fallen short of expectations. In the case of Malawi's Blantyre and Lilongwe towns, provision for urban agriculture within the national legislation has not been matched by supportive policies and regulations to spur urban food production (Mkwambisi *et al*. 2010). Writing about the situation in a Tanzanian urban context, Mlozi (2003) also laments the persistence of legislative restrictions against urban agriculture at the municipal level despite the national government's favourable policies and promotional campaigns for urban agriculture.

In an important way this demonstrates how external shocks and threats to household livelihoods are responded to by households and interpreted differently by different actors at multiple scales and how an interplay of policies, institutions and processes obtaining at these scales interrelate to shape individuals' vulnerability contexts and livelihood opportunities and strategies. On the other hand, the various policy responses mentioned above – ranging from official toleration to crafting of pro-urban agriculture legislations and policies – illustrate how livelihood response strategies adopted at the micro-level may in turn impact the

[3] This has been the case, for example, in Nakuru (Kenya), Accra (Ghana), Dar es Salaam and Dodoma (Tanzania), Kampala (Uganda), Doala (Ivory Coast), Kinshasa (Democratic Republic of the Congo), Maputo (Mozambique) and various cities in South Africa (see Foeken 2006; Mougeot 2000; van Beek & Rutt 2007; Pasquini 2006; Kiguli *et al*. 2003; Thornton 2008).

meso/macro policies, institutions and processes. In this particular case, the impact of macro-economic neoliberal policies (crafted at the national level but initiated by global institutions viz. World Bank and IMF) are felt directly at the micro-level (by individuals and households through job losses, increase in food and commodity prices), and the livelihood strategies (urban agriculture) adopted by individuals and households (at the micro-level) to mitigate the economic impact are at first prohibited and repressed by urban authorities (at the meso-level). However, following urban residents' persistence with farming despite the restrictions, and advocacy and lobbying by researchers and development organizations, national governments institute policies and mechanisms to legitimate and support urban farming, which are however adopted to varying degrees by municipal authorities.

Other constraints to urban agriculture

Besides the restrictive and repressive policy and institutional contexts referred to above, urban farmers encounter other constraints as well. Access to land – the primary asset for farming – has been identified as one of the major constraints to urban farming. Competition from other more profitable and legitimate land uses has led to shrinkage of farm lands in many cities across sub-Saharan Africa. In Bamako (Mali), Zalle *et al*. (2003: 13) note the difficulty of finding vacant lands for cultivation, which they attribute to a trend among landowners to prefer constructing houses for rental purposes "which is more profitable and less risky than agriculture". Brock & Foeken (2006: 564-565) recount the disappearance of horticulture from Cotonou's (Benin) main market grounds where it once flourished "to make way for new housing areas and extensions to the markets", and from school gardens "due to land pressure and the expansion of schools".

Access to land is especially a major constraint for the poor and less powerful who cannot afford the high cost of land in the urban areas and lack the necessary leverage over urban authorities to secure access to public land. Thus urban farmers convert any available open space for farming, whether they have legal rights over it or not. Besides backyard gardens, such spaces have been identified in a wide range of other locations such as under power lines, on road reserves, along river banks, around industrial areas and dumpsites, along and between railway lines, in the middle of roundabouts, around airports, institutional lands, near sewerage installations, etc. (Simatele & Binns 2008; Nyamari & Simiyu 2007).

Regardless of the location, the plots the poor are able to access are generally small in size and uneconomical, and often unproductive and sometimes hazardous. Moreover, these are sites with insecure tenure, exposing urban farmers to the risk of eviction, harassment and crop destruction. Kiguli *et al*. (2003) report that

Uganda's Electricity Board routinely slashes crops found growing under power lines in Kampala. Similarly, when previously undeveloped land cultivated by poor urban farmers in Kano (Nigeria) (Lynch *et al*. 2001) and in Nairobi (Kenya) (Dennery 1996) changed ownership from government agencies to private land developers, some farmers had their crops destroyed by agents of the new landlords without notice or compensation. To insulate their livelihoods and avert the risk of losing their crops, some farmers in Kano resorted to establishing co-operative relationships with landowners or, as was also the case in Nairobi, to spreading the risk by cultivating multiple plots belonging to different landlords hoping the different landlords would not embark on developing the plots simultaneously. Such farmers also avoid cultivating perennial, long maturing crops and are generally not motivated enough to make long-term investments on 'their' plots to enhance productivity.

Yet with all the inherent and demonstrated risks, not only do farmers continue seeking out and cultivating plots with obvious insecure tenure and that are potentially health threatening – for which they are prepared to pay and even purchase (Dennery 1996; Mudimu 1996) – but such plots are also not easy to access. More so for the new immigrants who lack necessary information about available farming spaces and the necessary social connections to access such spaces and who, as a result, encounter the problem of 'gate-keeping' from earlier immigrants. It is for this reason that the majority of urban farmers tend to be people who have resided in town for a considerable period of time (Flynn 2001; Mbiba 1995; Obosu-Mensah 1999; Mougeot 2000) and who have come to know their way around town, and developed networks that help them to identify and access potential farming spaces. The situation in Nairobi's Lang'ata area, as recounted by Dennery (1996: 194), is illustrative of the instrumentality of social capital in accessing the agricultural land resource:

> The situation is considerably more complicated and risky for those seeking a plot for the first time. Who one knows becomes crucial to obtaining a plot. Individuals who do not have the appropriate social ties are shut out of food production altogether. Long-established producers know what gifts they must give to secure the use of an additional plot (…) Such producers also know who is the 'real' user of the plot and do not risk losing money or crops to temporary occupants. A potential producer will probably experience some difficulty obtaining land. He or she is unlikely to have extensive contact with established producers unless the producer is already a friend, relative or neighbor (…) Sharing a common ethnic affiliation or living or working in the same place can also facilitate securing access to land (…) producers who have plots in Langata will be more inclined to pass them on to either a relative or a co-ethnic they know well rather than a stranger.

Access to clean and reliable water for irrigation is another constraint to urban farming. Irrigation is essential for continuous crop cultivation and animal watering, and improved yields; especially because many urban centres experience seasonality and even intra-seasonal variability in rainfall patterns. The ease with

which water can be accessed is an important factor determining which crops can be grown (Lynch *et al*. 2001) and the scale of production as well as men's and women's levels of participation (Hope *et al*. 2009). Yet natural water sources are rare in urban centres – and those available such as rivers and shallow wells are usually heavily polluted – while tap water is expensive and in some urban centres its use for irrigation is outlawed. And investing in water projects on plots with insecure tenure is not a rational option. This leaves many farmers with rainwater as the only option, which limits their activities to particular seasons and exposes them to the risk of drought and crop failure (as was the case, for example, in Nakuru in 1999; Foeken 2006). But for some the urgency to continuously earn income compels them to use polluted river water, untreated sewage or waste water on their plots (see Dennery 1996; Simatele & Binns 2008) with serious consequences for personal and public health. In this case, the farmers trade off their health-related well-being for immediate food and income-related livelihood outcomes.

Many studies have also pointed to a lack of financial capital among poor urban farmers as a major impediment to urban agriculture. The precarious tenure rights in the land they cultivate exclude them from the possibility of using it as collateral to access credit (see Lynch *et al*. 2001; Hope *et al*. 2009). Farmers require financial capital in order to access productive resources such as inputs (e.g. fertilizers both chemical and inorganic, pesticides, certified seeds and improved breeds, etc.) and labour, to invest in agricultural technologies appropriate for the urban environment, and to secure their plots. As a result of a lack of capital, many urban farmers are excluded from more profitable urban agriculture enterprises that require high capital investment; they record low productivity; and lose crops and animals to diseases and theft.

Urban farmers also lack access to extension services or technical support, especially where urban farming is considered illegitimate or carried out in prohibited spaces (Foeken & Mwangi 2000; Hope *et al*. 2009). Where urban agriculture is legitimate, a lack of understanding of urban farming systems on the part of extension service providers become a limiting factor (Kiguli *et al*. 2003). In other cases, farmers also miss out on technical support because they do not know about its existence, lack time to seek it or due to general illiteracy coupled with a lack of customization of extension services to the needs and comprehension levels of producers (Thornton 2008; Toriro 2009).

The foregoing problems and constraints to urban agriculture have been exacerbated by poor organization and networking among urban farmers in many African urban areas. Studies have shown that where farmers' organizations exist (see Brock & Foeken 2006; Hope *et al*. 2009), they play a critical role in enabling farmers to access land, in marketing their produce, in negotiating with municipal

authorities for a variety of support services and concessions, in securing farm inputs at affordable rates through collective bargaining, and in accessing technical and new farming techniques and information for their members.

Thus achieving productive and sustainable urban farming requires more than policy rhetoric and change of attitude. It calls for concrete supportive and facilitative policies and programmes, especially at the city/municipal level. This would constitute an important incentive for farmers to invest in urban farming, and also attract outside resources, innovations, and technologies to mitigate farmers' constraints and improve productivity and environmental sustainability. The importance of urban agriculture-friendly laws and policies for ecological improvement has, for instance, been demonstrated in Kampala, where urban agriculture promotional campaigns were accompanied with waste recycling programmes leading to increased environmental awareness and waste recycling and re-use (van Beek & Rutt 2007). However, in light of the discussion in Chapter 1 that highlighted the differential opportunities and constraints between men and women in their efforts to make a living, it becomes imperative for any policy initiative to be based on a clear understanding of gender issues specific to urban agriculture for it to resonate with individual social actors in urban agriculture.

Gender and urban agriculture

Gender has long been recognized as a major factor that shapes urban agriculture and one that begs analysis if the functioning of the urban agriculture system is to be better understood (see for example Flynn 2001; Mbiba 1995; Hovorka 2005; Foeken 2006). However, only a few studies have recently heeded this call (Ngome & Foeken 2012; Hovorka 2005) and the findings thus far remain only indicative.[4] Hovorka *et al.* (2009) have highlighted 'key gender issues' which underline gender differences and inequalities in urban agriculture, namely: women's predominance in urban agriculture; division of labour; gender differences in knowledge/preferences; access to and control of resources; decision-making power; and benefits and challenges.

Generally urban agriculture has been described as a woman's activity on the basis that most of the urban farmers are women, especially in eastern and southern African cities (Mbiba 1995; Freeman 1991, 1993; Maxwell 1995; Mudimu 1996). Even in West Africa where studies have indicated that men dominate urban farming (e.g. Obosu-Mensah 1999; Lynch *et al.* 2001), this latter characterization seems to be truer in respect to open-space farming than home-gardening where women are well represented and in some instances out-number men. For

[4] For examples of urban agriculture studies that have focused specifically on gender issues, see Wilbers *et al*. (2004), Hovorka (2005), Hovorka *et al*. (2009) and Ngome & Foeken (2012).

instance, Obosu-Mensah (1999) observed that more women than men were involved in home-gardening in Accra (Ghana) and that where only one spouse in a household was the gardener, it was always the wife. In a way, this validates the widely held view that women dominate subsistence farming (Rakodi 1988).

The dominance of women in urban agriculture – and indeed in the informal sector more generally (Tinsley 2003; Sardier 2003) – and their presumed subsistence motive have been explained and rationalized variously (Freeman 1993; Mudimu 1996; Dennery 1996; Hovorka *et al.* 2009). They have been attributed to women's comparatively low levels of education and lack of professional or other skills to effectively compete with the relatively more educated and skillful men for formal employment. This leaves women to settle for less paying informal income-generating activities, among which is urban agriculture. In particular, cultural expectations of women related to their traditional reproductive roles are popular explanations of women's motives and high participation levels in farming. For instance, Dennery found out from her study of urban agriculture in Nairobi that "[W]omen see food production as part of their duty in feeding the family" (Dennery 1996: 196). The general replication of the traditional division of roles in urban agriculture has been explained similarly, emphasizing home consumption and income earning as the primary motives for women and men, respectively (Flynn 2001; Mbiba 1995; Rakodi 1988; Obosu-Mensah 1999; Freeman 1993; Kiguli *et al*. 2003; Ngome & Foeken 2012).

It is argued that because of their responsibility for household food preparation, childcare and home keeping, in the context of economic hardships and dwindling household incomes, women easily turn to farming in order to meet some household food needs, diversify the diet and generate extra income to meet other household obligations. This is partly because of their supposed altruistic nature, and partly because they can easily juggle between the various domestic chores and farming tasks (Bryld 2003; Mougeot 2000; Jacobi *et al*. 2000) especially where they can access land within a short distance of the homestead and where agricultural activities and products can be integrated into their other income-generating activities. Consequently women are involved more with staple crops and vegetables (Freeman1993; Foeken 2006; Kiguli *et al.* 2003) and dominate home gardens or backyard farming. In contrast, men have tended to take more interest in crops and animals with high income value (Ngome & Foeken 2011) and a ready market and to dominate off-plot or open space farming. In terms of livestock production, women concern themselves more with small livestock while men keep large livestock. This has informed suggestions that urban agriculture dominated by women holds greater prospects for household well-being than that controlled by men (Jacobi *et al.* 2000). It should be noted however, that while women's participation in urban agriculture has primarily been driven by

the subsistence motive, for many women, and especially female household heads, any sale of surplus produce ends up constituting a major (sometimes the only) source of income (Nabulo *et al*. 2009). In the circumstances, urban agriculture provides an important alternative employment for women.

Gender differences have also been documented in terms of division of labour. Studies have indicated that most labour requirements in urban agriculture are provided by women. Female labour is particularly critical among low income farming households who cannot afford hired labour (Flynn 2001: 684; Maxwell *et al.* 1998: 415). Obosu-Mensah (1999) observes that if men are involved in other 'outdoor' activities, their role in urban agriculture may be limited to a supervisory one but that the converse is not tenable in the case of women. In conforming to traditional power relations, women have to alternate between their 'outdoor' activities, normal household chores and tending their gardens "because a supervisory role (for them) at home may lead to conflicts between them and their husbands" (*ibid*: 150). The upshot is that women generally spend more time on work both inside and outside the home than men. For instance, Sardier (2003) estimated that women in Bamako spend 121 hours per week to men's 87. In Harare, women were found to spend about five or six hours daily on farming activities at the peak of farming seasons while men assisted only occasionally, mostly "during the weekends and for limited time periods" (Mudimu 1996: 190). To be sure, men sometimes spend longer hours than women in agricultural fields – largely as a result of the often labour-intensive, if profitable, agricultural enterprises they engage in – but because they are rarely involved in time-demanding household chores,[5] they end up having more time for leisure than women (see e.g. Nabulo *et al*. 2009). For all their sacrifice, women supposedly reap little personal benefits from urban agriculture (Flynn 2001; Hovorka *et al*. 2009).

Related to the overall labour contribution at the household level, the performance of specific urban agriculture tasks is more or less gendered. In most cases, men and women perform specific tasks related to, among other things, their knowledge and skills, physical strength and time availability, and cultural norms. In most West African urban centres men perform most on-farm tasks including land preparation, watering, weeding, and spraying while women's role is mostly confined to harvesting and marketing (Hope *et al*. 2009; Gaye & Touré 2009). Where women are the farmers, they hire male labour to perform most of the tough tasks. Studies in some East and Southern African towns have shown that on-farm tasks are shared, if unequally, between men and women. For instance, preparation of land and planting, respectively, are men's and women's responsibilities in Kampala (Nabulo *et al.* 2009), while women perform routine livestock-

[5] In the context of Kampala, for instance, Nabulo *et al.* (2009) counted three household tasks performed by male for every ten tasks, with the rest being shouldered by women household members.

related tasks in Kisumu and men are responsible for animal health (Ishani 2009). But as a study in Buea (Ngome & Foeken 2012) indicates, the extent to which men and women can cross gender boundaries in terms of performing activities traditionally performed by the opposite gender may also depend on the level of control one has over the agricultural enterprise, benefits associated with the activities, and marital status. It is reported in this particular context that if a married man was the gardener, he participated in a wider range of urban agriculture activities including those traditionally associated with women, but less so if his female spouse was the gardener. Yet in the latter case the man would show up at the time of harvesting and selling. Unmarried women also performed "men's tasks" on their plots.

It has also been shown that women tend to be more constrained than men when it comes to accessing land partly because of patrilineal cultural practices that exclude them from inheriting land (Gaya & Touré 2009), but also, and perhaps most importantly in the urban setting, because of women's relatively low financial endowments. As a result women farmers are only able to afford (if at all) small low-quality plots, sometimes in peripheral and contaminated locations (e.g. Nabulo *et al.* 2009) or else, as is commonplace, they depend on men to access land for urban agriculture. In the latter case, women's expectations (in respect both of access to land and to other urban agriculture-related inputs) are not always met should the men undervalue urban agriculture's contribution to household well-being (see e.g. Toriro 2009). Thus although access to land in many urban centres may not be gender-biased in theory (Hope *et al*. 2009; Toriro 2009), in reality women are disadvantaged relative to men.

Women's income poverty relates to their general underrepresentation in employment at all levels and to the fact that they have smaller asset stocks that can be transformed to financial capital. Studies have shown that men access credit to a greater extent than women on account, partly, of the latter's lack of collateral such as land, but also because of the subsistence and small-scale nature of their agricultural enterprises (Nabulo *et al*. 2009; Ishani 2009; Toriro 2009). For a lack of financial capital, women gardeners are further constrained from improving the productivity of their plots and from engaging in agricultural activities that are more financially rewarding. Mbaye & Moustier (2000) attribute the absence of women from better-paying poultry and ornamental horticulture in Dakar (Senegal) to this reason. Foeken's (2006) study of urban agriculture in Nakuru (Kenya) revealed that women attained lower yields than men and that female household heads attained lower yields in comparison with both male heads and married women. Another study by Ngome & Foeken (2012) in Buea (Cameroon) indicated a much higher proportion of unmarried women among urban gardeners who could not afford improved seeds. Inability to hire labour for heavy tasks also

results in women cultivating smaller uneconomic plots than men (Hope *et al.* 2009).

Gender differentials have also been observed in terms of agricultural knowledge and information levels among men and women. If farmers in general have limited access to extension services and technical support as has been reported in the literature, and for the reasons that were highlighted in the preceding section, then women are even more disadvantaged. Again, their low education levels mean that they cannot effectively comprehend advice and information provided in highly technical terms and in a language that requires higher literacy levels (Hope *et al.* 2009; Ngome & Foeken 2012); the targeting by extension service providers of household heads as has been reported in Buea excludes most women in conjugal households, although they may be the ones doing the actual farming (Ngome & Foeken 2012); and the off-farm out-of-town seminar approach adopted by some technical advisors also limits women's participation in such invaluable seminars because of women's reproductive responsibilities and cultural norms that tend to constrain their movement away from the home (Hope *et al.* 2009).

The situation in most West African cities is markedly different especially as regards women's mobility and participation in the market place. While men's knowledge and information about agricultural production at the farm level is superior to women's, the latter's dominance in the marketing of farm produce accords them an edge over men in terms of access to market information e.g. supply, demand and price trends (Hope *et al.* 2009). Using this information, the women are able to advance their interests vis-à-vis male farmers in a manner that has sometimes been described by the latter – especially those whose wives are not traders – as exploitative (*ibid*.). As reported by Hope and others (2009), the women enter into informal credit arrangements with male producers whereby they pre-finance men's agricultural production which binds the men to supply their produce to the market women at predetermined prices over which the men have little say.

Regarding decision-making, the general picture presented by the literature is that of both men and women playing key but varying decision-making roles in urban agriculture. The respective roles are mostly dependent upon the production systems they are involved in, which are in turn partly influenced by social norms and cultural expectations of men and women. Thus, women tend to play the major role in decision-making involving subsistence farming which they dominate (see Dennery 1996) while men are the main decision makers in income-oriented agriculture, also their preferred enterprise. As in crop cultivation so it is in livestock keeping that men and women tend to exercise authority when it comes to

the production systems they dominate, in this case large livestock and small livestock, respectively (Ishani 2009).

Women's level of access to urban agriculture productive resources, general socio-economic status and relative autonomy are also important influences in the decision-making matrix (Dennery 1996; Ishani 2009). In her study among livestock keepers in Kisumu (Kenya), Ishani (2009) found out that women in male-headed households exercised control over small livestock; but for large livestock "Even where the woman had bought the livestock, she neither owned it nor controlled it: in such cases there was joint ownership and control" (p. 110). In contrast, female household heads owned livestock even if they had adult sons, while an increase in married women's contribution to their households' income increased their voice (*ibid*.; see also Dennery 1996). But as Dennery's (1996) study in a different urban context indicated, women's role in decision-making – whether they decided alone or consulted their spouses – was dependent upon the importance/weight of the decision to be taken, which to a great extent related to traditional gender division of responsibility as well as intra-household power relations. Yet even where women wielded considerable bargaining power – owing to their socio-economic status or asset stocks commanded and which conferred a greater role in decision-making – they still deemed it necessary to consult with their spouses even over decisions they had already made themselves, if "only to maintain good relations and keep him up-to-date" (*ibid*: 197). Men and women's decision-making responsibilities may also differ at different levels in the production chain. Studies in some West African cities indicate that men exercise control at the farm level while women make decisions regarding marketing of the produce (Gaye & Touré 2009).

The overall picture that emerges from the preceding overview of men's and women's participation in urban agriculture is one of 'women feeding cities'[6] in a context of unequal power relations and gender inequalities. Yet urban agriculture carries greater significance for many women than it is generally recognized. It is more than just an activity that "meshes well with other expected household duties" (Maxwell 1995: 1673), and that enables women to "easily (attend) to the produce if and when they have a break from other duties" (Bryld 2003: 81). Nor is it simply a burdensome activity to which women turn and get trapped for lack of good education and relevant work skills to find better opportunities, and from which they derive little personal benefits (Flynn 2001; Hovorka *et al.* 2009). On the contrary, many women seem to happily, if silently, embrace urban farming for various other motives and benefits that accrue to their participation in it (see

[6] Adopted from the title of a recent publication that sums up women's pivotal role in urban agriculture. The book explores critical gender issues in diverse urban case study contexts (see Hovorka *et al.* 2009).

Maxwell 1995; Freeman 1993; Flynn 2001; Page 2002; Maxwell *et al.* 1998; Tinsley 2003; Mougeot 2000; Dennery 1996).

Some of the benefits include the potential for economic empowerment by way of earning some income out of the activity and by safeguarding their income from other sources, which they would otherwise spend on household needs if they did not undertake farming. But in order to reap the benefits, they must reinforce or at least not challenge men's general view of urban agriculture as an activity of marginal economic value for the household (Maxwell 1995; Dennery 1996). Economic empowerment enables women to meet their reproductive responsibilities and enhances a sense of independence and status among women both within the household and in the community. Dennery (1996: 196) reports increased financial independence among female urban farmers in Nairobi as a result of which they "did not need to ask their husbands for cash to buy food or make small purchases." This contrasts with men's perception of urban agriculture in the same context when they "repeatedly said that food production was not a business" and that "the plots were too small to produce a substantial surplus" (*ibid.*). In a way this validates Maxwell's (1995) observation about how men's deficit perception of the value of urban agriculture provides women an important opportunity for manoeuvre.

By keeping women closer to their households, urban gardening also affords them the opportunity to provide proper parental care for their children. For some women, urban agriculture is also a means to capital formation necessary for entering other income generating activities as well as for building social capital by way of sharing their produce with friends and neighbours and meeting their obligations to social networks, including self-help groups and religious congregations. Some studies (e.g. Dennery 1996; Obosu-Mensah 1999; Mbiba 1995; Maxwell 1995) have also shown that due to its subsistence nature and its high dependence on female labour dictated by women's reproductive roles, urban farming, in an important way, vaults women in the vanguard of decision-making at the household level, enabling them to exercise some control over patterns of household resource use and allocation. A study of decision-making in urban agriculture in Nairobi concluded that

> At the intra-household level, conceptualization of the sexual division of labour translates into attitudes which shape the allocation of resources and producer practices. Women (…) said that because they prepare food, they know the needs of the household and, therefore, decide how much produce to sell and what food to buy. The food production activities of women also shape their expectations as to how their spouses should allocate income from non-agricultural work. One of the reasons why Joyce (one of the respondents) expects her husband to pay for school fees is because her food production efforts largely eliminate household food expenditure. (Dennery 1996: 197)

Studies in Accra, Harare and Kampala also revealed that men provided or enabled their spouses to access necessary productive resources for urban farming and ceded decision-making ground to women in terms of choice of crops and use of produce on account of women's knowledge of household food requirements (Obosu-Mensah 1999; Mbiba 1995; Maxwell 1995). Where income is gained from urban farming, women's traditional role of marketing farm produce especially in West African cities also enables them to exercise some control over the income (Hope *et al.* 2009; Gaye & Touré 2009). This does not only enhance their autonomy and bargaining power in the household, but as Ngome & Foeken's (2012) study revealed, it can also enhance women's sense of pride and self-esteem, as expressed by a female gardener who noted that the returns from her tomato garden made her feel financially better-off than a college teacher. Social networking and solidarity among female urban farmers, and related collective action for the betterment of their circumstances at the community level have also been reported (Slater 2001; Jacobs & Xaba 2008).

For all these (potential) benefits, contrary to popular opinion, urban agriculture might as well be considered, as Freeman (1993: 20) does, as a 'pro-active, constructive, and productive' endeavour for women. This projection somewhat challenges the general conceptualization of the activity as mainly a household strategy. Instead, it somehow recasts it as a uniquely women's strategy to negotiate their social and economic spaces within the household. In particular, it enables women to enhance household food security by concealing from their husbands what they make from the activity in order to draw on their husbands' support which would otherwise not be available were the latter to know the real worth of urban agriculture. This may be particularly true in situations where incomes of various household members are not pooled, as is borne out by Maxwell's Kampala respondents who

> (…) repeatedly insisted that if their husbands knew the real value of their economic activities, the result would be a lower financial contribution on the part of the husband to the costs of maintaining the household, which would increase the financial strain on women and reduce their options for maintaining food security. (Maxwell 1995: 1677)

More accurately, however, this posturing by women illustrates the complexity of the processes involved in constructing household livelihood systems and illuminates how the pursuit of gendered interests and goals by spouses underlies such processes. In particular, it shows how, "in pursuing their own economic endeavors (in conforming to traditional roles) women exploit and/or create spaces of inclusion" (Oberhauser *et al.* 2004: 207). But this also challenges the dominant view that female labour in urban agriculture is largely unrewarded and asks questions as to whether, when and in what form spouses expect to be rewarded in the first place. With regard to social aspects of gender relations, Okali (2006: 24)

suggests that the value that each gender attaches to various livelihood tasks will determine their expectations of themselves and of their spouses, noting, for example, that "Under certain conditions, wives may receive (or expect to receive) cash payment from husbands for weeding while under others, they may not". Hence, the need for greater attention to be paid to intra-household gender dynamics, beyond division of labour.

Also implied by Maxwell's Kampala respondents (and by Dennery's, referred to above) is the relative vulnerability of female household heads since they lack such opportunities for manoeuvre available to married women. Perhaps it is for this reason that female household heads are generally poorer, invest less in urban agriculture and realize lower yields than both male household heads and married women.

Since urban farming is just one of the (often) many livelihood strategies pursued by urban households (Mougeot 2000; Mbiba 2000; Nugent 2000; Flynn 2001; Simatele & Binns 2008; Lynch 1994; Dennery 1996), it is critical to further explore linkages and trade-offs between urban farming and other household livelihood strategies and how gender relations shape and are shaped by these complexes. This proposition is based on the fact that different livelihood strategies require different capabilities and endowments; are subject to different structural and institutional constraints; and derive different well-being outcomes, all of which vary between men and women. Besides, different household members may participate in different activities for different reasons, which may sometimes be at variance or even in conflict with household interests (de Haan & Zoomers 2006). This does not only affect the linkages among livelihood activities, for instance, in terms of allocation of labour, time and other resources but can also affect long-term household food security as has been illustrated by the circumstances of a female respondent in Dennery's Nairobi study:

> (…) much of Martha's time was taken up by the care of young children and procuring a small income which she uses for food and school fees. The immediate needs of the family took precedence over the longer term need to produce her own food. Martha's decision to make daily survival a priority forces her to trade-off time for food production for time selling water. Martha's ability to control her agricultural labour time is limited by her responsibilities to others" (Dennery 1996: 197).

Moreover, and as was elucidated in Chapter 1, different livelihood strategies are also governed by social constructs of gender roles, which are themselves under constant (re)negotiation in light of the dynamism of the urban environment and the opportunities and challenges it presents in comparison to the rural context.

The present study

While the gender issues highlighted above must be considered as only indicative, based as they are on a limited body of empirical research in a few contexts, they nonetheless highlight the importance of gender in urban agriculture. This study was intended to contribute to this emerging body of knowledge, using Kenya's Eldoret town as the case study.

In addition, the study recognizes that urban agriculture is just one of the many livelihood strategies that households pursue. This offers the entry point in understanding how individuals and households combine and organize their assets, activities and capabilities to construct their livelihoods and how gender relations shape these processes. It also offers an opportunity to highlight the multiple meanings (dimensions) that men and women derive from various assets, livelihood strategies and outcomes. Studies have tended to focus on urban agriculture as a stand-alone livelihood strategy without exploring how it fits within the complex web of other strategies that combine to form household livelihood systems. Moreover, little attention is focused on how these processes relate to the wider policy and institutional structures. While many urban agriculture studies present overviews of existing policy and institutional structures for farming at the city/town level, few focus on how these structures inter-relate with those at the macro (national) level and how livelihood responses adapted at the household level are not only impacted by these policies and structures but also impact them.

In addressing these issues, the study explored answers to the following question: how do gender dynamics shape the functioning of urban agriculture and the construction of livelihoods in Eldoret town, Kenya? The following specific questions delineated the scope of the study:

1. What is the contribution of men and women to urban agriculture and household livelihoods?
2. How does urban agriculture policy influence the possibility for men and women to undertake urban agriculture?
3. What farming resources are available to urban households and how does access to the resources differ between men and women?
4. What is the importance of urban agriculture to urban households and to individual men and women?
5. What are the motives and needs of men and women in urban agriculture?
6. How can urban agriculture be made more sustainable and equitable to men and women?

In answering the research questions, the data are analysed at various individual and household levels involving comparisons between: a) all males and all females; b) married males and their spouses; c) male-headed and female-headed households, and; d) female household heads and married women.